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Academic Stress and Cultural Coping: The Moderating Effect of Heritage Language Proficiency on Well-Being in a Multilingual Sample

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By

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Abstract

Coping is a set of behaviours that enable stress management. Traditional theories of coping have examined engagement coping and avoidant coping, but recent work has begun to shed light on culture-specific collective coping strategies. Collective coping varies between cultural groups, but generally helps preserve well-being and reduce psychopathology by affirming an individual's connection to the rest of their cultural group. Experiments testing this model show that collective coping partially explains the relationship between academic stress and well-being. Language plays a vital role in both the transmission and preservation of cultural information. Given the role of language and communication in regulating the flow of cultural information, one would predict that an individual's ability to engage in culture-specific coping behaviours would be affected by their linguistic proficiency in their heritage language. In summary, collective coping is theorized to mediate the relationship between academic stress and well-being, and heritage language proficiency is predicted to moderate the effect of collective coping.

To test these hypotheses, a multilingual and culturally diverse sample (n = 296) was collected from university campuses in Ontario, Canada. Participants completed a survey that included questionnaires examining academic stress, cultural coping, collective self-esteem, and subjective well-being. The survey also included short-answer questions asking participants to describe collective coping behaviours they use, and their experiences of their heritage language.

Structural Equation Modelling was used to test the model for cultural coping. It showed that collective coping mediates the relationship between academic stress and well-being/collective self-esteem (RMSEA = .055 (< .08). Structural Equation Modelling also showed that the addition of a language proficiency moderator variable fit the data (RMSEA = 0.077), and improved overall model quality. Responses to the short answer questions were qualitatively coded. The results showed that participants relied on family, spirituality, and community elders to engage in collective coping. The results also showed that participants who are proficient in their heritage language reported a sense of authenticity and connectedness with their community when afforded the opportunity to speak in their heritage language. Conversely, participants who lacked proficiency in their heritage language reported feeling a sense of embarrassment and dislocation with respect to their heritage language. The results of this project have strong implications for multicultural clinical practice and language revitalization efforts.

Dedication

This thesis is dedicated to my fiancé Rebekah

for helping me take life less seriously –

it's only life after all.

Acknowledgements

I would like to start by thanking my supervisor Dr. Ben Kuo. By allowing me the creative space to grow, Dr. Kuo helped me discover my own potential as a researcher. Dr. Kuo has always demonstrated keen and authentic interest in my work, spurring me along and making me feel like my work is worthwhile.

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I would also like to thank Dr. Marisa Brook and Dr. Naomi Nagy from the Linguistics Department at the University of Toronto. Data collection only occurred at UofT thanks to the generous support of Drs. Brook and Nagy, who kindly recruited participants from among their undergraduate students.

I would also like to thank my family for their supplementary supervision, enduring love, and endless support – the apple doesn't fall far from the tree. Lastly, I would like to thank my fiancé Rebekah for connecting me to my roots and stoking my excitement for the future – I may be lost, but I won't be far – keep me close.

Table of Contents

1.0 Introduction

Cultural minority communities face a unique combination of stressors that do not affect those from majority groups. This collection of stressors affects a diverse range of minority communities in many different ways, but they all share a common thread by contributing to decreased psychological well-being for racialized individuals and communities (Harrell, 2000). For example, the stress from exposure to racism and police brutality among people of colour in the United States has been shown to cause a measurable decrease in mental health among these groups (Bor et al., 2018). Additionally, the stress from microaggressions and ostracism experienced by Korean immigrant populations in Canada has been shown to lead to decreased positive affect and increased depressive symptoms (Noh et al., 2007). Overall, these examples demonstrate how these unique stressors affecting cultural minority communities partially account for the higher prevalence of mental health concerns in these populations (Chou et al., 2012). Given Canada's diverse cultural, racial, and linguistic constitution (Statistics Canada, 2017), it is imperative to understand the psychological and systemic mechanisms contributing to the aforementioned disparities in well-being, and psychological health in these populations.

In order to help understand the mechanism underlying the gap in mental health for individuals from minority groups in Canada, this study aims to further explore and illuminate how cultural-minorities cope with stress. The present research project has several objectives. The first primary objective of this project is to determine the robustness of a cross-cultural model for coping by replicating the methodology developed in Kuo et al. (2018). In Kuo et al. (2018), the study compared various forms of coping strategies in responding to academic stress across different cultural groups (see below for more details). Overall, this study is foundational to this current

project as it attempts to establish an empirically validated model for coping in culturally diverse populations. This study is also important as it presents a viable and replicable methodology.

This attempt to determine if the Kuo et al. paper replicates will serve two purposes. The first purpose is to verify and validate the findings of the original paper by Kuo et al. (2018). Replicability is vital to the validity of theoretical models. This is particularly relevant in light of the Replication Crisis, which refers to an ongoing methodological issue in the field of psychology and other fields of academia, in which landmark research findings have been shown to be difficult or impossible to reproduce (Shrout & Rodgers, 2018). For these reasons, it is important to re-evaluate the foundational model for this project. A second benefit to conducting a replication study, as described below, is that it will offer a 'baseline' point of comparison to test against any further changes (e.g., improvement) to the original model. Without first replicating the Kuo et al. study, it would be difficult to isolate for the effects of any new variables introduced to the model. To address this issue, this project replicated the methods and analyses from the study by Kuo et al. (2018) and evaluated whether the addition of a moderator variable (language proficiency) improved model fit.

While the model presented in the Kuo et al. paper offers one explanatory framework for the mechanism of coping with academic stress among ethnically diverse university students, it did not explore the preconditions for effective coping. In other words, the Kuo et al. paper did not explore why certain individuals are more or less likely to engage in effective coping behaviours. In light of this observation, another primary objective of this project is to better understand how preconditional variables, such as language proficiency in one's heritage language affect access to certain coping behaviours, thus moderating the effect of coping in cultural-linguistic minority populations. Language is vital to the transmission and preservation of cultural information,

particularly among immigrant and racialized populations (Graham, 1997; Koven, 2007; Williams et al., 2020). For this reason, language was specifically examined to determine if certain coping strategies deployed within cultural minority groups are contingent upon language acquisition, proficiency, and integration.

In addition to theoretical implications, language proficiency is also expected to have novel clinical significance. More specifically, adequate support and revitalization of minority languages are predicted to be a benefit to the mental health of its speakers (Graham, 1997). This work is therefore meant to be directly applicable both to clinicians and educators in addressing issues related to intergenerational transmission of heritage and minority languages among immigrants and other cultural-linguistic minority communities.

In order to expand clinical applicability, another objective of this project is to catalogue and document coping behaviours used by culturally and linguistically diverse individuals in certain stressful contexts. The concept of 'collective coping' will be defined and elaborated later in this proposal, but in short, it refers to a distinctive pattern of stress-coping behaviours used primarily in an interpersonal and socially interdependent cultural environment[1]. For this specific objective, this study aimed to qualitatively uncover examples of collective coping behaviours, examples of the circumstances that might elicit collective coping, the subjective experience of collective coping, and the perceived effects of language proficiency on one's ability to engage in collective coping. Open-ended questions were used to further probe into the role of heritage language proficiency and the experiences of social integration in affecting participants' coping processes. These qualitative data were collected and analyzed with thematic analysis according to the procedural recommendations of Braun and Clarke (2006). Overall, this component of the study

[1] Collective Coping, along with Avoidance and Engagement Coping constitute Cultural Coping.

will help clinicians understand some of the experiences associated with collective coping behaviours. By documenting and analyzing these experiences, clinicians will be better informed to help patients from collectivistic cultural backgrounds access their own collective resources and manage life stressors.

In summary, the project objectives stated above can be distilled into three general guiding questions: 1) Can models of cultural coping with academic stress be replicated in a multi-lingual undergraduate sample, 2) Can the model be theoretically and statistically augmented by accounting for linguistic proficiency, and 3) What collective coping behaviours are being deployed, and what is the subjective experience of the effect of language proficiency on collective coping? By answering these guiding questions, this project is intended to help researchers, and clinicians, along with patients from cultural-linguistic minority communities. As such, this project will be a benefit to research in cross-cultural psychology and linguistics by advancing the theoretical understanding of coping in the context of interdependent self-construal, and by shedding light on the downstream effects of intergenerational transmission of heritage languages among multilingual undergraduate students. This project may be useful to clinicians working with culturally diverse populations by isolating possible barriers to collective coping, by documenting the diversity of collective coping experiences, and by studying the health implications of collective coping. Lastly, the findings of this project benefit individuals from cultural-linguistic minority communities, particularly with respect to advocating for the importance of intergenerational transmission of culture and language in the context of mental health and well-being.

2.0 Literature Review

This project is at the junction of cross-cultural psychology and sociolinguistics. As such, an understanding of the background literature in both camps will be necessary. The impetus for this project was a study conducted by Kuo et al., (2018), testing the effects of academic stress on subjective well-being and collective self-esteem in a multicultural undergraduate sample. In that study, the authors examined three cultural coping methods (engagement coping, avoidance coping, and collective coping) and assessed if they mediate the relationship between academic stress and psychosocial well-being outcome variables. Since the present study will be testing the model from the Kuo et al. (2018) study, it will be necessary to review the literature that underpins each variable in the original study. Therefore, the following sections will provide a review of stress and academic stress (2.1); foundational theories of coping (2.2); the cultural context of coping (2.3); collective coping (2.4); and subjective well-being, with an emphasis on the constructs of satisfaction with life and Collective Self-Esteem (2.8).

In addition, a critical aspect of this present project is to determine the role and influence of language proficiency as a moderator of collective coping. In order to achieve this, a review of relevant linguistic theories pertinent to this research will be surveyed. This will include defining language as a transmitter of culture and ideology (2.5); understanding the reciprocal relationship between language, cognition, and culture (2.6); and understanding the psychosocial role of language as a means of accessing cultural infrastructure and support (2.7).

2.1 Conceptual Review of Stress and Academic Stress

Theories of Stress. Stress is an adaptive behaviour with a rich body of supporting literature. Early theoretical models focused on stress as a biological adaptation to environmental change. Hans Selye's model of stress (1956) conceptualizes stress as a 3-phase pathway

experienced by a wide variety of organisms, including, but not limited to humans. In Selye's model, organisms experience a progression of responses in the wake of certain types of environmental changes. First, an organism will experience a shock phase where a stressor/environmental change is sensed, and the sympathetic nervous system is excited. If the stressor does not subside, the organism enters the resistance phase, where resources will be reallocated to mitigate the deleterious effects of the stressor. While these adaptations can help manage the environmental changes presented to the organism, these adaptations make the organism more vulnerable to damage from other stressors. If the stressor persists, the organism will enter the exhaustion stage, whereby irreparable damage will occur. Overall, Selye's model offers a broad understanding of stress as a biological process experienced by all animals. Despite the theory's cross-species applicability, it lacks nuance and details necessary for a useful theoretical model for describing stress in humans (Lazarus, 1966).

In response to physiological theories, the Lazarus theory of stress presents a cognitive framework to explain stress and stress coping behaviours in humans (Lazarus, 1966). In Lazarus' Transactional Theory of Stress Coping (TTSC), stress is conceived as a process dependent on appraisal and coping. In order for stress to be experienced, first a stimulus must be perceived and appraised as personally relevant and harmful to one's well-being. In addition to stress appraisal, the stressful stimulus must be determined to be a burden in relation to a person's available coping resources. While this judgement may or may not be accurate, it is precisely the perception of a stressor's intractability relative to coping resources that makes it distressing. The TTSC is considered to be a 'transaction' between a person and their coping resources relative to their environment and its associated stressors. This, along with the central role of stress-appraisal differentiate the TTSC from Selye's model.

The TTSC is similar to Selye's theory, as both models incorporate a fundamental recognition that stressful stimuli are persistent, that they deplete resources, and that they can be harmful to well-being and health if they are unresolved. While the Selye model is not inaccurate, it does not explain how the objective experience of stress is transformed into the subjective and emotional experience of distress (Krohne, 2002). Furthermore, the Selye theory does not account for the mediating effects of coping (Krohne, 2002). For these reasons, despite being over 50 years old, the TTSC continues to be a major theoretical foundation for stress and coping research (Obbarius et al., 2021).

In the absence of effective coping, stress can lead to numerous implications to physical health, mental health, and development. The effect of stress on physical health can occur through direct or indirect pathways (Shankar & Park, 2016). Direct pathways involve stressful stimuli causing increased activity in the Hypothalamic-Pituitary-Adrenal (HPA) axis. These physiological changes can lead to increased Cortisol, increased arousal and vigilance, and decreased immune function (Dickerson & Kemeny, 2004). Indirect pathways involve the effects of stressful stimuli on health behaviours. Increased stress can lead to disturbances in sleep (Wiklund et al., 2012), physical activity, and food consumption (Michels et al., 2015), leading to negative health effects. In university students specifically, increased student stress has been linked to increased substance abuse, also contributing to worse health outcomes (Park, Armeli & Tennen, 2004). Overall, the effects of stress, academic or otherwise, have been shown to lead to negative physical health outcomes.

Increases in stress can also lead to disturbances in mental health and global psychological function. Previous work has demonstrated that increased stress can exacerbate symptoms of anxiety and depression (Morris et al., 2010). The deleterious effect of stress on mental health also

functions through direct and indirect pathways. Like the effects described previously, increases in stressful stimuli increase activation of the HPA axis, which can lead to increased psychological arousal and reactivity (Dickerson & Kemeny, 2004). These physiological changes are in-line with the perceptual experience of stress-sensitization described by Morris et al. (2010). The stress-sensitization hypothesis posits that increased exposure to stress over time can increase a person's vulnerability to subsequent stressors, thereby increasing symptoms of psychopathology. This theoretical framework implies that stress does not occur in a vacuum, and that the effects of past stress can compound, thus increasing the negative effects of future stress. This additive effect can make it increasingly difficult to cope with future stress as coping resources are depleted. This theoretical approach is commensurate with the broad definitions of stress previously established by Selye (1956) and Lazarus (1966). In all three instances, the experience of stress hinges on sustained change that depletes a person's resources and ability to cope. In summary, stress can be an adaptive advantageous response to harmful stimuli. That said, an overabundance of stress can outpace one's coping resources, leading to negative effects. The negative effects of stress are particularly harmful to individuals' well-being, as they permeate and compound across physiological and psychological domains, leading to a range of negative effects across domains of health.

Academic Stress and Coping Response. In addition to its effects across domains of health, stress can be induced in a wide variety of situational contexts. The academic context is no exception, offering many opportunities for students to experience stress. While the nature of academic stress can vary widely from performance anxiety (Vanstone & Hicks, 2019), to educational achievement pressure (Bossy, 2000), it can all be understood within the framework

provided by the TTSC[2]. Academic stress can be understood as a persistent academic stimulus that is appraised to be threatening to subjective well-being. Furthermore, the stimulus must be perceived to be beyond one's ability and resources to effectively cope (Salmela-Aro et al., 2009).

Like other forms of stress, academic stress is definitionally dependent on its relationship to coping resources. Coping mediates academic stress by transforming or blocking its effects. Previous work has shown that coping behaviours play an important role in mediating the relationship between academic stress and academic performance (Struthers et al., 2000). Coping behaviours have also been shown to mediate the relationship between academic stress and various health outcomes, including immune function (Sarid et al., 2004), life satisfaction, and psychopathology (Suldo et al., 2008). Overall, coping plays a crucial role in mediating the effects of academic stress, confirming that it follows the same principles as other types of stress. In other words, academic stress is stressful *because* it outstrips one's coping resources.

2.2 Theories of Coping

The relationship between stress and well-being is a complex pathway involving individual, and culture-specific coping strategies. Traditional theories have defined coping as any cognitive or behavioural process that reduces or otherwise mitigates the internal and external effects of stress on an individual. (Lazarus & Folkman, 1984). In essence, coping is a set of cognitions and behaviours that enable stress management. When a stressful stimulus is appraised to be sufficiently threatening, the stress-coping response system is initiated. The stress-coping response system is predicated both on one's environment (external), and personality (internal) characteristics (Folkman & Moskowitz, 2004).

[2] Although Academic Stress is closely related to the construct of Academic Pressure, only the former will be included, due to the theoretical context of the study (TTSC), and the need to test a parsimonious model.

The goal of coping is to reduce emotional distress triggered by the appraisal of significant stress. Under the framework popularized by Lazarus and Folkman, coping can reduce distress by one of two principal strategies: engagement coping, and avoidance coping (Folkman & Moskowitz, 2004). Engagement coping aims to reduce distress by targeting and reducing the impact of the stressors that are contributing to feelings of distress. Engagement coping may include making a plan to manage the source of stress, and then carrying out that plan (Folkman & Lazarus, 1980) Contrastively, avoidance coping aims to reduce distress by directly targeting and reducing feelings of distress. This is theoretically achieved by removing oneself from the field of the stress, thus side-stepping the need to directly interact with stressful stimuli. In practice, avoidance coping may include self-distraction and redirection, substance use, cognitive/emotional suppression, etc. (Folkman & Lazarus, 1980).

For over 40 years, engagement and avoidance coping have served as the empirical and conceptual bedrock of coping theory and research. Several attempts to further refine and subdivide avoidance and engagement coping styles have been met with moderate success. For example, Billings and Moos (1981) attempted to parse engagement coping into active-cognitive (cognitive reframing, problem solving), and active-behavioural (actions taken to reduce stress) components. Another attempt to classify coping involved adding additional principal coping strategies to the existing selection, such as ‘meaning coping’. Park and Folkman (1997) described meaning coping as a reconceptualization and reappraisal of stressors. To reconceive one’s relationship to a stressor, fundamental beliefs and goals must be revised and reinterpreted. This was particularly relevant for long-term stressors like chronic illness, where avoidance coping was unsustainable, and engagement coping was impossible.

The appraisal and mechanics of stress-coping is not limited to individuals - coping can be conceived from the perspective of multiple individuals. The core proposal of the Systemic Transactional Model (STM) is that the TTSC, as pioneered by Lazarus (1966), can be extrapolated to couples (dyads) and larger family systems (Bodenmann et al., 2019). For example, during periods of stress, both members of a dyad might engage in coping to reduce collective distress. The concept of dyadic/systemic coping presupposes that stress will be appraised across multiple individuals, and that stress can have a rippling effect through a social network. The collectivization and ripple effects of stress can occur through stress-spillover or stress-crossover (Bodenmann et al., 2019). Stress-spillover occurs when an external stressor induces stress within the dyad or family system (Bodenmann et al., 2007). For example, stress at an individual's job might result in marital stress for the individual and their spouse. Stress-crossover, on the other hand, occurs when one person's stress induces stress in another individual in a dyad or family system (Neff & Karney, 2007). Stress-crossover occurs whenever an individual feels stressed *on behalf* of their stressed spouse. Stress-spillover and crossover are similar in that they both presuppose an *interdependent* conceptualization of stress. An individual's stress does not occur in a vacuum, rather, it impacts the lives of loved ones and attachment figures. Stress-spillover and crossover also differ in certain respects. Stress crossover, unlike stress-spillover, is dependent on the function of empathy in interpersonal relationships. Stress-crossover can only occur if an individual identifies with their loved one and re-experiences their partner's stress from their partner's perspective. Stress-spillover, on the other hand, can occur regardless of interpersonal perspective-taking, as is all too common in instances of the displacement defense mechanism (McWilliams, 1994).

In a functional dyad or family system, the partner of the stressed individual may engage in a unique set of coping behaviours in response to stress-spillover or stress-crossover. These coping

behaviours may include active engagement coping (collaborative problem solving), and empathic responding (validation and emotionally attuned support). A meta-analysis by Falconier et al., (2015) demonstrated that couples who engaged in dyadic coping strategies reported higher relationship satisfaction. This empirical assertion meshes with theoretical frameworks suggesting that stress will be collectivized in the context of the dyad. Dyadic stress can be further divided into supportive dyadic coping, and common dyadic coping (Bodenmann et al., 2019). Supportive coping is when one individual supports the other individual's independent coping strategies. Contrastively, common coping is when an individual's stress is collectivized and managed by both members of the dyad. Common dyadic coping is particularly interesting, as it transcends the individual, proving that coping is not strictly an internal individual process. These observations ultimately highlight the critical interactional and interpersonal nature of the coping process. They underscore the importance of considering social, cultural, and contextual factors in conceptualizing, assessing, and studying coping behaviours.

2.3 The Cultural Context of Coping

Subsequent extensions to Lazarus and Folkman's original model of coping have focused on coping strategies that depend on collective groups rather than individuals. Work by Markus and Kitayama (2010; 2003; 1991) emphasize the significance of cultural interdependence and collectivism for certain groups in the cross-cultural context. To better capture cross-cultural typology, the authors defend the construct of an Independence-Interdependence axis. The Independence-Interdependence axis helps describe the way in which the Self is defined and affirmed with respect to the group (Markus & Kitayama, 1991). In an Independent cultural context, the self is construed as distinct from the group, and affirmed by the experiences of one's autonomy and pride for the individual. Conversely, in an Interdependent cultural context, the self is construed

as integrated with the group, and affirmed through the experiences of one's connectedness to and reverence for others in the ingroup. The Independence-Interdependence axis has a bearing on individuals' behaviours and psychological functions (Fiske et al., 1998), including cross-cultural contrasts in the experience of emotions (Kitayama et al., 1995), self-construal (Markus & Kitayama, 1991), interpersonal relationships, morality, identity, and more (Markus & Kitayama, 2010). Overall, the literature points toward cross-cultural variations in the independence-interdependence axis, which have far-reaching consequences for cognition and behaviour.

In order to specify cultural constructs like Markus and Kitayama's dimension of cultural independence-interdependence, it is first necessary to fix an operational definition of culture. Contemporary theory tends to agree that (i) culture is a system of knowledge, beliefs, and behaviours shared by a group of people, (ii) all cultures are equally valuable or important, (iii) cultural systems are constructed by and transmitted among those who use it, and (iv) cultural systems consist of material and immaterial components (Avruch, 1998; Spencer-Oatey & Franklin, 2012). Material culture refers to the physical manifestations and creations of a group of people (Schein, 1990). Although material culture can be identified by an individual from outside the cultural group, its signified meaning will only be visible to an individual inside the cultural group (Hofstede, 1991). Conversely, immaterial culture refers to the values, assumptions, epistemologies, ethics, and ontologies unique to a cultural group. Immaterial cultural is purely conceptual and ephemeral, though just as Real as material culture, existing within the collective minds of the individuals constituting the cultural group (Schein, 1984). While material culture will not be relevant to this project, examples of immaterial culture, like the independence-interdependence scale, along with collective coping behaviours and language will be highly pertinent. Although cultural systems have many facets, immaterial culture will be the focus of

subsequent discussions, due to its tendency to interface directly with linguistic and psychological systems (Ferraro, 1998)[3].

The Cultural and Contextual Model of Coping (CCMC) proposed by Heppner et al., (2014) attempts to reconcile the traditional stress-coping model (Lazarus & Folkman, 1984) in light of cross-cultural research, demonstrating the effects of cultural influences and contexts on psychological processes (Markus & Kitayama, 1991). Unlike previous conventional stress-coping models, the CCMC assumes that coping is best examined within a cultural matrix (Cheung, 2000; Chun et al., 2006). The main thrust of the CCMC postulates that stress-coping must be understood in terms of individual factors, and environmental/cultural factors. By addressing both intra- (individual) and inter-dependent (cultural) systems, the CCMC strives for better ecological validity compared to previous coping models. This is achieved by going beyond individual factors and incorporating critical contextual factors. See Figure 2.1 in Appendix A for a comprehensive depiction of the CCMC from the original study.

The CCMC organizes the process of coping into 5 domains (A-E) that collectively predict the outcomes of stress-coping. Domains A and B represent the circumstantial and dispositional variables associated with an individual experiencing stress. Domain A represents individual variables such as personality, and demographic characteristics, while domain B represents environmental variables including attachment figures, interpersonal relationships, and cultural context. Domains A and B both contribute to an individual's experience of stress, their success at coping, and their overall health outcomes as a result. Note that domains A and B are distinct but transactional. This approach represents an ecologically valid model (Goerner, 2014), viewing the individual as both independent from and interdependent upon other individuals in their social

[3] Note that subsequent uses of the word 'culture' will refer to 'immaterial culture'.

system (Eidelson, 1997). In this way, both individual and environmental factors play unique roles in the coping process, while affecting one another. In other words, individual × environment interactions play a reciprocal role in coping behaviour and health outcomes.

Domains C, D, and E represent the remaining components of the CCMC, roughly following the outline from Lazarus and Folkman's model, with some notable additions. Domain C represents the different types of stressors appraised by an individual. These stressors may be circumstantial, like academic, relational, or financial stress. Stressors can also be systemic, such as the stress of oppression due to race, gender, religion, etc. Domain D represents the set of coping behaviours a person can use to help reduce distress as a result of stress. It also includes the stress appraisal process, and other aspects of the coping system. Finally, domain E represents the impact of the coping system, which manifests as health outcomes. The effects of increased stress and insufficient coping consequently result in worse psychological (Moskowitz et al., 2009) and physical health (Duangdao & Roesch, 2008).

One of the unique aspects of domain D of the CCMC is that it emphasizes the role of context and cultural environment in regulating coping. Differences in cultural values bear important implications that dictate whether a stressor is consciously registered or appraised to be salient. For example, one would predict that conflict between a parent and child would be more stressful in a cultural environment where self-esteem and construal are contingent on the quality of interpersonal relationships and the perception of connectedness. Conversely, one would predict that feelings of personal failure and incompetency would be more stressful in a cultural environment where self-construal and esteem depend heavily on affirmations of self-reliance, mastery, and agency. Overall, the CCMC plays an important role in the present research project

by offering a theoretical framework that cohesively knits cultural context into the TTSC, which ultimately allows for cross-cultural comparisons of coping.

2.4 Collective Coping

Another unique aspect of Domain D of the CCMC is that it posits that the coping behaviours at a person's disposal are partially conferred by cultural context. Domain D includes engagement and avoidance coping – coping methods that were previously hypothesized in the literature (Lazarus & Folkman, 1984); however, this domain also includes culturally congruent coping strategies, a concept not discussed by Lazarus and Folkman. Culturally congruent coping strategies refer to the set of culturally acceptable and scripted behaviours deployed by individuals in stressful situations. This implies that cultural context helps to construct what it means to engage in 'coping' (Heppner et al., 2014). In this vein, constellations of culturally congruent coping behaviours have been identified in light of the independent-interdependent axis identified by Marcus and Kitayama (1991).

Collective coping is a prominent example of culturally congruent coping, being found within cultural contexts that foster high levels of interdependence (Wong et al., 2006). Collective coping specifically refers to a subset of coping behaviours used to mitigate and dampen the effects of stress in certain cultural contexts. Collective coping behaviours differ from other types of coping by promoting interconnectedness, group harmony, and interdependent self-construal (Yeh et al., 2006a). This is in contrast to engagement and avoidance coping behaviours, which emphasize autonomy and an individualistic self-concept.

For instance, Africentric coping represents a prototypical example of collective coping within the African American cultural context (Utsey et al., 2000). Africentric coping presupposes that African American communities share a set of homologous cultural beliefs and practices with

West and Central African communities (Hollaway, 1990). Examples of shared Africentric cultural artefacts include an emphasis on spirituality and a connection to the elements of nature. Africentric coping is ultimately derived from the Africentric worldview, where everything in the universe is interconnected, and individuals are extensions of the environment. Since all individuals are an extension of the same interconnected system, cooperation and group identity become paramount, as does the role of the collective unconscious (Jackson & Sears, 1992). For this reason, the collective unit is the most fundamental component for support and coping. An example of Africentric coping is the practice of group-centred coping behaviours, which involve bringing together friends and family during periods of stress. Another example of Africentric coping is the practice of ritual-centred coping behaviours, which require the performance of rituals that focus on the significance of ancestors and deities in one's life. In both examples, stress-coping is achieved by affirming the interconnected nature of the self and promoting group identity. Africentric coping ultimately demonstrates that coping behaviours closely mesh with the cultural contexts in which they are found. In order to properly understand a coping behaviour, one must first understand the cultural backdrop surrounding that coping behaviour.

Given the importance of understanding the relationship between cultural context and collective coping, researchers have documented a broad range of collective coping dimensions that relate to collective coping behaviours and to a theoretical backdrop of cultural interdependence. These dimensions include the following*: Family Support, Respect for Authority, Intracultural Coping, Relational Universality, Forbearance, Social Activity,* and *Fatalism* (Yeh et al., 2006a). Note that these 7 dimensions do not represent a means of neatly categorizing various collective coping behaviours. Rather, they represent a set of themes that have been observed in the collective coping literature. A collective coping behaviour could be described by any combination of these

dimensions, or none of these dimensions. In essence, these dimensions represent a broad attempt to understand collective coping, and they are neither mutually exclusive, nor exhaustive.

Family Support is understood to be central to collective coping (Yeh et al., 2006a). This is in-line with theoretical work showing the importance of family for self-construal in collective cultures. If the family is important for self-construal, it follows that the family would be a critical source of ego-strength and would therefore be an indispensable base for comfort and support in times of distress (Daly et al., 1995). Based on this theoretical understanding, one would predict that individuals living in a collectivistic cultural context would draw heavily on family support during times of stress (Yeh & Wang, 2000). This theoretical prediction is affirmed by research across many interdependent cultures, that all focus on the role of the family as a buffer for stress (Yeh et al., 2006a). Cultures that endorse higher levels of interdependence typically place more value on family support (Yeh et al., 2001), and rely on family members during times of stress above and beyond non-family members (Yeh & Wang, 2000). These findings ultimately show that the family plays a particularly critical role in the stress coping mechanism in an interdependent cultural context.

The role of family support in collective coping is closely related to the role of family elders and ***authority figures*** (Yeh et al., 2006a). As a result of interdependent self-construal, individuals within a collectivistic cultural context will be more likely to sacrifice personal goals for the sake of the group (Triandis, 1995). This can result in heightened reverence for that which embodies the group as a whole. This will often entail paying more respect to community elders and authority figures. In keeping with this prediction, research has shown that individuals in an interdependent cultural context are more likely to seek out the counsel of community elders during times of stress or sickness (Sue & Sue, 2003), and will typically seek out Western interventions only if

indigenous/non-Western treatments failed (Bemak & Chung, 2000). These findings show the importance of authority figures to collective coping. Self-identity is often derived from group-identity in interdependent cultures. It therefore follows that stressed individuals would gain the most comfort from those members that best represent the group as a whole.

Intracultural coping refers to the collectivization of stress within an interdependent community. More specifically, intracultural coping refers to the supportive networks created between community members who are part of the same cultural in-group (Yeh et al., 2006a). Note that this dimension of collective coping is similar to family support, but is broadened to the cultural system rather than the family system. According to Wong (1993), intracultural coping extends beyond the scope of social support; it is not merely the group supporting a stressed individual in their independent coping strategies. Rather, it represents a mounted coping effort in response to the appraisal of collectivized stress. Overall, intracultural coping represents an important facet of the collective coping system, representing both the appraisal of collectivized stress, and the collective-group response to stress.

Relational Universality is another dimension of collective coping discussed by Yeh et al. (2006a). The perception of shared experience is thought to be an important aspect of collective coping. In other words, alienation of the self from the larger social group is particularly challenging in an interdependent cultural context, since it blocks effective collective coping. The importance of agency and internal locus of control is de-emphasized in collectivistic cultures (Morling & Fiske, 1999). Instead, collectivistic cultures emphasize interconnectedness, and external locus of control. Overall, the perception of shared experience among other members of the in-group are important for collective coping, as they help foster a sense of connectedness, and help validate the relational self (Yeh et al., 2006a).

Another dimension of collective coping comes in the form of ***forbearance*** (Yeh et al., 2006a). In cultures that value interdependence, the appraisal of personal stress has the undesirable effect of disrupting social harmony. For this reason, individuals experiencing stress in an interdependent cultural context may consciously restrain from sharing their feelings of stress with others for the sake of maintaining social harmony. This method of stress coping is highly congruent with many interdependent cultures, being used commonly in China, where it is thought to be a morally conscientious and commendable coping method (Yue, 2001).

Social Activity is another cross-culturally validated dimension for collective coping. As mentioned by Morling and Fiske (1999), interdependent cultures tend to deemphasize internal locus of control, instead ascribing agency to the social group, and emphasizing the role of social connectedness and harmony. An outcome of this theoretical framework is that social activity can be reconceived as a type of collective coping behaviour. Not only do people from collectivistic cultures (East Asian, Latino, African American, etc.) engage in more social activity, but this social activity is often used in direct response to stress in order to help decrease its effects (Conway, 1985; Daly et al., 1995). Furthermore, social activity has been found to have a greater impact on stress coping among individuals from collectivist cultures compared to those from individualist cultures (Dunkel-Schetter et al., 2001). Overall, these findings show that in interdependent cultures, social activity fulfills a role that supersedes that of social support. In an interdependent cultural context, social activity has the power to act as a form of coping in its own right.

Fatalism is the final dimension of collective coping discussed by Yeh et al. (2006a). As discussed previously, internal locus of control is deemphasized in interdependent cultures. Instead, Morling and Fiske (1999) propose that interdependent cultures centre *harmony control*, which refers to a process whereby agency is ascribed to the environment, to the social order, and to

spiritual higher powers. For this reason, some collective coping behaviours are related to a sense of luck, fate, and spirituality. Many collective coping behaviours involve an individual's relationship with higher powers that transcend humanity and the world. Fatalistic and spiritual forms of collective coping have been discovered in a wide range of cultural contexts from Africa to East Asia, being used to cope with stressors ranging from daily problems (Daly, 1995) to the death of a loved one (Yeh et al., 2006-b).

The 7 dimensions described above represent common characteristics that link cross-cultural theory to collective coping behaviour. From a theoretical perspective, collective coping operates at the interface of the coping system and the independence-interdependence axis of self-construal. At its heart, collective coping allows the interdependent self-concept (Marcus & Kitayama, 1991) to inform the stress-coping system (Lazarus & Folkman, 1984), allowing for coping behaviours that are congruent with a person's cultural context, and self-concept (Heppner et al., 2014). Overall, collective coping is essential to understanding the process of stress-coping and mental health in cultural-linguistic minority communities across Canada. For this reason, in this study, collective coping will be carefully examined and explored with both a quantitative coping measure, and open-ended questions.

Collective coping is one component of the CCMC, which aims to describe the stress-coping mechanism in a cross-culturally informed manner. As of yet, the CCMC has been informative in explaining the stress-coping system as a culturally contextualized process, but despite its utility, it does not attempt to explain the barriers that challenge an individual or community's ability to perform collective coping behaviours. The 7 dimensions described by Yeh et al. (2006) imply that community support and interpersonal connectivity are indispensable ingredients for collective coping. This would mean that any limitations to communicative fluency and social cohesion would

likely have the power to block an individual or community from engaging in collective coping. It therefore stands to reason that the ability to competently communicate with interlocutors from one's cultural in-group constitute a critical pre-condition to the effectiveness of collective coping. In summary, linguistic proficiency in one's heritage in-group language is hypothesized to moderate the effect of collective coping by facilitating social interaction when proficiency is high, and posing a barrier to social interaction when proficiency is low.

A wealth of literature has pointed toward linguistic competency and integration as a relevant variable in interpersonal relationships (Itzhak et al., 2017). In a medical context, a mismatch between physician and patient language has been shown to be associated with poor rapport, and biased perceptions that patients were exaggerating symptoms (Miner et al., 2006). Conversely, a good match between patient and physician language was associated with lower pain perception from the patients' perspective (Mustajoki et al., 2015). Overall, Itzhak et al. suggests that these findings stem from the feelings of connectedness that emerge when linguistic differences and barriers are dissolved between patient and clinician. These findings by Itzhak et al. (2017) show that linguistic proficiency moderates patient access to medical resources. More generally, these findings suggest that language proficiency might have the ability to moderate the accessibility of any resource that involves significant interpersonal communication. Given the critical role of interpersonal communication in collective coping (Yeh et al., 2006a), the research presented in Itzhak et al. (2017) implies that linguistic proficiency could moderate the effects of collective coping. Despite the adjacent literature examining language barriers to social relationships, currently little to no research has been conducted specifically examining the impact of linguistic proficiency on collective coping. For this reason, a language proficiency variable will

be added to the existing model in Kuo et al., (2018), with the aim of better understanding potential barriers and facilitators of collective coping.

In order to fully elucidate the role of heritage language and heritage linguistic proficiency in collective coping, it will be necessary to define language. Such clarification will hopefully explain how language is capable of containing and transmitting cultural information. If language constitutes the interface of cultural communication, the existence of language barriers would be hypothesized to disrupt any interdependent population engaging in collective coping behaviours. It is speculated that if the flow of cultural information is restricted at any point in the network, the effectiveness of collective coping will ultimately be impeded.

2.5 What is a language

"A language is a dialect with an army and a navy" (Weinrich, 1945).

Throughout the evolution of linguistics, academics have attempted to refine the definition of "Language". Early attempts to define language centered around an authoritative reference, like a centre of power, or a governing body to determine what constitutes proper language (Jaffe, 1999). The *Académie Française* in France, for example, continues to embody this vestige of prescriptivism – helping further the notion that there is correct usage of language, and myriad incorrect usages. Institutions like the Académie Française believe it is imperative that an enlightened society keep language in an ideal state, lest it degrade to an inferior form (Ayres-Bennett & van Ostade, 2016).

In the mid 20th Century, post-modernist theory percolated into linguistic theory, helping to shape the modern field of linguistics. In modern linguistics, no language can be determined to be ideal relative to other languages, nor any speaker superior to other speakers. Therefore, it is not the job of researchers to guide or police language change. Rather, it is incumbent on researchers

to describe the natural change and variation between language speakers without prescribing how they ought to speak, and without passing judgement as to what constitutes "good language" (Chelliah & Willem, 2010).

At its core, a language is a system of communication shared between a group of people. This conceptualization of language was first articulated by Ferdinand de Saussure, who postulated that a language is a system of signs, whereby physical, social, and psychological structures are mapped to abstract representations or signs (Saussure, 1995). In other words, this framework casts 'language' as a system of signs that pair a concept (physical, social, or psychological) with an acoustic or visual form that signifies the signified concept. Therefore, unlike other means of communication, linguistic signs are arbitrary and do not reflect any underlying attributes of the signified concepts. Finally, a language can be said to be a *system* of signs, and not merely a list of signifier-signified pairings and grammatical rules. This assertion is grounded in Saussure's rule of Relationality. This rule establishes meaning as more than just a pairing of physical forms with abstract concepts. The meaning of word forms is supplied not only by abstract concepts, but by the relationship between a given word and other words in the language. For example, the definition of the English word "Cold" is often understood in relation to its opposite "hot", or "the absence of heat". By proposing a model of language that interlinks signifiers in relation to one another, language can be understood as a complex system of interlinking signifier-signified pairings, and not merely a lexicon and list of phrase construction rules (Susen, 2018)[4].

Language is also an inherently social behaviour that arises out of necessity. If multiple people believe they are able to interpret each other, they can be said to speak the same language.

[4] The arbitrary and relational nature of linguistic systems allows for creativity and generativity that go above and beyond the expressive potential of non-linguistic communication (O'Grady & Archibald, 2015), hence this project's specific focus on language, as opposed to *non-grammatical* methods of communication.

This principle is best exemplified in rare cases of spontaneous language genesis (Senghas et al., 2014). In 1977 in Nicaragua, a school for deaf children was established. The children had no prior Sign-Language education, and had each independently developed cursory gestures, or *homesigns* with their respective families. At school, the teachers were attempting to instruct finger spelling, but they noticed that the children were not using finger spelling to communicate with each other at recess, but instead were merging their *homesigns*, and using their own Pidgin Language (Senghas et al., 2014). The students were creating an ever-increasing inventory of signs that all the students were using to communicate.

When younger cohorts of children began at the school, they rapidly adopted the older children's signs, and began an exponential effluence based on the original signs, adding variations to show inflection (semantic nuance and grammatical specificity). In under a decade, Nicaraguan Sign Language, as it came to be known, was a fully-fledged language with thousands of words, and a complex systematic grammatical system on-par with any other recognized language. The case of Nicaraguan Sign Language demonstrates the profoundly innate drive to create and use language, but it also demonstrates the minimal requirement defining what it means to be a language. A language does not need centuries of clout, a dictionary, or an army or navy. A language can be spontaneously created by a couple dozen school children trying to find a way to communicate with one another. In other words, languages are constructed to suit the needs of its speakers.

While this bottom-up approach is very elegant, there are equally important top-down forces that shape whether or not two languages are the same or different. Many aspects of cultural identity are relevant when determining if two languages are the same or different. For example, Serbian and Croatian are often categorized as different languages, despite the fact that the phonology,

lexicon, and syntax are extremely similar between the two (Tosco, 2017). In the case of Serbian and Croatian, speakers perceive a cultural rift despite apparent linguistic similarities. This rift, however, can be explained by other aspects of Balkan identity. For example, Croats are generally Catholic and use the Roman alphabet, while Serbians are generally Eastern Orthodox and use the Cyrillic alphabet. This example demonstrates the impact of language ideology (Bell, 2014). Two individuals are not necessarily speaking the same language if they do not believe they are speaking the same language, regardless of mutual intelligibility. This example also demonstrates that a language is more than just a lexicon and set of rules explaining how to create grammatical sentences – a language is a repository of cultural information, defined, constructed, and used by its speakers (Hymes, 1972).

These insights about language are relevant to this project in a number of ways. Given that a language is an interface of cultural transmission, it logically follows that language would play an important role in regulating culturally relevant behaviours, such as collective coping. This extended definition of language also suggests that any barriers to language transmission, such as interruptions to language acquisition among speakers, could result in restricted access to cultural information. This can include restricted access to the resources and assistance of one's cultural group and restrictions to collective coping. Overall, understanding the role of language in collective coping will extend the model described by Kuo et al. (2018) and shed light on possible barriers to effective coping strategies among cultural-linguistic minority populations.

2.6 Interface of Language Cognition and Culture

"Our language and culture is the window through which we see the world" (Paul Disain)

A Language is not just a dictionary and a list of rules for combining words. A language is a system used to preserve and regulate the flow of cultural knowledge and guide cognition. The

broad interface between language and thought is encapsulated by the Sapir-Whorf hypothesis, which stipulates that the language one speaks plays a crucial role in guiding cognition (Sapir, 1958). While there have been many controversies surrounding the degree to which language coordinates thought, empirical evidence shows that, at the very least, the language we speak influences the way we think.

A classic example of the Sapir-Whorf Hypothesis involves literature examining cross-cultural colour perception. Work by Winawer et al. (2007) demonstrated the effects of cross-linguistic lexical packaging in English and Russian monolingual speakers. In the study, the authors identified a cross-linguistic contrast between English and Russian. Russian speakers were found to have two cognitively accessible/vernacular colour words describing light blue (*goluboy*), and dark blue (*siniy*) respectively. On the other hand, English speakers used the adjectives 'light' and 'dark' to distinguish between darker and lighter shades of blue (note that the authors did not consider statistically obscure/cognitively inaccessible words like 'indigo' and 'coral', or analogous words in Russian). When participants were asked to classify shades of blue into light blue (*goluboy*), and dark blue (*siniy*) categories, the authors found that Russian speakers had a quicker reaction time than English speakers if and only if one colour could be classified as *siniy* and the other could be categorized as *goluboy*. Reaction times were the same in Russian and English speakers if the two colours were both categorized as *siniy* (light blue) or *goluboy* (dark blue).

These findings are important as they show the effects of language on top-down cognitive processing. All participants were sensing the same colours and were capable of correctly categorizing the colour shades regardless of lexical categories, but Russian speakers were faster due to cognitively accessible lexical boundaries in Russian that helped guide perception. This study ultimately shows that lexical categorization helps guide the attentional spotlight, thus

affecting speed of colour categorization. In other words, if your language has two words to describe similar but contrastive concepts, those two words will act as a heuristic to aid in schema-driven processing. In summary, cross-linguistic contrasts, such as differences in lexical categorization of colours can affect how humans experience the world by guiding attention and perception. That said, note that lexical categories do not determine perception; they only modulate it. All participants could see the same colours – what differed was the reaction time.

Research examining lexical categorization, and its effect on perception has also been demonstrated in the social world. For example, grammatical gender has been shown to leave a perceptual imprint on its speakers (Boroditsky et al., 2003). Since grammatical gender tends to not be determined on the basis of an object's real attributes, different languages may categorize a noun using different grammatical genders. In a study by Konishi (1993), monolingual speakers of Spanish and German were asked to describe the attributes of inanimate objects. The authors found that participants were much more likely to use traditionally 'masculine' or 'feminine' descriptors depending on the object's grammatical gender. The effect was also present if an object had contrasting genders in German and Spanish. For example, the word 'the bridge' is feminine in German ("Die Brücke), and masculine in Spanish ("El Puente"). The authors therefore found that if participants were unprompted, German speakers were more likely to use traditionally feminine descriptors, while Spanish speakers were more likely to use traditionally masculine descriptors. In summary, this example shows that a language's specific features and traits are able to play a subtle role in guiding information processing and cognition.

While a language's conceptualization of colour or gender can influence thought and culture, language can also act as a mediator between culture and thought. Examples from the cross-cultural emotion literature show a reciprocal and transactional relationship between emotion

cognitions, emotion words, and cultural values. Anthropological accounts by Abu-Lughod (1988, p. 103-123) demonstrate that concepts of shame, propriety, and humility are baked into the self-conscious emotional lexicon of Egyptian Bedouin society. In the book 'Veiled Sentiments', Abu-Lughod comprehensively unpacks the complexities of Egyptian Bedouin life. One important emotion that is described is that of *hasham*. It is difficult to draw an English translation equivalent for *hasham*, as it is endemic to the Bedouin culture that uses the word, but it loosely translates to 'propriety', 'humility', 'shame', 'embarrassment', 'guilt', or 'chastity'. *Hasham* refers to the sense of deference a lower-ranking individual feels when in the presence of a higher-ranking individual. A person who talks too much, or subverts powerful individuals is somebody who lacks *hasham*.

According to Kitayama et al. (1995), negative self-conscious emotions (like *hasham, shame,* or *embarrassment*) are promoted in interdependent cultures, and stigmatized in independent cultures, since they promote the needs of the group at the expense of the individual. Contrastively, positive self-conscious emotions, like *pride*, are promoted in independent cultures, and stigmatized in interdependent cultures, since it distinguishes the self from the group, thus diminishing interconnectivity. In keeping with Kitayama's theory, the interdependent Egyptian Bedouins believe *hasham* to be a virtuous emotion that should be encouraged, particularly among women. The main difference between a word like *shame*, and a word like *hasham* is in the cultural context and linguistic ideology surrounding the word. Unlike the hyper-individualistic climate of Anglo culture, Egyptian Bedouins place high value in social harmony, hierarchy, and cohesion. From this interdependent context, pride and self-promotion upset the social order, while deference, humility, and shame all serve to uphold it.

Overall, Abu-Lughod's findings are interesting, as they showcase the range of linguistic categorizations for the emotional phenomena underlying *shame* and *hasham*. In Western culture,

emotions like shame and embarrassment are thought to be ‘bad’; people who experience these emotions want them to be reduced as quickly as possible. Even if *hasham* elicits negative affect, it’s not considered to be ‘bad’; after all, to feel *hasham* is a signifier of virtue and moral tenacity. A comparison of *shame* and *hasham* ultimately demonstrates the effects of individualism and collectivism on lexical categorization, and the resultant diversity in how individuals experience the world.

While the Sapir-Whorf hypothesis can help explain many cross-cultural differences in experience, it does have its limitations. One problem with the Sapir-Whorf hypothesis is that it does not clarify whether culture is a linguistic artefact, or if language is a cultural artefact. Despite this ambiguity of directionality, the empirical support behind the hypothesis indisputably proves that language interacts with cognition, behaviour, and culture. Overall, language acts as a linchpin between culture, cognition, and behaviour. This is achieved by preserving cultural ideology in the language, which ultimately affects the cognitive experiences and behaviours of its speakers. Collective coping is a culturally significant behaviour and cognitive process. It therefore stands to reason that language would help facilitate collective coping by preserving the necessary cultural infrastructure for an individual to gain access to collective coping behaviours.

2.7 Language Proficiency and Access to Cultural Infrastructure

When an individual, family, or community immigrates to a new linguistic environment, the individual or group of individuals do not immediately stop speaking their original language (Bell, 2014). This is due to the fact that language can be an expression of cultural identity, and the act of immigration alone does not strip away cultural identity - this is in addition to cognitive constraints on second language acquisition in adulthood (Kovelman et al., 2008). Over progressive generations, individuals become decreasingly proficient in the language of their family /

community / cultural identity, with a preference for the culturally dominant lingua franca[5]. The language of one's family or community is therefore known as a "heritage language", and the proficiency of heritage language speakers tends to form a continuum, with some individuals speaking it fluently as a dominant first language, and others speaking only a few words, (Polinsky & Kagan, 2007). The common thread linking heritage language speakers is not language proficiency, but the emphasis of cultural-linguistic identity. In this sense, a language's legacy and ideology can persist so long as speakers feel a sense of affiliation toward the language.

When a person uses a language, they access the community that uses that language (Eckert, 1989). More specifically, when a person uses a language, they access a set of linguistic resources, thereby communicating covert social information about identity. Work by Williams et al. (2020) presents a study demonstrating how language regulates the transmission of emotional information. In this study, participants were all bilingual and were organized in parent-child pairs. All participants spoke Chinese as their Primary language, and English as a second language. Participant pairs were asked to solve a very frustrating puzzle, during which facial reactions were monitored, as were instances of code-switching. Code-switching is when a bilingual speaker switches language or dialect mid-utterance in order to take advantage of the semantic or social resources afforded by their other language/dialect (Poplack, 1980). The authors found that negative facial expressions were a very strong predictor of code-switching from English (L2) to Chinese (L1), thus implying that for these participants, Chinese affords communicative expressivity not supplied by the English repertoire. Since all participants spoke both English and Chinese very

[5] Note that English acts as a Lingua Franca (Bell, 2014). This implies that individuals may use it regardless of whether or not it is identified as a heritage language. Heritage language is hypothesized to be essential to the transmission of cultural information, though a lingua franca may also be used to transmit cultural information via translation. That said, a translation will be inferior at transmitting cultural meaning as translation results in a warped signal (Boroditsky et al., 2003).

fluently, the likeliest explanation for these findings is that code-switching represents deliberate usage of Chinese linguistic resources for optimal communication during periods of intense frustration.

Bilinguals have a broadened linguistic repertoire, and code-switching is one of the chief strategies for bilinguals to draw from the linguistic resources contained within multiple languages. Code-switching is important, as it not only allows for the optimization of communication, but also functions as a projection and embodiment of cultural identity. Work by Koven (2007) examined how bilinguals' usage of language affects other peoples' perceptions among French-Portuguese speakers. Participants were asked to tell a personal narrative once in French, and again in Portuguese. These narratives were recorded and played back to other participants from the sample. In summary, each participant recorded the same narrative in both French and Portuguese, and then proceeded to listen to another participant's narrative recordings. Results showed that the participants felt that the different recordings did not reflect 'the same person' across the two translations. Participants knew that the two recordings were by the same individual, yet they perceived slightly different personas in different languages. This finding isolates for the social effect and cultural information conveyed by the linguistic resources afforded in each language. In other words, proficiency in a language is a precondition to being perceived as part of a social group.

The inverse is also true. When one does not speak a language proficiently, one loses access to the collective identity and cultural knowledge contained within the language, and risks being dislocated from their cultural identity. From the 17th century onward, the settler-colonial nation state of Canada attempted to forcibly destroy the cultural identity of Indigenous people. One of the primary methods to achieve this was through the Residential school system, and one of the primary

methods used by the residential school system was denying children the right to acquire or practice their indigenous languages (Fontaine, 2017). Survivors of the residential school system have reported that one of the worst effects of their experiences was the sense of loss and estrangement felt when returning to their community, unable to properly communicate (Graham, 1997, p. 220).

To a certain extent, the interception of intergenerational transmission of indigenous language blocked survivors from reintegrating to their communities. More deeply, the interception of intergenerational transmission blocked survivors from learning how to see the world through their indigenous languages, which in turn, blocked survivors from integrating with their community. Regardless of the precise mechanism, the residential school example is a piercing testament to the importance of intergenerational transmission of language for the sake of individual and collective well-being, and the role of common language in fostering community integration (Ortega, 2020)[6].

Indigenous languages have been facing an existential threat in the wake of 500 years of colonialism and globalization (Isern & Fort, 2014). The impact of language-loss does not merely pose an inconvenience to linguists attempting to study theoretical processes; language death has far-reaching consequences for the transmission of irreplaceable cultural information, and for the well-being of its speakers. For this reason, it is essential to study the effects of heritage language proficiency on mental health outcomes within the context of intergenerational transmission. Overall, the ability to engage in collective coping behaviours is an important protective factor for the mental health of individuals from interdependent cultural contexts, including many cultural-linguistic minority communities. Therefore, any linguistic barriers that restrict an individual's

[6] Note that a language is only one aspect of a culture (Spencer-Oatey & Franklin, 2012). Although language death/dormancy negatively impacts intergenerational transmission of cultural knowledge, it does not fully interrupt it. The loss of one's language does not guarantee or necessitate the complete loss of one's culture, and vice versa, other languages may be recruited to approximate cultural knowledge from another language (Yahya et al., 2017).

access to cultural knowledge are predicted to decrease collective coping, thereby decreasing well-being and mental health[7].

2.8 Satisfaction with Life and Collective Self-Esteem

In order to examine the interactions of stress, coping, and language proficiency, it is essential to measure the outcome of the stress coping mechanism. In the CCMC, 'health outcomes' represents the main output of the coping system. While the CCMC does not distinguish between physical and mental health, for the purposes of this project, the focus will be directed at the impact of academic stress on mental health, as it is most relevant to the target sample population. Two positive, non-symptomatic indicators of subjective well-being were assessed and tested in Kuo's (2018) original study, to measure the perceived psychological impact of stress and coping in the sample. These two variables were Satisfaction with Life and Collective Self-Esteem, and they are reviewed in the following sections.

The well-being literature identifies two philosophical conceptualizations of happiness (Deci & Ryan, 2008). The hedonistic approach stresses the relative contributions of positive and negative affect to one's overall sense of happiness (Kahneman et al., 1999). In contrast, the eudaimonic approach stresses the importance of living in accordance with one's 'daimon' or true/ideal self (Waterman, 1993). Satisfaction with life is an important factor in the experience of subjective well-being and happiness (Veenhoven, 1988). Satisfaction with life refers to one's subjective assessment of life circumstances as opposed to an external reference (Diener et al., 1985). While objective factors, such as socio-economic status, may factor into one's assessment

[7] Although this study is focusing on the interface of language proficiency and other psychosocial processes, one should not ignore the hypothesis that language proficiency is merely a manifest variable representing the latent variable of linguistic identity. That said, the hypothesis that strong linguistic identity results in strong language proficiency answers a separate research question beyond the scope of this project.

of life satisfaction, subjective well-being stipulates that what matters most is the perceptual experience of actual life achievement compared to one's personal conceptualization of an ideal life.

Satisfaction with life ultimately captures much of the essence of eudaimonic well-being; both concepts compare one's perceived and ideal life and find any discrepancy between the two. High feelings of life satisfaction and eudaimonic well-being are each the result of high overlap between one's ideal and perceived life. While satisfaction with life has historically been associated with the hedonistic conceptualization of well-being (Deci & Ryan, 2008), theoretical and empirical work both suggest that satisfaction with life is a good indicator for eudaimonic well-being (Diaz et al., 2015). Overall, satisfaction with life offers a simple, yet insightful indicator of subjective well-being by tapping into an individual's appraisal of self-actualization.

Satisfaction with Life is predicted to be a good outcome variable in the assessment of stress-coping. The problem with Satisfaction with Life is that it may be predicated on an independent self-construal. If the perception of subjective well-being is conceived as an intrapersonal introspective endeavor, its utility might be limited in an interdependent cultural context. For this reason, collective self-esteem has been suggested as an alternative measure of well-being for individuals living in an interdependent cultural context (Bettencourt & Dorr, 1997).

Collective self-esteem, on the other hand, measures the extent to which an individual values interconnection and perceives themselves to be interconnected with their ingroup. If an individual from an interdependent cultural context feels highly connected with the rest of their ingroup, they would be expected to have higher well-being and psychological health (Crocker et al., 1994). For this reason, collective self-esteem is thought to be a good outcome measure for collective coping. This theoretical understanding is validated by empirical evidence showing a positive correlation

between collective self-esteem, satisfaction with life, and other measures of psychological well-being (Blaine & Crocker, 1995).

Given the correlations between collective self-esteem and other measures of well-being, some researchers have suggested using collective self-esteem as an indicator for latent well-being in an interdependent cultural context. Constantine et al. (2002) examined the effects of collective coping on collective self-esteem among African American adolescents and found that higher use of collective coping predicted higher collective self-esteem. When the authors further analyzed the results, they specifically found that collective coping was associated with the experience that one's identity is integral to one's sense of self-concept. In other words, participants who engaged in African American collective coping behaviours felt that the African American cultural identity was very important to who they were as individuals, and that this, in turn, was beneficial to well-being. These findings make sense from a theoretical perspective, given that collective coping is supposed to reinforce one's sense of interdependent identity, which is thought to benefit well-being in an interdependent cultural context.

Overall, collective self-esteem and satisfaction with life are thought to be good complementary outcome variables for measuring the effects of collective coping. This is confirmed by findings showing correlations between collective self-esteem, satisfaction with life, and other measures of well-being in previous research by Blaine & Crocker (1995). Altogether, this suggests that both measures reflect a deeper latent variable of well-being. Furthermore, the inclusion of collective self-esteem as an outcome variable helps address some of the problems associated with individualistic conceptualizations of subjective well-being and satisfaction with life. Taken together, these two variables are hypothesized to serve an integral role in this project, pointing to

the theoretical significance and clinical ramifications of both collective coping and language proficiency.

2.9 Gaps in the Literature

Previous work by Yeh et al. (2006a) and Heppner et al. (2014) conceptually documents many instances of collective coping behaviours, along with the contexts and theories motivating such coping behaviours. While previous research has succeeded in showcasing the prominence of collective coping, none has explored the relation between heritage linguistic acquisition/integration and collective coping. Thankfully there have been some authors who have examined adjacent topics. Tandoc and Takahashi (2017) qualitatively analyzed the experiences of collective coping among survivors after a typhoon in the Philippines. The authors found that the most important factor for individuals to engage in collective coping behaviours was access to social media. While the authors did not examine experiences of linguistic proficiency, the findings strongly suggest that barriers to social connection have the power to restrict collective coping.

Other areas of adjacent work include that of Graham (1997), which qualitatively examined the experiences among survivors of the Canadian Residential School program.

These individuals expressed feelings of social isolation as a result of linguistic alienation. While this work clearly highlights the effects of social isolation due to linguistic isolation, it does not discuss the effects of linguistic isolation on coping behaviours. For this reason, one of the key objectives of the present project is to extend the work by Tandoc and Takahashi (2017) and Graham (1997) in order to uncover the mechanism and experiences of heritage language proficiency, and its effect on collective coping.

3.0 The Present Model, Research Questions, and Hypotheses

Previous work by Kuo et al. (2018) found that collective coping was an important mediator between academic stress and subjective well-being and collective self-esteem. The overall model had good fit (RMSEA = 0.04), thus serving as a good empirical validation of the theoretical model of cultural coping. See Figure 3.1 in Appendix A for a visual depiction of the results from the study. The present study predicts that the addition of a heritage language proficiency variable will be able to help explain more of the variance, thus improving the predictive validity and explanatory power of the model in the original study. For the present study, it is hypothesized that linguistic proficiency will moderate collective coping, which will ultimately affect well-being. In other words, it is posited that multilingual undergraduate participants will be more likely to engage in collective coping behaviours if they can proficiently communicate with other members of their community in their shared language. If an individual does not acquire their community's language, they will be less likely to access and engage in collective coping behaviours organized around their cultural community. See Figure 3.2 for a comprehensive schematic of the expanded model based on the original cultural coping model (See Figure 3.1) tested in Kuo et al., 2018.

By replicating the model and measures from the Kuo et al. study (M1), this project hopes to verify the original findings, and establish a baseline for subsequent explorations and analyses. Therefore, the first research question of the current study asks: (Q1) Do Collective Coping (CC), Engagement Coping (EC), and Avoidance Coping (AC) (as measured via the Cross-Cultural Coping Scale) mediate the relationship between academic stress (as measured via school burnout) and well-being (as measured via Subjective Quality of Life and Collective Self-esteem) in a culturally diverse multilingual sample of undergraduate students in Canada? Based on Q1, the following hypothesis (H1) was tested: The cultural coping model tested in Kuo et al., 2018 would

fit a dataset drawn from the population stated in Q1. The cultural coping model was defined such that CC, EC, and AC would mediate the relationship between academic stress and well-being. Note that the chief difference between Q1 and the research question underpinning the Kuo et al. study pertains to the multilingual nature of the present study's target population. Q1 is very similar to the research question stated in the Kuo et al. study, therefore allowing the present study to constitute a replication of prior work. But despite its similarities, the differences in the demographic characteristics of the sample would lead to implications that could build upon the Kuo et al. study. If CC is demonstrated to mediate stress and well-being in the present study, then the model from the Kuo et al. study would hold for a new distinct subset of culturally diverse Canadians (i.e., multilinguals).

Language is a conduit for cultural information, identity, and social infrastructure. Given the role of language and communication in regulating the flow of cultural information, one would predict that an individual's ability to engage in culture-specific coping behaviours would be regulated by their linguistic proficiency in the language that preserves that cultural knowledge. In other words, the second research question asked: (Q2) Does Proficiency in one's Heritage Language moderate the mediating effect of CC established in H1? Overall, the language proficiency variable was predicted to account for the regulating effect of language on the transmission of cultural information, including culture-specific coping. Based on Q2, the following hypothesis was tested: (H2a) Language proficiency in one's heritage language predicts the moderating effect of CC within the context of the model established in H1, and within the population established in Q1. The correspondence between language and culture is not one-to-one, and there are many facets both to cultural and linguistic identity (Ortega, 2020). That said, the ability to interpret and be interpreted by other members of one's community is expected to have a

significant impact on well-being. Q2 was also tested by examining the overall fit of the new model (including Language Proficiency) as compared to the model tested in H1. In other words, Q2 was tested by the following hypothesis: (H2b) Model fit (measured via information criteria) increases through the addition of a language proficiency variable (measured by the LEAP-Q).

In other words, well-being (SWB/CSE) is inversely proportional to academic stress; if academic stress increases, well-being decreases. Well-being is predicted to remain high despite high stress if coping scores are high. Lastly, and most crucially, language proficiency is predicted to moderate the effect of collective coping. If academic stress scores and collective coping scores are both elevated, well-being scores can only be high if and only if Language Proficiency scores are also high. If this moderation effect is found, then the study will demonstrate convincing evidence that a culturally salient (Heritage) language plays a crucial role in transmitting cultural information and facilitating psycho-social processes (like coping).

In addition to its theoretical contributions, the present study is anticipated to have practical clinical significance as well. The relationship between heritage language proficiency and well-being was predicted to have a meaningful impact among culturally diverse multilingual young adults. In light of the clinical ramifications of collective coping, the third research question asked the following: (Q3) What are examples of collective coping behaviours among multilingual participants in the study sample? What is the subjective experience of engaging in collective coping for multilinguals? And lastly, what is the experience of collective coping among multilingual participants who are proficient in their heritage language? What is the experience for those who are *not* proficient in their heritage language? If a person is not proficient in their heritage language, what do they do to compensate? Although Thematic Analysis was conducted inductively (see section 4.5), themes related to Family Support, Intracultural Coping, Relational Universality,

Authority Figures, Social Harmony, and Spirituality (Yeh et al., 2006a) are expected to be found. These questions were expected to qualitatively capture exceptional and diverse experiences, with particular emphasis on intersectional and bilingual/bicultural experiences. These qualitative results are particularly pertinent to mental health practitioners working with culturally and linguistically diverse individuals and groups as they were expected to provide nuance and exceptional perspectives that would otherwise remain uncaptured. Overall, this final component of the project captured (i) a typology of collective coping behaviours employed by the study's sample, (ii) the diverse experiences of being proficient or not proficient in one's heritage language, and (iii) the compensatory behaviours employed by those who are not proficient in their heritage language.

In sum, this project contains 3 primary objectives with corresponding methodological components. The first component was a replication of the original study, for which the model was predicted to fit the new dataset in a manner similar to that of the original Kuo study. The second component of this project was to examine the addition of linguistic proficiency as a moderator variable in an expanded cultural coping model. The third and final component of this project was to qualitatively explore the specific collective coping behaviours experienced and utilised by participants, along with their perception of the impact of linguistic barriers on their coping behaviours. The last component of the research was addressed with a series of open-ended questions. It was anticipated that participants' written responses would complement and provide additional qualitative information to help better understand and interpret the quantitative, model-testing component of this research.

4.0 Methods

4.1 Participants

Recruitment: A multilingual sample of undergraduate students was recruited to participate in this study. Participants were recruited from two parallel streams in order to reach the target sample size (see below). The first stream of participants was recruited from the University of Windsor Psychology Participant Pool during the summer and fall semesters of the 2022 academic year (June 1st – December 8th). Participants from the Psychology Participant Pool were compensated for their time via course credit. The second stream of participants was recruited from the University of Toronto undergraduate population of students enrolled in various linguistics courses. Overall, these two streams of participants represent undergraduate students attending universities in Ontario. Participants completed a pre-screening form consisting of 2 questions asking them to confirm that they are undergraduate students currently enrolled at a Canadian University, and that they comprehend English. Both streams were recruited roughly concurrently.

Sample Size: A power analysis was conducted to determine an adequate sample size for the study. Due to the proposed statistical tests (Structural Equation Modelling), a power analysis was conducted using an open-source *R* script from Moshagen and Erdfelder (2016). The models were specified according to the parameters displayed in both M1 and M2 above. The model was determined to be over-identified for both models ($df_{M1} = 5$, $df_{M2} = 11$). The present power analysis calculated the minimum required sample size for a model at the threshold of adequate fit (RMSEA = .08). Based on the hypothesized model characteristics for M1 (df = 5, RMSEA = .08), the minimum sample size was calculated to be N = 403 ($\alpha = .05$, $\beta = .80$). For the hypothesized model characteristics of M2 (df = 11, RMSEA = .08), the minimum sample size was recalculated to be N = 241 ($\alpha = .05$, $\beta = .80$). Additionally, Kline's (2015) suggested method of calculating minimum

sample sizes for SEM was implemented. That is, the minimum sample size was calculated based on multiplying the number of parameters being estimated for each model ($P_{E\ (M1)} = 23$, $P_{E\ (M2)} = 25$) by a factor of 10. This yielded minimum sample sizes of N = 230 and N = 250 respectively for M1 and M2. In the end, it was determined that a sample size of approximately 300 participants would be adequate in satisfying the SEM requirements for M1 and M2.

Exclusion Criteria and Sample Characteristics: Participants were excluded from the study if (i) they only identified speaking a language that was either English and/or French (or any related dialects). Participants who identified proficiency in English or French were not excluded from the study if and only if they indicated a second language that was not English or French. Furthermore, participants were required to indicate which language they considered to be their heritage language.

In this study "Heritage Language" is defined as the language participants most strongly associate with their family, community, and cultural identity. On the basis of this general definition, the following information was presented to participants during the recruitment process: *"Your heritage language refers to the language you most strongly associate with your family, community, and cultural identity. Your Heritage Language may be your first language, or you may only know a few words. So long as you associate it with your family, community, and cultural identity, it is considered your heritage language.*" In short, participants were excluded from the study if they only indicated English and/or French as their heritage language. This did not, however, exclude those who indicated English or French as their primary/first language, but at the same time indicated speaking a separate, non-English and non-French 'heritage language' (e.g., Punjabi, Mandarin, Arabic, etc.). In addition to the above exclusion criterion, participants were excluded from the study if (ii) they did not demonstrate minimal proficiency in English. This was

necessary for the successful completion of the questionnaires, forms, and open-ended question responses, which were written entirely in English.

In light of exclusion criterion (i), note that language proficiency, in and of itself, was not used to exclude participants from the study. One of the hypotheses tested by the model was that language proficiency moderates collective coping. In order to test this variable, bilingual participants were recruited regardless of their language proficiency, thus allowing for a broad and wide-ranging distribution. This allowed the study to isolate the effects of language in the transmission and preservation of cultural information. For this reason, the study did not control for language proficiency, thereby including participants with varying proficiency levels in their heritage languages. For example, if a person identified Bengali as their heritage language, they did not need to be highly proficient in Bengali to be included in the study. Conversely, participants who identified speaking English and Japanese were not included in the study if they only indicated English as their heritage language. Overall, this exclusion criterion was implemented in order to test the moderating effect of heritage language proficiency on collective coping. Therefore, in order to examine this relationship, recruitment of multilingual participants was needed for this current study. If all potential participants were fully proficient in at least one language that was not English, as stipulated in criterion (i), and all participants spoke English to complete the questionnaire battery, as stipulated in criterion (ii), then the combination of exclusion criteria (i) and (ii) implicitly ensured a multilingual sample.

Exclusion Criterion (i) further improved the present study design by recruiting a more culturally diverse sample for the study compared to previous research. Specifically, one limitation identified in Kuo et al.'s (2018) study was that the sample size for non-White-European ethnic groups in that research was too small. Given the linguistic distribution of residents in Canada and

in Windsor (Statistics Canada, 2017), a pseudo-random sample of multilingual undergraduate students was predicted to have better cultural/ethnic representation compared to a comparable sample without exclusion criterion (i). Therefore, to improve ethnic diversity in the sample, the present study purposely recruited participants of diverse ethnic backgrounds, as an artefact of recruiting a linguistically diverse sample. Note that the introduction of exclusion criterion (i) means that the resultant sample from this study was distinct from the sample in Kuo et al., 2018. Although this does temper the magnitude of any attempts at replication of the original study, it should be reiterated that linguistic and ethnic diversity are theoretically dependent on one another, as argued in section 2.7. Therefore, even though this study may not constitute an orthodox replication of the original study, it extends the findings to a new sample that is theoretically relevant to the original study.

Another way in which exclusion criterion (i) improved the current study's design was by increasing the proportion of participants from traditionally collectivistic and interdependent cultural and ethnic backgrounds. Wierzbicka, (2006) observed that individuals from Anglo and North-Western European cultural-linguistic backgrounds predominantly endorse independent/individualistic frames of self-construal. By excluding heritage speakers of French and English, the study hopes to correct for the individualistic skew of the Kuo et al. (2018) sample. This correction was predicted to increase the study's ability to compare the 3 coping styles explored in the model and test the effect of heritage language proficiency on collective coping. This reasoning was made primarily on the basis that collective coping was found to be used mostly by individuals from collectivistic societies (Yeh et al., 2006a).

As individuals move into adulthood, peers and the broader community become increasingly important to development (Hebert et al., 2013). That said, the construct of *Heritage*

Language allows for diverse cultural-linguistic identities. Although individuals may identify with the majority language, it is the language(s) of their cultural identity that was predicted to facilitate collective coping behaviours in the present study. Note that a participant may have included English as one of their heritage languages in addition to another language. In this instance, the participant would have been included, as this does not contravene exclusion criterion (i).

For the sake of establishing boundaries to exclusion criterion (i), it was decided that speakers of non-standard dialects of English were not to be categorized as separate languages. This included notable dialects like African American Vernacular English (AAVE) or Algerian French. On the other hand, it was decided that Creole languages that are partially derived from English or French were to be considered as distinct languages. This included languages like Tok Pisin, Jamaican Patois, and Haitian Creole. Overall, the decision to exclude certain linguistic groups was determined based on the following 2 assumptions: i) language proficiency can act as a barrier to cultural transmission and ii) dialects and languages are on a continuum, rather than discreet categories (Gal, 2006). Based on these two assumptions, this study proposed the following: the capacity for language proficiency to act as a barrier to communication exists on a continuum, depending on the languages in question. For this reason, the study presupposed that a lack of proficiency in a non-standard dialect (like AAVE) would not sufficiently impede an individual's collective coping mechanisms, if and only if they speak another dialect of the language in question. Conversely, the study presupposed that a lack of proficiency in a Creole language would impede an individual's collective coping mechanisms, even if they speak a source language like English or French. Despite the presuppositions outlined above, the authors recognize that the boundary between 'speaking two dialects of a language' and 'speaking two languages' is difficult to determine, inherently political, and prone to value judgements. That said, in order to test the

hypothesis surrounding linguistic barriers, a conservative definition of language-hood was adopted for the present sample.

4.2 Measures

In order to test the model, a battery of questionnaires was administered to all participants. This battery includes the School Burnout Inventory, the Cross-Cultural Coping Scale, the Satisfaction with Life Scale, the Collective Self-Esteem Scale, the Language Experience and Proficiency Questionnaire, and a demographics form. Additionally, participants were asked to complete 5 short answer questions. All questionnaires and forms are presented in Appendix A.

School Burnout Inventory (SBI): The SBI is a questionnaire that has been used in the literature to operationalize academic stress (Kuo et al., 2018). CFA has shown this scale to have 3 factors corresponding to feelings of 'exhaustion', 'cynicism', and 'inadequacy' all in the academic context (Salmela-Aro, 2009). Exhaustion accounts for the physiological, psychological, and social effects of sustained intractable stress from academic demands. This experience is in-line with the Selye (1956) notion of exhaustion due to prolonged stress. Cynicism accounts for feelings of avolition and hopelessness associated with or induced by academic stress. Inadequacy refers to feelings of inadequate performance at school. The authors tested several factor structures and found that the best fitting models were those that specifically contained the 3 factors described above (Salmela-Aro, 2009).

The SBI has 9 items rated on a 6-point Likert scale from 1 (*completely disagree*) to 6 (*completely agree*). The SBI aims to capture the various emotional, social, and somatic experiences of stress linked to school and academic performance, with higher scores denoting higher academic stress. Previous work shows the SBI to have good factor structure (RMSEA = .05; Salmela-Aro, 2009), and good reliability (Cronbach's Alpha = .829; Kuo et al., 2018). Based on these

psychometric properties, these three factors are adequate to operationalize the independent variable of this study (academic stress).

Cross-Cultural Coping Scale (CCCS): The CCCS is a questionnaire that measures cultural coping (Kuo et al., 2006). The CCCS has 3 subscales that correspond to the types of cultural coping outlined above: engagement coping, avoidance coping, and collective coping. The scale has 27 items rated on a 6-point Likert scale from 1 (*very inaccurate*) to 6 (*very accurate*). Participants read a hypothetical vignette that describes a scenario where they are told to imagine that they have a moderately high amount of stress due to poor grades, high workload, and fear of future academic/career struggles. A vignette is used (as opposed to participants' experiences) to help standardize the valence and qualitative attributes of the academic stress induced in participants. Once participants read the vignette, they are asked to answer the questionnaire items based on how they believe they would cope if the vignette was occurring. Higher scores for each subscale denote higher usage of the corresponding coping strategy. The CCCS aims to capture the 3 coping strategies outlined in previous research in order to better operationalize cross-cultural coping, thereby improving coping construct-validity. In previous studies, this questionnaire had good factor structure, revealed through CFA (RMSEA = .07; Kuo et al., 2006), and good reliability - Cronbach's alpha values were above .65 for all 3 subscale factors (Kuo et al., 2018). Based on these psychometric and theoretical properties, the CCCS has been determined to be a good measure of coping in a culturally diverse sample.

Satisfaction with Life Scale (SWLS): The SWLS is a brief questionnaire that measures participants' overall perception of satisfaction with life, representing a holistic measure of general well-being and health (Diener et al., 1985). Since satisfaction with life is a subjective comparison of one's perceived life to one's idealized life, the results of the SWLS represent participant well-

being at the time of questionnaire administration. The scale has 5 items rated on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores on this metric correspond with higher quality of life. The SWLS was designed to measure satisfaction with life on 1 factor and has shown good reliability with a Cronbach's alpha of .852 (Kuo et al., 2018). The SWLS has also been demonstrated to correlate well with other measures of satisfaction with life (Diener et al., 1985). Overall, these favourable psychometric properties of the SWLS suggest that it is a good questionnaire to assess well-being.

Collective Self-Esteem Scale (CSES): The CSES is a questionnaire that measures self-esteem in an interdependent cultural context. Collective self-esteem contrasts individual self-esteem by presupposing collective self-construal. Collective construal of self-esteem is measured using 4 factors: i) Group Membership (sense of belonging), ii) Private CSE (internal attitudes toward personal group membership), iii) Public CSE (perceptions of others' attitudes toward personal group membership), and iv) Identity (effect of group membership on self-concept). In summary, the CSES ultimately measures positive and negative attitudes directed toward, and perceived from others (Luhtanen & Crocker, 1992).

The scale has 16 items, rated on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). Higher scores on the questionnaire correspond with stronger identification with one's ethnic/cultural group, which is, in turn, associated with better collective coping (Constantine et al., 2002). Previous work shows that the CSES has good factor structure (CFI > .90; Luhtanen & Crocker, 1992), and good reliability (Cronbach's alpha = .789, Kuo et al., 2018). Overall, the CSES is predicted to correlate with the SWLS, with both questionnaires representing the outcome of coping in a diverse sample.

Language Experience and Proficiency Questionnaire (LEAP-Q): The LEAP-Q is a questionnaire that measures self-reported linguistic proficiency in all languages spoken by the participant (Marian et al., 2007). To operationalize linguistic proficiency, the LEAP-Q considers the following 3 components of language proficiency: i) self-perceived competency/language dominance, ii) age of acquisition, and iii) degree of language exposure and immersion. In order to explore the factor structure of the LEAP-Q, the authors conducted an EFA, where they found 8 factors with eigenvalues greater than 3. These factors are, in descending order of prominence: 1) self-reported L1 (first language) proficiency (23% of variance, Crohnbach's alpha (C_a) =.85); 2) age of L2 (second language) acquisition (13% of variance, , C_a=N/A); 3) total time exposed to L2 (10% of variance, C_a=.92); 4) total time exposed to L1 (8% of variance, , C_a=.80); 5) years exposed to L1 (6% of variance, , C_a=.30); 6) language learned from media (6% of variance, , C_a=.75); 7) perception of native/non-native status (5% of variance, , C_a=.24);and 8) total time spent in an immersive environment (4% of variance, , C_a=.27) (Marian et al., 2007). This factor structure opens the possibility to divide language proficiency into multiple components and assess whether or not certain aspects of language proficiency would have a larger impact on collective coping than others.

The LEAP-Q is composed of two modules. The first module consists of 9 questions, and asks participants to compare their perceived competency, order of acquisition, and degree of practice in all languages identified by the participant. The first module also asks participants relevant demographic questions. The second module consists of 7 questions and asks participants to disclose more specific details about their perceptions and memories pertaining to each language identified. Module 2 can be flexibly adapted to accommodate the number of languages identified by each participant.

Most of the questionnaire items assessing language experience and proficiency are rated on an 11-point Likert scale from 0 to 10. Examples include "On a scale from zero to ten, please rate your level of proficiency in speaking, understanding language X". Participants can then rate their proficiency in 2 drop down menus corresponding to 'Speaking', and 'Understanding'[8]. Each module also contains items that target age when exposure to a language began, and for how long exposure persisted. This data is recorded in years and months. Overall, the Likert scale anchors vary from question to question, however a score of '0' always corresponds with absence of linguistic proficiency and exposure, while a score of '10' always corresponds with pervasive presence of linguistic proficiency and exposure. A high cumulative score on the LEAP-Q corresponds with high proficiency and exposure for an identified language, while a low score corresponds with low proficiency and exposure for an identified language. Participants receive a unique score for each language that they identify speaking.

For the purpose of the present study, the LEAP-Q included one minor adaptation. For each iteration of Module 2, participants were required to indicate whether or not they would identify that language (described in that module) as a 'heritage language'. A comprehensive definition was provided in the questionnaire (see 4.1: Exclusion Criteria). The module 2 score representing the participant's heritage language was used in subsequent statistical analyses to represent the effect of language proficiency. Participants were encouraged to identify 1 language as their heritage language, though they were allowed to identify multiple heritage languages in order to account for

[8] Although both speaking (active) and listening (passive) components of language are measured with the LEAP-Q, particular emphasis was placed on the passive component in the discussion section, as active language entails passive language, and therefore passive language may be the minimal requirement for language proficiency (Zimmerman, 1996, Ch. 3), and collective coping. That said, this distinction will not be incorporated into the statistical analyses, as the LEAP-Q does not have valid factors corresponding to active and passive language.

instances of diglossia (multiple languages/dialects used by a single speech community to denote social hierarchy ; Bell, 2014) and bicultural/biracial identities.

One issue with participants listing multiple heritage languages was that this would potentially result in a participant entering multiple language proficiency questionnaires - one for each heritage language spoken. If participants indicated more than one heritage language, other metrics from the demographics form and LEAP-Q Module 1 were needed to 'break the tie' and find a single heritage language for each participant. Of participants who identified two or more heritage languages, the tie would be broken if one heritage language was also listed as 'native', as opposed to 'second language, 'third language', etc. If participants who listed multiple heritage languages also listed those multiple languages as 'native', then language dominance was used to break the tie. Of the participants' languages that were listed as both heritage and native, the LEAP module that was selected for analysis was chosen if it was the highest ranking in terms of language dominance. This iterative process progressed in the following manner: of 296 participants in the study, 39 participants listed more than 1 heritage language. Of these 39 participants, 11 participants listed more than one heritage languages as 'native'. At this stage, the participant's LEAP module would be selected on the basis of having the highest designated level of language dominance. Note that in general, English, and French were skipped as potential candidates, in keeping with the original inclusion criteria listed above. That said, a special exception was made for one participant who listed French as their most dominant native heritage language, followed by Wolof. In this instance, the participant had demonstrated that French was a culturally important language, beyond a mere artefact of the Canadian education system. Therefore, in this instance, the participant's module for French was included rather than being skipped over.

While the LEAP-Q relies on self-reported language proficiency, the questionnaire was validated and scaled using standardized measures of language proficiency in a sample of 50 bilingual participants (Marian et al., 2007). Despite the fact that no CFAs have been conducted with the LEAP-Q, its internal validation, useful factor structure, and acceptance in the bilingualism literature (Bialystok et al., 2020) support the use of this measure to test for language proficiency in the present study.

Demographic Questionnaire: This questionnaire consisted of questions asking about participants' broad identities including age, gender, education, and migration status. The questionnaire also asked specific questions about ethnic and linguistic identity, and age of linguistic exposure. Sections from the LEAP-Q that asked about demographics were not repeated in the demographics form, in order to avoid redundancy. The demographic questionnaire (including demographics questions from the LEAP-Q) was important for collecting broad ethnic and linguistic information for assessing the characteristics of the sample.

Short Answer Questions: Upon completion of all questionnaires, participants were guided through a series of 5 short-answer questions. Participants began by reading a definition of collective coping. This definition included the following: "*People from different cultures cope with stress in different ways. In some cultures, people cope with stress by connecting with others in culturally meaningful ways. Individuals cope with stressful events by making sense of their experiences with other people in their family, cultural group, or social network. The process of managing stress by turning to other people from your cultural group is known as collective coping*."

Next, participants were presented with the following sequence of 5 questions:

(1) Having read the description above about what constitutes collective coping, **what are examples of collective coping that you have engaged in** either currently or in the past? Please describe them.

(2) Think about the past, was there ever a time you found it difficult to use collective coping to deal with the stress you faced? If yes, **how did you respond and adapt to the situation**?

(3) Thinking back, **what were your experiences** (e.g., bodily sensations, thoughts, emotions) before and after you engaged in the collective coping behaviour(s) you described under the first question?

(4) "To what extent does collective coping behaviour play a role for you when you have to cope with school or academic stress? Please describe what you did and how it worked out for you."

The following two-part question asked participants:

(5-a) Do you ever struggle to converse in the language of your heritage / community / culture? (yes / no)

(5-b) If no: **What is your experience conversing** in the language of your heritage / community or culture (experiences include bodily sensations, thoughts, emotions)? Does speaking in your heritage language feel different from other languages? If so, how?

If yes: "What **is your experience conversing** in the language of your heritage / community or culture (experiences include bodily sensations, thoughts, emotions)? How do you navigate through the language barriers between yourself and other members of your family or community?

4.3 Procedure

The research procedure consisted of the use of a questionnaire survey. Due to safety restrictions associated with the spread of COVID-19, the study was conducted remotely using Qualtrics (online platform). Participants began by learning the broad purposes of the study, and what to expect; informed consent was sought at this time. Participants then completed the six measures outlined above. In order to minimize the possibility of stereotype threat (Spencer et al., 1999), the demographics questionnaire was administered as late as possible in the battery (second-last). Since the LEAP-Q depended on input from the demographics form, the LEAP-Q was administered last. This ordering was meant to eliminate any possible confounds induced by questionnaires that cause participants' identities to become salient, particularly in the questionnaires other than the LEAP-Q. Since the LEAP-Q requires participants to reflect on their linguistic identity, it was determined that it would not present a confound to place it after the demographics form. Based on the ordering criteria outlined above, the battery of measures was administered in the following order: SBI, CCCS, SWLS, CSE, Demographics, and LEAP-Q.

Upon completion of the questionnaire items, participants were asked to respond to a brief series of open-ended short-answer questions. The questions asked participants to elaborate on different facets of collective coping and heritage language proficiency. Before being presented with any open-ended questions, participants read a brief general description of what constitutes 'collective coping behaviours', and what constitutes a 'heritage language' in order to clarify the task. Participants were then presented with each question sequentially with a text field to write an answer.

Once participants finished all questionnaires and short-answer questions, they received a debrief form, and compensation for their time. Compensation was provided via course credit for

participants recruited from the University of Windsor Psychology Participant Pool, and via monetary reimbursement for participants recruited through the University of Toronto. Participants recruited from the University of Toronto were entered into a raffle to win a $20 Amazon gift card as compensation for a half hour of their time. The probability of winning a gift card was set at one in every ten entries to the raffle.

5.0 Quantitative Analysis and Results

5.1 Quantitative Data Analysis

Before conducting any statistical analyses, the data were screened for missing data. The overall matrix contained data from 296 participants across 5 questionnaires and consisting of 74 questionnaire items. Using the sparse data matrix method, 1.45% of the data were missing. Next, the missing data were visually inspected to find any theoretical or qualitative patterns of missing data. The missing data were analyzed by case and by variable in order to delete any cases or variables missing more than 10% of their data (overall, and within any individual questionnaire). An analysis of the data revealed that the vast majority of the missing data (99.6%) was exclusively missing from the language proficiency questionnaire (LEAP-Q), which was missing 6.3% of its data. However, the missing data appeared to be randomly distributed across the LEAP-Q items. Overall, two variables on the LEAP-Q were missing more than 10% of their data, and 50 participants were missing more than 10% of their data. Owing to the fact that 99.6% of the missing data was located within the LEAP-Q data, the dataset was duplicated, with one version (DATA1) excluding the LEAP-Q data to test M1 (the original model from Kuo, 2018, which did not include the language proficiency variable), and another version (DATA2) including the LEAP-Q data to test M2 (the model which included the language proficiency variable). The rationale for splitting the dataset into two parallel datasets was to maximize the amount of data used in the first stage of modelling (model replication), and to avoid an underpowered sample. This also avoided removing participants who had completed all questionnaires with the exception of an incomplete LEAP questionnaire. Note that DATA1 was only used for the purpose of model replication and was not used for any comparisons between models. Only DATA2 was used for cross-model comparisons.

There were very little missing data in DATA1 – there was only 1 cell of missing data located in the CCCS questionnaire. For this reason, no data were removed from DATA1. DATA2 was analyzed both by-row and by-column to determine how to negotiate the missing data. Although two items on the LEAP-Q were missing more than 10% of the data, no columns were removed to preserve the questionnaire's valid and reliable psychometric properties. Participants who were missing more than 10% of their data on the LEAP-Q were removed from the DATA2 sample. The remaining participants who were missing only one datapoint (< 10%) were included in each dataset and were resolved below.

The remaining missing data were addressed using Multiple Imputation via Chained Equations (MICE). This was achieved with the *MICE* package in *R*. MICE is an algorithmic approach to data imputation. It imputes missing data by drawing inferences from the rest of the dataset. MICE was selected for imputation since it functions optimally on large datasets with predicted correlations between variables (Azur et al., 2011). In addition to assuming correlations between variables, MICE assumes that missing data are missing at random (MAR). No statistical tests were conducted to establish MAR. However, the missing data within the LEAP-Q data were assumed to be MAR on the basis that (i) few discernable patterns were observed in the data[9], and (ii) the overall proportion of missing data was low (1.45%). Overall, one cell was imputed into DATA1 (n = 296), and 30 cells were imputed into DATA 2 (n = 246).

Note that the data were technically not missing at random across the dataset, due to the fact that they were mostly concentrated within the LEAP-Q data. The choice to partition the data and run analyses for M1 and M2 in parallel ultimately was borne out of the methodological problems that would have been introduced by simply using DATA2 to run M1. Although this was done as a

[9] Recall that two questionnaire items on the CCCS were missing more than 10% of their data, but this was resolved once participants who were missing more than 10% of their data (n = 50) were removed.

post-hoc checking measure (see Table 5.9), to do so a priori would constitute needless systematic removal of viable datapoints. On the same token, DATA1 could not be used to test M2, as the data were not missing at random, and the overall volume of missing data was too great to justify proration. Therefore, the decision to partition the dataset and run parallel analyses was the result of a compromise that tried to minimize the volume of analyses conducted with datasets that had deleted or prorated information. Note, however, that this decision did introduce new forms of error since the main models were not generated from identical datasets, although all model comparisons were generated from DATA2 (See Table 5.8).

Both versions of the dataset (DATA1 and DATA2) were then tested to determine if they met the assumptions necessary to carry out further inferential statistical analyses. These included the assumption of no multivariate outliers, along with the assumptions of normality, linearity, homogeneity of variance, homoscedasticity, and additivity. Multivariate outliers were determined by calculating Mahalanobis distances for each case in each dataset. In order to establish an assumption of no extreme outliers, seven cases were removed from DATA1 ($\chi^2_{(58)} = 97.03$, $p < .001$), and two cases were removed from DATA2 ($\chi^2_{(74)} = 117.35$, $p < .001$). Moving forward, DATA1 consisted of 289 participants, and DATA2 consisted of 244 participants.

In order to test the assumption of normality, a multivariate Shapiro-Wilk test was conducted with both DATA1 and DATA2, respectively, and found that the data were not normally distributed ($p < .001$). In order to further examine normality with the present multivariate data, a random chi-square distributed variable was created, and used to predict all the relevant variables for DATA1 and DATA2, respectively. Studentized residuals were then computed between each score in the observed variables and the randomly predicted (chi-square distributed) dummy variables. Despite departures from multivariate normality detected by the multivariate Shapiro-

Wilk tests, histograms of the predicted studentized residuals indicated that the data were close to a normal distribution in both DATA1 and DATA2 (see Figure 5.1), and therefore constituted only minor departures from the assumption of multivariate normality.

The studentized residuals were also visually inspected to determine if they approximately met the assumptions of linearity, homogeneity of variance, and homoscedasticity. The Q-Q plots in Figure 5.2 represent the studentized residuals plotted against a linear dummy variable in order to show any noteworthy departures from linearity. Apart from minor departures at the extreme edges of the distribution, the observed data appear to meet the assumption of linearity in both DATA1 and DATA2**.** The plots in Figure 5.3 represent the observed residuals plotted against the fitted values for DATA1 and DATA2 respectively. Note that most of the datapoints are clustered around the centroid with an even spread, thus suggesting that the assumption of homogeneity of variance is met in both cases. Additionally, the data appears to be distributed in a broadly circular shape around the centroids, suggesting that that the assumption of homoscedasticity of variance is likely met in both cases. Lastly, the assumption of additivity was tested, and no correlations between variables were concerningly elevated in DATA1 or DATA2 ($r < .70$), thus addressing the risk of multicollinearity/singularity. See Figure 5.4 for a visualization of the correlations across both datasets.

Since participants were sampled from two separate sources in Ontario (University of Windsor and University of Toronto), the initial plan for data analysis was to test for moderation by sample (does the effect of sample group impact the outcome results). Because there were only 18 participants in the final dataset from the University of Toronto, compared to 278 participants from the University of Windsor, any such analysis would be impossible. Overall, the 18 participants from the University of Toronto did not appear to be extraordinary or obviously

aberrant compared to the rest of the sample. For example, none of the multivariate outliers originated in the University of Toronto sample. While this does not suggest that the samples are consistent with one another, it does indicate that there aren't any flagrant inconsistencies between the centroids of the two samples. Additionally, the pattern of missing data was consistent across the two datasets. Recall that 50 participants were removed from DATA2 due to incomplete data when completing the LEAP-Q. Forty seven out of 278 participants (16.91%) from the University of Windsor sample were removed due to missing data. Similarly, three out of the 18 participants (16.67%)[10] from the University of Toronto sample were also removed. This shows that participant attrition rates are practically identical between the two pools of the sample. Overall, this comparison between the two samples did not reveal any dissimilarities or incongruencies in the populations from which each sample was drawn.

5.2 Sample Characteristics of DATA1

The initial research question posed by this study pertained to replicating the model that was tested by Kuo et al. (2018) to determine whether the model would fit a new dataset drawn from the population of multilingual undergraduate students. The sample (consisting of DATA1) included 289 undergraduate students drawn from the multilingual student population of Ontario. The sample was also highly multilingual, since multilingual lifetime exposure was an inclusion criterion for the study. Specifically, 244 participants (85% of the sample) self-identified as multilingual, thus indicating that multilingualism was prevalent and salient in the sample.

In addition to multilingualism, the sample was also ethnically diverse, with 102 participants identifying as Middle Eastern (35%), 77 participants identifying as White/Caucasian (26%), 44 participants identifying as South Asian (15%), 21 participants identifying as East Asian (7%), 27

[10] Note that given a denominator of 18, 3 participants constitute the integer that results in a ratio that most closely approaches 16.91%.

participants identifying as Black/African (9%), 16 participants identifying as Hispanic/Latinx (5%), and 5 participants identifying as Native/First Nation (2%). Note that participants were allowed to indicate more than one ethnicity on the questionnaire, which explains why the frequency data depicted above sum to 292, which surpasses the sample size of 289. Additionally, note that ethnic identities not listed on the questionnaire were not included in the present description of the data (n = 19). Overall, the ethnic distribution in this sample is beneficial, as it helps mitigate threats to external validity posed by an ethnically homogenous or highly skewed and non-representative sample.

In addition to language and ethnicity, participant gender was recorded in order to ideally achieve a balanced sample. 242 participants identified as Female, 41 participants identified as Male, and 2 participants identified as non-binary. This ratio indicates that only 14% of the sample was male. Although this issue is noteworthy, it is also perennial, as prior research (Kuo, 2018) found a similarly low rate of male participation (18.6%). This low rate of male participation may therefore reflect a lower base rate of men enrolled in psychology and linguistics classes and who are interested in participating in cross-cultural research. See Table 5.3 for a review of the descriptive statistics for DATA1 with respect to the relevant constructs for M1.

5.3 Sample Characteristics of DATA2

The second question that this study attempted to answer pertains to the role of heritage language proficiency in moderating the effect of collective coping within a broader model of cultural coping (Kuo et al., 2018). In order to answer this question, participants with unacceptably high levels of missing data were excluded from this analysis. Participants were overwhelmingly likely to skip questions on the measure testing for language proficiency (LEAP-Q). Therefore, the

dataset available to answer this research question was markedly reduced. With outliers removed, DATA2 included $n = 244$ participants.

Overall, the effects of removing the participants with unacceptably high levels of missing data did not systematically change the participant demographic breakdown. 84% of DATA2 identified as multilingual, 209 participants identified as Female, 32 identified as male, and two identified as non-binary. 13% of the sample identified as male, which is similar to the ratio reported in DATA1. Lastly, the ethnic makeup of DATA2 was similar to that of DATA1, with 94 participants identifying as Middle Eastern (38%), 66 participants identifying as Caucasian/European (27%), 36 participants identifying as South Asian (14%), 16 participants identifying as East Asian (6%), 22 participants identifying as Black/African (9%), 11 participants identifying as Hispanic/Latinx (4%), and four participants identifying as Native/First Nation (2%). Participants who indicated ethnicities not listed on the questionnaire item were not included in the present description of the data ($n = 13$). Overall, the demographic proportions with respect to language, gender, and ethnicity are all relatively stable across the two versions of the sample (DATA1 and DATA2), thus indicating that the removal of participants with missing data likely was done at random, and that it did not lead to a systematic change in the sample characteristics See Table 5.2 for a comparison of the sample characteristics across the two versions of the data. Additionally, refer to Table 5.3 for a review of the descriptive statistics for DATA2 with respect to the relevant constructs for M2.

5.4 Model Replication

To address Research Question 1 (Q1) of this study, statistical analysis first set out to assess whether Model 1 (M1), as examined in previous work in Kuo et al., (2018), would be replicated with the present dataset – hypothesized under H1. See Figure 3.1 for a visualization of the original

model. An initial Structural Equation Model (SEM)[11] was conducted with DATA1 (n = 289) in order to determine if M1 would fit the present multilingual dataset. The model was determined to be overidentified (df = 5), as the model estimated 23 parameters from a total of 28 possible parameters (Kenny, 2012). While the data were not normally distributed, they were close to normal, as suggested by the histogram of studentized residuals depicted in Figure 5.1. Due to mild departures from multivariate normality, maximum likelihood (ML) estimation was used, since ML estimation can still perform well with mild departures from multivariate normality (Chou et al., 1991). Additionally, ML estimation was also used in Kuo et al.'s (2018) original study.

In order to properly assess model fit, several fit indices were calculated. A Chi-square test showed poor model fit ($\chi^2_{(13)} = 23.10, p < .05$), though this was not particularly enlightening due to the high dependence on sample size. Since the χ^2 test statistic is calculated by the formula $(N-1)F_{ML}$, where N is the sample size and F_{ML} is the minimum fit function generated from maximum likelihood estimation, this implies that as sample size increases, the chance of obtaining a significant, and thus poor fitting model also increases (Brown, 2015; Little, 2013). Overall, the consensus generally agrees that the Chi-square goodness of fit test should not be relied upon for assessing model fit in this context (Jackson, 2021). For this reason, other fit indices were relied upon to assess model fit. Absolute Measures revealed good model fit. The Root Mean Squared Error of Approximation (RMSEA) measures the degree to which the model poorly fits the data on a scale ranging from 0.0 to 1.0, with 0.0 representing perfect model fit. According to previous work (MacCallum, Brown & Sugawara, 1996; Kenny, 2020), RMSEA scores in the range of x < 0.08 are considered acceptable. In the current analysis, the RMSEA indicated good model fit (RMSEA = 0.052, CI $_{(90\%)}$ = [.011, .086]), although note that the upper bound of the 90%

[11] The *Lavaan* package from R Statistical Software was used for all Structural Equation Modelling (Rosseel, 2012; RStudio Team, 2020).

confidence interval is beyond the cut-off, suggesting some ambiguity regarding the confidence of the present findings. The Standardized Root Mean Square Residual (SRMR) is another absolute fit index that measures the difference between the observed and predicted residuals for the sample-covariance matrix. The SRMR also yielded a value indicating good model fit (SRMR = 0.043), as it too was below the cut-off of 0.08 for acceptable model fit (Hu & Bentler, 1999). Incremental fit indices compare the fit of the present model to a null model where all variables have no correlations. Incremental fit indices range from 0.0 to 1.0, with 1.0 representing perfect model fit. The incremental fit indices that were assessed included the Tucker-Lewis Index (TLI) and the Comparative Fit Index (CFI) scores, which both pointed to good model fit (TLI = 0.955 and CFI = 0.979). Both indices were above the cut-offs of 0.95 proposed by Hu and Bentler (1999). Taken together, the absolute and incremental fit indices for the present empirical model (M1) consistently showed good model fit with respect to the data (see Table 5.4 for a summary of all the fit indices). Figure 5.5 shows a visualization of the SEM analysis testing M1 with DATA1; Table 5.5 also reviews the parameter estimates and significance tests for all pathways in M1.

An analysis of the standardized parameter estimates of M1 revealed similar beta weights across datasets, thus indicating the replicability and robustness of M1. Recall that M1 was the theoretical model proposed by Heppner et al., (2014), and empirically substantiated by Kuo et al., (2018). The comparison presented in Table 5.6 shows the striking similarities in the paths of M1 in the present study to those of the Kuo et al. (2018) study. Note that the estimates across the two samples are uniformly within ±0.11 standardized units from each other. The only time the negative sign (-) flips is when the scores are already very close to zero (as in the SWLS~AC path). Otherwise, the magnitude and direction of all the regression path vectors are highly consistent between the present model, and the model in the original study by Kuo et al. (2018).

5.5 Model Modification

To address Research Question 2 (Q2) of the present study, Model 2 (M2) was tested to assess the model's fit with the data in DATA2 – hypothesized under H2a. Recall that M2 consists of M1 with the addition of the Language Proficiency moderator variable acting on Collective Coping. A Structural Equation Model (SEM) was conducted with DATA2 (n = 244) in order to determine if M2 would fit the present multilingual dataset. The model was found to be overidentified (df = 11), as the model estimated 25 parameters from a total of 36 possible parameters (Kenny, 2012). ML estimation was used once again due to minor departures from normality (Chou et al., 1991).

The findings for model fit of M2 were parallel to the findings for M1. The chi-square test showed poor model fit ($\chi^2_{(20)}$ =48.94, $p < .05$), but further tests were still conducted since the chi-square test is generally not relied upon to assess model fit (Brown, 2015; Little, 2013). Absolute measures revealed good model fit with respect to the current data. The RMSEA indicated good model fit (RMSEA = 0.077, CI $_{(90\%)}$ = [.050, .105]) and so did the SRMR (SRMR = 0.068). Note that again, the upper bound of the 90% confidence interval for the RMSEA value is beyond the cut-off of .08, suggesting once again some ambiguity regarding the confidence of these findings as well. Both the RMSEA and SRMR values were below the cut-off of 0.08 for acceptable model fit (Hu & Bentler, 1999). Furthermore, the Incremental fit indices showed borderline model fit, with the TLI and CFI scores both in the borderline range (TLI = .884, CFI = .936); both were below the stringent cut-off of 0.95 as stipulated by Hu and Bentler (1999). Despite these conflicting findings, it should be noted that the CFI in particular was very close to the cut-off. Overall, the absolute fit indices for the empirical model point toward a trend of good model fit. Although the incremental fit indices are in the borderline range, they do not warrant rejecting M2. See Table 5.4

for a summary of all the fit indices. Table 5.7 shows a visualization of the SEM analysis testing M2 with DATA2. Table 5.7 also shows the parameter estimates and significance tests for all pathways in M2. Additionally, see Figure 5.6 for a visualization of M2.

5.6 Model Comparison

The final goal of the quantitative portion of this study was to test whether or not the addition of the language proficiency variable would improve the model, as hypothesized under H2b. In order to compare the relative explanatory power of M1 and M2, standard fit indices (absolute and incremental) could not be used, as they depend upon the number of parameters being estimated. Since the two models have different specifications and pathways, a direct comparison with absolute and incremental fit indices is impossible. To sidestep this issue, information criteria were used. Information criteria, such as the Akaike Information Criterion (AIC) (Akaike, 1973), and the Sample-Size Adjusted Bayesian Information Criterion (SABIC) both function by determining the amount of information that is lost through the model-fitting process. Additional information criteria that were included in the analysis were the Scaled Unit Information Prior Bayesian Information Criterion (SPBIC), and the Haughton's Bayesian Information Criterion (HBIC) which have been empirically demonstrated to be particularly robust methods for accurate model selection (Lin et al., 2017). A comparison of these information criteria is shown in Table 5.8, indicating that the addition of the language proficiency moderator variable provides a slightly better model. Specifically, the Information Criterion values obtained for M2 are slightly smaller than those obtained for M1, demonstrating that there is slightly less information lost in M2, and therefore suggesting that M2 is a slightly improved model in explaining the data.

Note that the difference scores (Δ) between M1 and M2 were between -2 and -7, indicating that M2 consistently had lower information criterion scores, and thus performed slightly better

than M1, despite the difference in model complexity. That said, this magnitude should not be interpreted as conclusive evidence that M2 has more explanatory power than M1. According to prior work by Burnham and Anderson (2004), a difference score of $2 < \Delta < 7$ indicates that M2 may indeed be an improvement over M1, but that there also may be error adding noise to the findings, and that there remains ample room for model improvement.

Additionally, note that information criteria are highly sensitive to differences in sample size. For this reason, DATA2 was used to compare M1 and M2. In other words, M1 and M2 were directly compared using the exact same data so that no differences in sample size or uncontrolled error could affect the comparison. To illustrate this point, when the information criteria were calculated for M1 using DATA1, the analysis yielded scores that showed a decrease by over 200 units, and thus vastly exaggerating the effect of language proficiency on the model. Though the present results are much more modest, they likely reflect the real magnitude of model improvement as a result of introducing the language proficiency variable.

In addition to the previous point, note that before any model comparisons were conducted, M1 was fit to DATA2 in order to verify whether it was still a good model, despite the alteration of the sample, and the slight reduction in sample size. Overall, the fit index values for M1 were consistent across DATA1 and DATA2, showing relatively good model fit, but with some room for improvement. The only noteworthy change in the fit index scores across the two versions of the dataset is that while the TLI score is well fitting when M1 is fit to DATA1, it becomes borderline when M1 is fit to DATA2, not quite passing the stringent cut-off proposed by Hu and Bentler (1999). See Table 5.9 for a summary and comparison of the fit index values calculated for M1 when fit to DATA1 and DATA2.

6.0 Qualitative Analysis and Results

6.1 Qualitative Data Analysis

Due to practical considerations, only Question 1 and Question 5 of the short answer questions were analyzed, as they are most directly aligned with the quantitative research questions reported in the previous sections. Recall that question 1 asked participants to describe the collective coping behaviours they have engaged in either currently or in the past. Question 5 first asked participants to identify if they ever struggle to converse in their heritage language. If participants answered 'no', they were then asked to describe their experience conversing in their heritage language, and to contrast that experience with speaking other languages. If the participants answered 'yes', they were also asked to describe their experience conversing in their heritage language, and to also describe how they navigate any perceived language barriers within their community.

Participant responses to the open-ended questions were analyzed using thematic analysis, following the method outlined by Braun & Clarke (2006). Thematic analyses were conducted with (i) special attention directed toward inductive and theoretical approaches, (ii) a focus on latent and semantic themes, and (iii) an epistemological framework that incorporated elements of both essentialist and constructionist paradigms (Braun & Clarke, 2006).

Thematic analysis of the data incorporated elements of inductive and theoretical approaches for different questions. Question 1 inquired about specific collective coping behaviours, so particular attention was placed on whether or not participants' answers were congruent or different from the dimensions of collective coping outlined in Yeh et al., (2006a). The responses to Question 5 were analyzed with an inductive approach. Note that the framing of this question presupposed the hypothesis underpinning this entire project – that heritage language

would play a critical role in community integration, and that a lack of proficiency in one's heritage language would present barriers that would need to be overcome.

One of the goals of asking short answer questions in the present investigation was to better understand the clinical implications of collective coping in a multilingual population, and to provide meaningful insights to the quantitative results described above. For this reason, thematic analysis attempted to look past descriptive semantic themes and capture latent themes in the data. For example, in analyzing participants' written responses the thematic analysis for this study focused on latent themes concerning underlying expressions of personal and group identity, affiliation, and ideology among the multilingual participants. In addition to latent themes, semantic themes were extracted from question 1 for the purpose of generating a basic typology of collective coping behaviours identified in the sample. These themes are presented below and are subsequently compared to the categories/types of collective coping previously described by Yeh et al. (2006a).

Within the context of research in both psychology and linguistics, meaning can originate both from within an individual (essentialist epistemology) and across individuals, including the broader societal context (constructionist epistemology). For this reason, the thematic analysis conducted for this project borrowed from both an essentialist and constructionist epistemic framework. Since this project relies on the theoretical framework established by the CCMC (Heppner et al., 2014), it is assumed that individual experiences of stress and coping are informed by a combination of individual and environmental/social factors. Therefore, in order to account for different types of meaning, an integrative epistemic foundation was adopted for the thematic analyses in this project.

Once all the data were collected and screened for completeness, it was compiled into a corpus and analyzed using Dedoose qualitative analytic software. Following the method outlined by Braun and Clarke (2006), initial codes were extracted from the data. Codes were initially very descriptive but were subsequently elaborated and grouped into themes based on theoretical and latent factors. Once the data were fully coded, codes and themes were reviewed for internal homogeneity and external heterogeneity. In other words, data within codes were reviewed to ensure they reflected the same construct. Meanwhile, data across codes were reviewed to ensure they did not reflect the same construct. If the data across two codes were too homogeneous, then the codes were combined. If the data within one code was too heterogeneous, then the code was split into its constituents. When all codes were evaluated, the same process was repeated for themes with respect to their constituent codes.

Out of the 296 participants in the overarching dataset, 276 participants completed the short answer questions to varying degrees. Participant responses ranged from one-word responses to short essays, although the modal answer was usually 1-2 sentences per question. Work by Fugard and Potts (2015) suggested that a sample of N=45 is sufficient to find at least 1 instance of a theme with a population prevalence of 5%. The sample size suggested above (n = 276) therefore represents a gross overshot of a typical sample size required for qualitative analysis. Note, however, that participants were highly variable in their response style, and therefore many responses were too laconic to extract a code that could meaningfully contribute to the analysis. Therefore, if a participant response was too short or vague to meaningfully interpret, it was left uncoded.

Participant response saturation was also considered while coding (Saunders et al., 2018). If a novel code was found in the data, every instance would be documented initially if the same

code repeated over 10 times all within similar contexts, the code would be deemed to have reached saturation and further instances of the same code would not be excerpted.

That said, all participant responses were reviewed and analyzed in order to ensure that codes and themes were accurately reflecting the data. If a novel instance of a code was found, or if a contradictory or particularly rich excerpt was found, it would be excerpted regardless of how many times a code was used previously. In this way, codes were checked for internal homogeneity and external heterogeneity.

6.2 Typology of Collective Coping

One of the goals of the present qualitative exploration was to help sample and identify the precise behaviours, characteristics, and mechanisms associated with actual collective coping, as experienced by multilingual participants in the present sample. The quantitative findings reported in previous sections are important in shedding light on how collective coping behaviours work in buffering multilinguals from academic stress, and the role of language proficiency in mediating the effect of collective coping on psychological outcomes. While the CCCS probes for a wide range of behaviours directly related to collective coping, it presents an aggregate for the sample. In order to document and expand our current understanding about the experience-near process of collective coping, it is essential to actually collect and sample collective coping behaviours from the lived experiences of participants. In the following section, themes will be presented that emerged from participants' written responses to short-answer Question 1. Recall that question 1 asked for examples of collective coping that participants engaged in currently or in the past.

6.2.1 Being, Talking, and Consulting. An interesting thematic contrast (consistent distinction between similar themes) that became apparent pertained to the different facets that go into family and community support. More specifically, there appeared to be a distinction between

(i) being in the presence of members of your community, (ii) talking with members of your community, and (iii) seeking consultation from members of your community.

"Being with others" was the simplest variety of support, and it was highly ubiquitous – over 34 examples were reported by participants in the current sample. This theme included any behaviour that simply required a participant to be in the presence of other members of their community. Although 'speaking with others' and 'consulting with others' entailed 'being with others', those constructs were defined as separate themes. Therefore, despite this entailment structure, 'being with others' excluded all behaviours that involved talking or consulting with others. This was done in order to capture the unique aspects of 'being with others' that do not necessitate language.

This theme included examples that involved a diverse cast of community members, including parents, siblings, cousins, aunts and uncles, grandparents, friends/family friends, community elders, members of one's religious community, etc. The behaviours were also highly eclectic, including going on walks with family members, applying henna together with a friend, sitting down to a meal together (see more later), playing soccer with friends on the weekend, etc. Note that despite the diverse nature of this theme, participants were deliberate in communicating that these behaviours were carried out in the presence of other members of their cultural group, and that these were behaviours they carried out as a means of coping with stress. Recall that Yeh's (2006a) definition of intracultural coping involves a mounted effort on the part of group or community of people to help an individual cope with stress. This concept is precisely found in the following excerpt:

6.1 "After being bullied by my best friend my mom and grandma made my favourite arabic food and the whole family ate together. We had chai and arabic sweets and played cards."

In examples such as 6.1, notice that one of the important features the participant is communicating is the act of simply being together with the family while sharing food. Additionally, it may be possible that the act of being together as a family was a deliberate mobilization of resources aimed at helping this individual cope with her relational stress of being bullied by a peer. The excerpt shows that coming together and eating these foods and playing cards and being together following a highly stressful incident (being bullied) represents a form of intracultural coping, as described by Yeh et al., (2006a).

This construct of "being together" is interesting, as it reflects a constellation of behaviours that can be performed in the absence of language proficiency. Language underpins many of the social interactions that are integral to collective coping. That said, examples such as this (and more below) reflect an aspect of collective coping that would likely be unaffected by language proficiency.

"Talking with others" was another prevalent theme, occurring for more than 28 participants in the sample. This theme was only used if the participant did not specify talking with others in a consultative context. Of course, "consulting with others" entails "talking with others", but unless the participant specified that they were seeking guidance or wisdom pertaining to a stressor, then the "talking with others" theme was used. This theme therefore represents the concept of talking with others in one's community for purposes other than consultation pertaining to the stressor.

6.2 "Going out for a smoke and coffee with friends from work and school and chatting."

In this example, the coping behaviour is simply the act of talking and being with friends. This excerpt was not coded as "seeking consultation" since the participant made no mention of seeking advice or help pertaining to any stressors. This theme may have some issues pertaining to validity

due to the issue of participants implying consultation when reporting talking with others. In the example above, there is a distinct possibility that the participant was implying that during these social outings with friends, he/she seeks help with current issues. While this remains a possibility that is difficult to rule out, the most straightforward interpretation of this excerpt is that the participant could be chatting about any topic. This finding is interesting, as it suggests that the act of talking, regardless of topic, may be helpful for collective coping. This may be helpful for participants, as the act of talking with somebody else from the same culture may help affirm the participant's interdependent construal of the self (Yeh et al., 2006a).

"Consulting with others" was closely related to the theme of "talking with others", though it necessitates a context whereby the participant was actually and intentionally seeking guidance or wisdom from peers or superiors to cope with their stressors. Participants were often quick to point to both friends and family as the sources of consultation, though they often specified seeking members who share the same culture. Excerpt 6.3 offers insight into why participants would specifically seek guidance from members of their cultural in-group.

6.3 "Sometimes when I am stressed I turn to my family members for advice, who usually provide guidance in line with cultural beliefs."

Note the importance of cultural worldview and belief system being underscored in this excerpt. This excerpt also implies the importance of coping with stress in a culturally congruent manner, and that the affirmation of one's cultural belief system in and of itself can offer relief from stress. While participants often referred to consulting elders/parents/authority figures, the participants also stressed the importance of consulting peers, as seen in excerpt 6.4.

6.4 "Some examples of collective coping that I have engaged in currently and in the past are: calling some of my friends back home to ask for an advice and texting them"

Note how excerpt 6.4 implicitly calls attention to the participant's experience of immigration status, indicating that they are not currently living "back home". This is interesting, as it suggests the nature of "consulting with others" as a means of connecting with and affirming one's connection to their homeland. In sum, both excerpts 6.3 and 6.4 effectively show the act of seeking consultation as being wrapped up in attempting to connect with one's culture, whether that be through cultural beliefs, or with one's homeland.

In addition to talking and consulting with others, each of these themes had analogues that were of the same genus – *talking or consulting with others in one's heritage language*. Many participants invoked the use of their language as a component of collective coping.

6.5 "Talking to my parents in my native language"

6.6 "talking to my friend who speaks arabic too."

6.7 "I usually talk to my dad […] when I am in stress. My dad speaks to me mostly in Punjabi and he gives me advice on how to handle situations."

Examples like 6.5-6.7 indicate that the act of talking in the language of one's culture is important with both friends and family. Interestingly, this notion of "talking in my heritage language" has two distinct components. Some participants talked in their heritage language out of an instrumental need for closeness with members of their linguistic community, as in 6.7. On the other hand, other participants spoke in their heritage language as a deliberate choice, as in 6.6. In this latter example, the use of the word "too" may indicate that the friend speaks Arabic in addition to another language (presumably English). Taken together, this theme is particularly revealing, as it serves to illustrate one of the core hypotheses of the present research in action – that one's heritage language is integral to facilitating collective coping among multilingual individuals. It also hints at the hypothesis from Williams et al. (2020), that states that a bilingual speaker will find contrastive

expressive potential in their various languages. This means that one's heritage language will afford opportunities for unique expression, such as capturing culture-specific emotion experiences[12].

6.2.2 "Consulting with Authority Figures" was another related theme that emerged in the data. Although it was closely related to the "consulting with others" theme, it represents a slight shift in focus. In the previous section, the nature of consulting with others was defined simply as an individual participant (agent) talking with any other individual from their cultural in-group (recipient). In the case of the "consulting with authority figures", the recipient of consultation needed to be a member of the individual's community who has clout and authority, whether that be by virtue of being a grandparent (6.8), a community elder (6.9), or a religious leader (6.10).

6.8 "I usually deal with stress by talking with my grandparents, as they are wiser and have more life experience"

6.9 "I like taking advice from my elders for all my problems."

6.10 "Lectures from the sayyid (religious figure)"

In examples 6.8 and 6.9 the participants are very clear that they are relying on older and wiser individuals for guidance through difficulties. Similarly, excerpt 6.10 indicates that the participant is taking advice from a religious leader. These examples align closely with Yeh's concept of "authority figures", whereby individuals from collectivistic cultures rely more heavily on leaders who embody their cultural community as a whole. Furthermore, this agrees with findings that show individuals from interdependent cultural contexts are more likely to rely on community elders and authority figures when they are stressed or sick (Sue & Sue, 2003).

[12] One caveat to this finding is that participants at this point had already completed the LEAP-Q, and were therefore primed to be reflecting on their linguistic identities. While this was intentional and beneficial for question 5 discussed below, this was suboptimal for the present question, as it biased participants to answer in such a way that placed disproportional emphasis on the role of language in the context of discussing their collective coping behaviours.

Therefore, this finding is well-supported by the existing literature on collectivism and interdependence.

6.2.3 "Religion/Spirituality" was a very common theme reported by participants in the sample. Many participants discussed the importance of faith in God, as in excerpts 6.11 and 6.12. In both of these examples, the participants explain that faith is an important feature of their collective coping repertoire. The importance of faith and spirituality relate closely to Yeh's concept of Fatalism – the act of ascribing agency to an external locus of control, like God, the environment, fate, or the social order. In addition, these data repeatedly point to the role of religion and faith as critical, culture-based tools for collective coping. Although the participants frequently brought up content pertaining to religious behaviours, the tendency to include content like "put your trust in god" and "turn to faith to find guidance" indicates that participants are relinquishing an internal locus of control, and are thus likely engaging in fatalistic collective coping, as described in Yeh et al. (2006a).

6.11 "A method of collective coping that I engage with is religious coping. Religion has always been instilled in me and it is a big part of my culture and family life. During difficult times, I often turn to my faith in order to find guidance"

6.12 "Some examples of Collective coping are spending time with family … [and] putting your trust and faith in God"

6.13 "My mom and I paid a visit to the weekly gathers [that] our Assyrian church hosts for no reason other than for people's enjoyment"

6.14 "Going to the mosque to seek peace and guidance"

Another facet to 'Religion/Spirituality" was the component of being in a religious space and being surrounded by one's faith community. For example, 6.13 is related to religion, but the

participant is not focusing on any doctrinal content. Rather, they are focusing on the community support that can be accessed and acquired through one's religion, and through a place of worship. Excerpt 6.14 parallels 6.13 in that it too invokes a place of worship (the mosque) as being important to help facilitate collective coping. While going to a place of worship may not in and of itself represent a collective coping behaviour, it certainly represents a preconditional element. Many participants cited "going to the church" or "going to the mosque" as being linked to and integrated with the experience of collective coping through prayer (fatalism), or through social engagement with one's faith community (social activity).

6.2.4 "Cooking and Eating Together". A distinct facet of collective coping that emerged from the participants' short answer responses related strongly to the act of cooking and eating together with their cultural in-group. Many participants cited communal behaviours and experiences related to food as examples of collective coping. Participants often highlighted the act of preparing or consuming food as being intrinsically connected to their cultural community and to collective coping.

6.15 "Cooking/baking with my nonna/gatherings that revolve around food/eating, church"

6.16 "Making halva with my mom when I was sad."

6.17 "The most common form of cultural coping i engage in is talking to my family. Participating in cultural rituals & eating cultural foods during stressful times can also be soothing."

Excerpts like 6.16 and 6.1 both show the tendency for participants to discuss the restorative and nurturant quality of food prepared by one's kin in response to stress. In both instances, the participant was asked to describe collective coping behaviours. Therefore, given the context, this tendency indicates that food may represent more than just its physical properties. In other words,

the act of preparing and consuming food fulfills a psychological, cultural, and symbolic role, in addition to its physiological role. These examples (6.1 and 6.16) therefore suggest that this theme represents an example of intracultural coping (Yeh et al., 2006a), whereby the act of providing nurturing food to a community member in need represents an empathically responsive and emotionally attuned response on the part of the community, or at least on the part of the mother and grandmother cited in the excerpts above.

Another component of collective coping is evident in excerpts 6.15 and 6.1 where the participants indicate the act of coming together as a family for the purpose of sharing food. This may be understood as an aspect of relational universality, where a sense of shared experience may be fostered and buttressed through the behaviour of sharing a meal together. It can also be interpreted that the act of sharing food represents an example of social activity, whereby food is simply the comforting catalyst that brings the community together for the purpose of helping an individual cope during stressful times.

Food clearly represents an aspect of material/objective culture that is meaningful to individuals in the context of collective coping. Consequently, the behaviours surrounding food, like the preparation, and the act of coming together to share food represent methods of communalistic and collective coping that were observed by Yeh and colleagues (2006a). The centrality of food in the context of collective coping should come as no surprise, given the importance of ***Commensality*** described in anthropology literature. Commensality effectively refers to the very construct being alluded to above – the culturally relevant act of eating together (Jönsson et al., 2021). Commensality represents not only the literal sharing of food or of one's table, but also the symbolic qualities and implications of what cultural food entails, including

nurturance, generosity, and love[13]. Commensality ultimately represents a social behaviour that has been documented in many cultures across time and space. The qualitative data from the present study lend further empirical support to this observation. In summary, given the ubiquitous and important role of commensality across cultures, it is not unexpected that it would be pertinent in the context of collective coping in the present sample as well.

6.3 Experiences of Heritage Language

Due to the framing of question 5, the participants responded to the question in one of two possible ways, depending on whether or not they identified being proficient in their heritage language. In both conditions, participants were asked about their experiences conversing in their heritage language. The two conditions differed depending on whether or not participants felt like they were proficient in communicating with their heritage language. If participants reported being proficient in their heritage language, they were asked if they felt different speaking their heritage language compared to speaking in other languages. Conversely, if participants reported that they were not proficient at communicating in their heritage language, they were asked if they did anything to compensate for the language barrier.

6.3.1 Different thoughts and emotions accessible only in a participant's Heritage Language" (abbr. "Different Feeling"). An important theme that emerged in response to this question related to the experience of there being different thoughts and emotions accessible only in a participant's heritage language. Note that this theme pertained only to those participants who indicated that they were proficient in their heritage language. Narrative examples of this theme include:

[13] Taken through an Object-Relations theoretical orientation, I believe that commensality may be conceptualized as being related to oral-incorporative gratification (Greenberg & Mitchell, 1983), whereby the sharing of food between people represents an abstract notion of nurturance, thereby fostering a sense of mutual love, affiliation, and identification.

6.18 “I feel that I will always be more fluent in my heritage language no matter how much better I get at my second language. I can easily find the words that exactly describe my feeling and thoughts in my heritage language.”

6.19 “I enjoy speaking in the language of my heritage, it feels different in that humour & emotions are expressed differently.”

6.20 “Yes, words feel deeper when its spoken in my native language where my second language feels lighter, like some words I try to find the Arabic word for becasue i feel like English isnt doing it justice.”

These quotes poignantly capture the heightened precision and expressiveness when participants use their heritage language. All three of the excerpts above demonstrate the tendency for participants to find unique qualities of their heritage language that allow them to communicate unique cognitive and emotional phenomena. This also captures an irreplaceable component of one’s heritage language. In 6.20, the fact that ‘English isn’t doing it justice” indicates that English isn’t just a one-to-one translation of Arabic. Instead, this participant is communicating that English cannot fully capture the precise concepts that can be communicated using Arabic.

An interesting feature of the theme revealed in 6.18 is that the participant does not attribute their affinity to their heritage language simple to a lack of proficiency in their second language. Rather, they believe that no matter how proficient they become in their second language, their thoughts and feelings will always be best represented and expressed using their heritage language, thus implying that they are thinking and feeling within the cognitive infrastructure afforded to them by their heritage language. Excerpt 6.19 is illuminating, as it expresses a slightly different facet of this theme. In this case, the participant does not appear to be saying that their heritage language is better at capturing the nuances of their mind compared to their other languages. Rather,

the participant is simply offering an observation that their heritage language preserves certain emotional and cognitive experiences that contrast against other languages. In short, all three of these excerpts suggest that one's heritage language preserves certain ideas, concepts, emotions, and cognitive qualities that are unique to their heritage language, and that cannot be easily or fully communicated in another language.

6.3.2 Connectedness. Another theme that was found among participants who were proficient in their heritage language was that of *Connectedness*. This theme emerged out of participants' frequent discussion of a sense of closeness related to speaking the language of their heritage. This sense of connectedness included feeling connected to small social units such as the family, and larger entities such as their culture as a whole.

6.21 "I enjoy conversing in the language of my culture because it makes me feel included and closer to my family."

6.22 "… my heritage language is what connects me to the people I care about the most."

6.23 "I enjoy speaking in the language of my heritage because my grandparents often visit me and they have difficulty understanding and talking in English, so it is important for me to know how to speak Urdu so I am able to talk to them. Also hopefully be able to teach my future kids the language. Speaking Urdu makes me feel connected to my heritage, like I am connected to my family back home even though I don't see them often."

The sense of connectedness is overtly and prototypically described in 6.21 and 6.22. In these cases, the participants effectively restate one of the core tenants of this entire project – that one's heritage language serves as the glue that helps connect a person to their culture. In other words, language is a critical mediator for any social interaction, and in a practical sense, language is essential if one wishes to engage in any sort of meaningful interaction. Excerpt 6.23 clearly shows not only the

feeling of connectedness described above, but also implies a slight anxiety about the idea of not speaking one's heritage language. This anxiety takes the shape of a conditional implication: If my children and I do not speak Urdu, then we may not be able to speak with some members of the community. This excerpt, along with excerpt 6.21 both involve a sense of enjoyment that comes from speaking one's heritage language. In the instance of excerpt 6.23, the participant clearly stated a strong sense of enjoyment stemming from the opportunity to communicate with their grandparents – something that would be highly restricted if they were not proficient in Urdu. This sense of ***"Enjoyment from Speaking one's H.L."*** was coded as a distinct theme, although it was closely related to the theme of connectedness, as it usually appeared as a direct consequence of the sense of inclusion, and connectedness that comes from speaking one's heritage language. This ultimately makes sense – speaking one's heritage language would be very enjoyable if the consequence of doing so opened up the possibility to be connected with one's important others, such as grandparents, family living abroad, and one's culture as a whole.

6.3.3 Authenticity. The last major theme reported by participants who identified themselves as proficient in their heritage language related to the concept of authenticity. The authenticity theme is comprised of two important facets/components. The first facet relates to the tendency for participants to feel like they were expressing an authentic part of self when speaking their heritage language. The second facet of this theme refers to the tendency for participants to feel like they were communicating in a more authentic manner when they use their heritage language.

6.24 "Speaking your heritage language is different, I feel like it presents the true me, I think it's part of my identity and it feels different and special."

The main thrust of this excerpt speaks to the participant's identity and involvement with their cultural or linguistic in-group. By stating that their heritage language is part of their identity, the participant has contextualized the rest of the excerpt. If their heritage language is an important part of who they are, then using their heritage language would constitute behaving in a manner consistent with their authentic self. The statement "I feel like it presents the true me" also suggests that the act of speaking one's heritage language represents more than an instrumental means for connecting with others from one's community; it embodies a deep and integral part of one's identity. Therefore, the current qualitative evidence indicates that speaking one's heritage language amounts to an expression of eudaimonic existence (Waterman, 1993).

6.25 "It makes me happy, gives me a sense of belonging and allows me to express myself in a more truthful manner that feels genuine."

Excerpt 6.25 has several components that are ripe for analysis. After noting that it makes them happy, the participant stated that it gave them a sense of belonging, which was coded under the connectedness theme described previously. In this instance, however, "belonging" has an additional meaning that extends beyond the feeling of inclusion in 6.21-6.23. "Belonging" could involve finding a good fit between one's authentic self and others. If one does not belong, it may reflect either the rejection of one's authentic self by others, or one's inability to be truly authentic around others. "Belonging" therefore represents a subset of mere inclusion – one can be included but not belong, however, one cannot belong but not be included. "Belonging" differs from "connection" and "inclusion" due to the role of authenticity in helping define "belonging".

The participant concluded the excerpt (6.25) by stating that their heritage language allows them to express themselves truthfully in a manner that feels genuine. This last section was coded with both the authenticity theme, and with the "different feeling" theme developed in section 6.3.1.

This short passage of text at the end of excerpt 6.25 can be interpreted in at least two different ways. First, it can be interpreted as the participant saying that their heritage language allows them to communicate their internal phenomenological experiences with maximal effectiveness, and hence making them feel closer to their subjective reality and existence. Second, it can also be interpreted as the participant saying that the general act of speaking in their heritage language allows them to project an authentic social identity to the world. Both of these interpretations are possible due to the participant's ambiguous word choice of "express myself". "Expressing oneself" can occur in a narrow sense, as in the specific rhetorical choices a person could make in conversation. Conversely, "expressing oneself" can also occur in a broad sense, including the expression of one's cultural identity. The question therefore becomes whether *truthful and genuine expression* refers simply to the content that is communicated when one speaks their heritage language, or to the indexical meaning that is conveyed when one demonstrates him or herself as a member of a speech community[14]. Ultimately due to the method of data collection and the lack of further specificity from the participant, both interpretations were possible, but cannot be verified given the absence of further data to this point.

For the purpose of maintaining validity, it was important that each theme correspond to one emergent construct from the data. This was ultimately a challenge for the authenticity theme, since it consisted of several elements including 'honouring the self', 'sense of belonging', and 'genuine expression'. Excerpt 6.25 activates both the "authenticity" theme and the "different feeling" theme. Despite this overlap, the two themes represent distinct constructs. While the "different feeling" theme refers to a language's ability to accurately capture the phenomena in

[14] A good analogy is that of clothing. A religious or culturally significant head covering may have an immediate material utility by providing warmth and protection, but it also may have a distal social utility by signifying cultural values and indexing membership to a cultural group. Language functions in the exact same manner (Tosco, 2017).

one's mind, the authenticity theme directly captures the participant's experience of being able to authentically express their intrapsychic reality. The source of this confusion likely stems from the observation that the "authenticity" theme presupposes the "different feeling" theme. If an individual experiences a heightened sense of authenticity while using their heritage language, they would first need to experience their heritage language as having irreplaceable qualities that allow for unique expressive potential.

6.3.4 Anxiety and Embarrassment. Of the participants who reported being *non-proficient* in their heritage language, themes relating to "Anxiety" and "Embarrassment" were the most common. When participants were not proficient, they clearly communicated a general sense of anxiety relating to their accent, or the quality of their speech while speaking in their heritage language. This affective response likely indicates a sense of self-consciousness around being judged for not being proficient.

6.26 "I struggle to speak to others in my heritage language who are outside my family because it makes me nervous and I get made fun of for struggling to string words together and my pronunciation which is very embarrassing."

6.27 "Anxiety, embarrassment, shyness. Heart racing, sweaty palms, thinking I'm going to be judged and humiliated."

Excerpts 6.26 and 6.27 both showcase the fear of humiliation and exclusion that arises when individuals are not proficient in their heritage language. In some cases, this fear may be founded in the reality of prescriptive language norms in certain cultures (i.e., the harmful belief that there is a superior version of the language, and that nonstandard dialects represent inferior degenerate versions of the language; Ayres-Bennett & van Ostade, 2016). In other cases, it may simply be a concern over not wanting to be different from the rest of their community, not wanting

to be perceived as deficient, or not wanting to lack the language skills necessary to engage in complex social interaction. In other words, participants may fear a sense of exclusion and otherness from their cultural-linguistic in-group. These latter hypotheses are not verifiable, as the participants did not elaborate, although they are certainly consistent with the profile of the results being presented.

6.28 "There is a lot of embarrassment I feel when speaking with members of my heritage, especially with a lot of the seniors who assume I thoroughly know the language. For the longest time my lack of language skills in Arabic made me feel unworthy because it felt like the Canadian in me overcame my cultural roots and it got more difficult to speak with family members."

Excerpt 6.28 is similar to the previous two examples in that it too portrays an embarrassed response to not knowing one's own heritage language; however, it differs from the previous two accounts in that it presents a more elaborated context as to why the participant is feeling embarrassed. The crux of this individual's embarrassment seems to center around other members of their community finding out that they do not, in fact, know the language. This appears to come from a place of shame associated with acculturation, along with the anxiety concerning the nature of their cultural identity. The participant appears to be afraid that they were abandoning their heritage in favour of Canadian culture, and that this constituted being an unworthy member of his or her cultural community. This excerpt may even indicate an anxiety related to betrayal or disloyalty toward their culture of origin as a result of not being proficient in their heritage language. This sophisticated anxiety is more nuanced than simply being afraid of rejection. While rejection is definitely a component of this anxiety and embarrassment, there is also an undercurrent of failure, betrayal, and shame stemming from their experience of acculturation in the dominant,

Canadian culture. The anxiety expressed by this individual is certainly more specified than in the previous examples, but it is ultimately stemming from the same source. In all three cases above, the anxiety and embarrassment appear to be the inverse of the connectedness theme described previously, demonstrating one of the negative consequences of not being proficient in one's heritage language as communicated by the participants.

6.3.5 Dislocation. Another consequence of not being proficient in one's heritage language is a profound feeling of dislocation or disconnection from one's cultural community. This theme generally includes or alludes to a feeling of alienation from one's community, and a sense of cultural otherness and exclusion.

6.29 "yes it does feel different due to the fact that its something i barely speak. When i speak my heritage language it feels like I do not belong to my background"

In this excerpt, the participant explained that the reason their heritage language felt different was because of their lack of proficiency. The participant also related their lack of proficiency in the language with a feeling of alienation or dislocation from their community as a direct result. Although this participant provided a clear example of the dislocation theme, no further explanations were provided in their written response. Specifically, this excerpt does not differentiate between dislocation as a result of practical barriers from not being able to fluidly speak the heritage language, and dislocation as a result of not being able to identify as being part of the heritage language community – an area that warrants further research.

6.30 "Although I can communicate & understand others just fine in my heritage language, I sometimes struggle to fully express myself as my thoughts & expressions are in English. Consequently, I sometimes feel misunderstood because I can't get my emotions across as nicely in Albanian as I can in English, which frustrates me."

Excerpt 6.30 accurately portrays a component of ‘dislocation’ that involves feeling misunderstood. The thrust of this example effectively portrays the inverse of the ‘different feeling’ theme described above. In this case, the participant was not able to line up their psychological reality with the expressive infrastructure provided by their language. The participant fortuitously clarified that this issue was not due to a lack of basic proficiency, indicating that they could converse just fine. Rather, the participant pointed to a fundamental mismatch between their Anglophonic cognitive process and emotional experience, and the language of their cultural heritage (Albanian). While this excerpt does not overtly refer to any sense of dislocation, it is heavily implied due to the frustration this participant indicates when they speak in their heritage language, and the poor expressive potential they feel as a result. This is in direct contrast with the sense of heightened expressive potential that individuals feel when they consider themselves to be proficient, as in excerpt 6.18-6.20.

6.31 “while for someone born in canada my arabic is pretty decent, it still is not as good as my family members who live in lebanon. when i struggle to think of the right word or way to say something it usually makes me sad. it makes me feel less connected to my community and family.”

Excerpt 6.31 is more direct, as it overtly invokes a sense of disconnection and sadness that was experienced as a result of struggling to proficiently use one’s heritage language. In this excerpt, the participant establishes that momentary glitches in their proficiency when speaking their heritage language make them feel disconnected from their community. This example is interesting as it betrays the participant’s language ideology. This statement presupposes that somebody who is part of the Lebanese cultural community is also part of the Lebanese-Arabic linguistic community. If this presupposition weren’t true, then the participant would not have felt

disconnected from their cultural community when they struggled linguistically. This excerpt is, therefore, important, as it demonstrates that the feeling of dislocation here is not a matter of severe lack of proficiency – the participant indicated that their Arabic was "pretty decent". Rather, this excerpt belies a component of the acculturative experience. In the case of this participant, minor errors in discourse likely serve as painful reminders of the disconnection they may feel from their "family members who live in Lebanon". Hence, this excerpt effectively taps into a fundamental insight about the dislocation one feels when one is not fully proficient in one's heritage language. Of course, this dislocation can be partially attributed to the mechanistic barrier in communication that can occur when one cannot fluidly communicate with members of their community. That said, in most cases individuals are either able to speak the language, if a little haltingly, or they otherwise find a way to creatively navigate the barriers (see below). Instead, the bigger issue that these individuals encounter derives from the meaning they construct from their minor linguistic errors – a fear that they do not belong to their community – a cultural imposter syndrome.

6.4 Compensatory Acts

Many participants who reported a lack of proficiency in their heritage language indicated feeling anxiety and embarrassment while speaking their heritage language. Many participants also reported a sense of disconnection and dislocation associated with their cultural identity, triggered by their perceived linguistic deficiencies. Perhaps spurred by these discontents, participants reported several types of compensatory behaviours that aim to cope with the stress of lacking proficiency in one's heritage language. These include *Language Accommodation, Language Mixing, Network Interpretation, Language Learning, and Language Avoidance*.

Language Accommodation refers to the tendency for participants and their language community to display flexibility when it comes to mistakes made in one's heritage language. If

participants indicated that they and their family were able to accommodate and be patient toward mixed levels of proficiency, the participant was said to be adaptively compensating. As such there were many examples of participants alluding to using gestures to supplement their communication, slowing down and taking their time while speaking, along with being comfortable making grammatical/pronunciation errors. Participants also alluded to members of their community being patient and forgiving interlocutors.

6.32 I feel good conversing in my heritage language, especially because it allows me to communicate with my grandmother. I navigate through language barriers by speaking slowly, repeating what I say, and supplementing words I do not know with descriptions.

This example shows a flexible accommodation on the part of the participant by displaying a forgiving attitude toward imperfections in their own language proficiency. This example also demonstrates that the participant's grandmother allowed the participant the space to implement these accommodations. As illustrated in this example, despite the participant's reported issues in fluency, they ultimately describe what appears to be an effective coping strategy, and a positive experience associated with the use of their heritage language.

Network Interpretation refers to the process of an individual communicating through multilingual intermediaries. A common example of network interpretation involves participants (who lack proficiency in their heritage language) finding a strategy to communicate with grandparents (who may only speak the heritage language) by mobilizing bilingual siblings or parents to help facilitate communication. Network Interpretation was different from other interpretation and translation strategies (like using Google Translate), in that the process of interpretation was conducted by members within the speaker's community itself.

6.33 “My parents and family are extremely patient with me and my community members are also quite helpful as they speak multiple languages which allows for easy communication when stuck on a word, for example.”

6.34 “Sometimes it is hard to describe what i am feeling to my mom for example who doesn't speak much english. What i do instead is act it out or ask my siblings to translate.”

In these examples, the participants demonstrated an ability to make use of other members of their communities to help them communicate. Looking from a different lens, the act of interpretation through one’s social network serves as a collectivized behaviour that aims to diffuse the stress caused by an individual’s lack of language proficiency. In this way, Network interpretation is not simply a targeted translation of an utterance in the same vein as Google Translate. Instead, Network interpretation appears to be a form of Intracultural Coping (Yeh et al., 2006a). The stress caused by an individual lacking proficiency in the heritage language would likely project to other members of the community. It therefore should come as no surprise that the stress caused by linguistic barriers in a community would result in a mounted coping effort to help bridge any linguistic divisions.

Language Mixing was another unique strategy to compensate for issues related to a lack of proficiency in one’s heritage language. This compensatory strategy refers to the act of mixing the heritage language with a more familiar language (like English) to help fill any gaps in the individual’s knowledge of the heritage language.

6.35 “Whenever I run into a language barrier, I find myself using a blend of English and Arabic.”

Language Mixing may initially appear similar to the concept of code-switching described previously. For both of these concepts, the speaker alternates between two languages for the purpose of efficient communication. Language Mixing is a distinct construct from code-switching

due to stark differences in their respective mechanisms of action, and contexts of use. Recall that code-switching only ever occurs at clausal boundaries in an utterance, reflecting its grammatical and intentional nature (Poplack, 1980). Additionally, code-switching definitionally occurs between individuals who both have proficiency with the same two (or more) languages. In this way, code-switching is a deliberate, though unconscious choice to efficiently make use of all of one's linguistic resources. Language Mixing, therefore, stands in contrast to code-switching since it instead represents a means of compensating for a lack of knowledge in one language by using the stronger language as a crutch. Excerpt 6.35 shows that Language Mixing may involve swapping in an English word every here and there when one does not know the word in one's heritage language. The key aspect of intermixing is when the individual mixes in English out of necessity when they encounter a language barrier – it is not a choice to maximize expressive potential, but rather a necessary modification in order to navigate around limitations of proficiency.

Language Learning was another prevalent and straightforward compensatory act indicated by the participants. This strategy simply refers to the tendency to try and increase one's knowledge of their heritage language in order to increase the proficiency of comprehension and production.

6.36 "To get through language barriers I ask my parents how to say the word i'm struggling with or sometimes use google translate."

This excerpt represents by far the two most common forms of compensation that participants would use when engaging in language learning. Participants would either report using translation software like Google Translate, or they would seek consultation from members of their community to teach them how to say an utterance in the heritage language. At no point did participants specify whether they found one of these methods more authoritative than the other. That said, it is interesting to note that the translation software approach is a solitary and individualist approach to

language learning, while seeking consultation from proficient members of the community represents a more social and collectivist approach to language learning.

Language Avoidance was the last strategy that was reported in the current sample. When participants reported having trouble proficiently speaking their heritage language, some individuals reported a tendency to avoid speaking the language altogether.

6.37 "I feel frustrated at times when I cannot communicate well enough… I'll give up and feel ashamed and just walk away."

In this excerpt, the participant is using an avoidance coping strategy as a means of mitigating the distress they experience as a result of not being able to "communicate well enough". Although this process of giving up may not provide an avenue to achieve social connection or increase language proficiency, it does offer a strategy for mitigating the distress experienced from not being able to proficiently speak (Folkman & Lazarus, 1980). If one only avoids their heritage language they can avoid painful reminders of the embarrassment, anxiety, and alienation that they associate with speaking their heritage language.

7.0 General Discussion

Although this study intimately involves both quantitative and qualitative methodologies and data, the primary focus of this research is the former. As such, the qualitative results of this study serve to enrich the explanations for the quantitative findings. Accordingly, the following discussion will attempt to synthesize and contrast the data presented above, by starting with the quantitative model as the skeleton and jumping off point. This discussion will also focus on theoretical, practical, and methodological considerations, along with future directions for research based on the study's findings.

7.1 Theoretical Considerations

This study had several goals including replicating a model from the existing literature (i.e., Kuo et al., 2018), modifying the model, and assessing whether or not an expanded model would be better at accounting for the outcome of coping with academic stress on subjective well-being and collective self-esteem in the current multilingual undergraduate sample. In all of these respects described above, the present research offers evidence in support of the hypothesis that access to one's cultural community to cope with academic stress partially occurs through a linguistic buffer, and that this access is impacted by proficiency in one's heritage language.

Recall that the theoretical basis of this study is founded in the Cultural and Contextual Model of Coping (CCMC; Heppner et al., 2014; See Section 2.3). In the CCMC, individual, social, and cultural variables are all predicted to interact with an individual's coping behaviours. Furthermore, the authors overtly call for future research examining the complex interactions between individual, social, cultural, and coping variables. Within this context, the present findings from this study help fill this gap in the literature, showing that a variable like language proficiency plays a significant role in determining the impact of stress coping. Although Heppner and

colleagues enumerate several social and cultural variables, such as social support and relational perceptions, they do not make any hypotheses about language and its impact on coping. The present findings in M2 therefore extend the scope of Heppner et al.'s original hypotheses by applying the model's logic to a novel domain: the relationship between language and coping.

The importance of the study's findings observed in M2 is further underscored by the qualitative experiences reported by participants in response to Q5 of the open-ended question. The consequences of heritage language proficiency are laid bare by participants' experiences. When participants report high proficiency in their heritage language, they tended to report being able to express unique denotational nuances and culture-specific internal psychological experiences that would have otherwise been difficult to communicate. Recall that M2 relies on the theoretical necessity of language for the transmission and social conveyance of cultural information – it is for this reason that language proficiency was hypothesized to moderate Collective Coping. These qualitative findings therefore converge with the theoretical assumptions of M2 – that access to one's heritage language facilitates access to one's culture.

M2 did not directly test the question asking if language transmits culture, after all, this would be a question better answered by scientists in fields like Anthropology or Linguistics. Instead of testing this question, M2 presupposed that language transmits culture and focused on the psychological mechanism of language within a cultural coping model (Heppner et al., 2014). This core presupposition was not only supported qualitatively by the participants' written narratives in the study, but was also consistent with previous literature. In the study by Williams et al. (2020), participants deliberately used their heritage language (Chinese) during moments of intense frustration, despite the fact that they spoke English fluently. This study, along with the

present findings, consistently show that an individual's heritage language offers unique and heightened opportunities for emotional expression.

Despite the present qualitative findings demonstrating the importance of heightened expressivity and increased connectedness, there are still clear limitations in our understanding of how language proficiency moderates collective coping. Although previous literature and the participant responses to Q5 would suggest that proficiency in one's heritage language affords heightened perceptions of expressive potential, interconnectedness, and authenticity, etc., the present research into M2 only offered quantitative evidence that language proficiency affects collective coping. M2 did not offer a specific mechanism to explain how language proficiency affects collective coping. Despite this caveat, it should be underscored that the quantitative findings in this study are still conceptually and empirically significant, because they provide distinctive insights into the mechanism of collective coping as a process dependent upon cultural and linguistic transmission.

The present qualitative findings offer a detailed exploration into the possible mechanisms through which linguistic proficiency can moderate collective coping. The qualitative findings detailed above offered several potential paths for future quantitative research. These include the existence of theme pairs that represent the same construct as represented on either end of the spectrum of heritage language proficiency.

During the process of qualitative analysis, certain themes appeared to occur in parallel depending on whether or not participants were proficient in their heritage language. One such pair was that of Connectedness and Dislocation. From a theoretical perspective, these two themes form an opposing pair, reflecting the contrasting consequences associated with multilingual individuals' proficiency in their heritage language and its effects on their self-reported perceptions of in-group

affiliation and identification. As demonstrated in the findings of this study, when a multilingual individual is proficient, they gain a sense of connection when speaking in their heritage language, and vice versa, when an individual is not proficient, they feel a sense of dislocation and distance from their heritage group and culture. For this reason, it would seem to be more parsimonious to conceptualize these themes as two opposite poles of the same construct. As such, the present qualitative findings are highly consistent with the hypothesis that language helps facilitate identity and is itself a product of group affiliation (Eckert, 1989).

Another pair of themes that may indeed reflect two poles of one construct is that of Authenticity and Anxiety/Embarrassment. One facet of Anxiety/Embarrassment that was explored particularly in excerpt 6.28 pertained to the negative self-conscious feelings that stem from lacking proficiency in one's heritage language. In comparing these two themes, it appears that they both reflect the idea that by speaking one's heritage language, an individual is acting in accordance with their culture. Conversely, if an individual is unable to speak their heritage language, they fear that they have abandoned or betrayed their culture, or that they have been "taken over" by the adopted/dominant culture.

Individuals feel a sense of affiliation toward their cultural in-group, since self-concept is partially derived from perceived membership to social groups (Turner & Oakes, 1986). Therefore, if participants are unable to speak their heritage language, they are likely to feel a sense of embarrassment since they are living in a manner that is inconsistent with their cultural affiliations or identities. In this way, Authenticity and Anxiety-Embarrassment may reflect two sides of the same coin, with Authenticity representing the feeling that occurs when one is proficient in their heritage language and is able to act in a manner congruent with their culture, while Anxiety-Embarrassment reflects the opposite, when one is not proficient in their heritage language and is

therefore unable to act in a manner consistent with their culture. This construct also makes sense in light of the work described above by Koven (2007), which concludes that the language one speaks projects an element of one's identity to the world. Therefore, if an individual speaks their heritage language, they are covertly projecting a piece of their cultural identity. On the other hand, if an individual is unable to proficiently speak their heritage language, it would make sense that they would feel anxious, embarrassed, ashamed, or inauthentic.

The two constructs (Connection-Dislocation and Authenticity-Anxiety/Embarrassment) consisting of the four themes discussed above are both relevant in the understanding of the mechanism that underlies language proficiency's moderating effect on collective coping. The Connection-Dislocation theme appears to tap into the perceived relationship between heritage language proficiency and interdependence. This theme strongly supports the hypothesis that speaking in one's heritage language connects an individual to their broader cultural and linguistic community (Polinsky & Kagan, 2007). Similarly, the Authenticity-Anxiety/Embarrassment theme suggests that the act of speaking one's heritage language may help an individual identify with and internalize their cultural/linguistic group as part of their self-construal (Marcus & Kitayama, 1991), further lending to a sense of interdependence.

A lack of language proficiency may hinder multilinguals' collective coping in two distinct ways. First, if an individual is dislocated from their community, both in a practical sense, because they have trouble communicating, and in an abstract sense, because they are alienated from their group identity, then they will be prevented from fully engaging in collective coping behaviours. Second, if an individual feels embarrassed, anxious or ashamed of their acculturated status or their lack of heritage language proficiency, they may prevent themselves from fully engaging in collective coping behaviours. Note these two points above only represent potential explanations

as to how heritage language proficiency may contribute or hinder collective coping for multilingual individuals. When participants are discussing the Connectedness-Dislocation theme and the Authenticity-Anxiety/Embarrassment themes, they are not necessarily relating these concepts to their commentary about collective coping. Hence, these are mere hypotheses and interpretations, and should be considered with caution as they await further verification.

The chief limitation of M2 is that it cannot definitively illuminate the internal psychological experience of participants with respect to their heritage language use, and the mechanism by which heritage language promotes collective coping. What it does show is that participants who are proficient in their heritage language are more effective at engaging in collective coping, and are therefore less likely to have a decrease in subjective well-being and collective self-esteem when academic stress is high. In other words, these quantitative findings show that an effect is likely occurring, but it does not speak exactly to how the effect occurs. Despite this limitation of M2, the literature offers some insights into the way in which one's heritage language is intrinsically tied to culture and social behaviour. Additionally, the qualitative results from Q5 offers insight into the psychological and cultural consequences of heritage language proficiency, thus providing windows into the mechanism that drives the relationship between heritage language and collective coping.

While the findings from Q5 may be extrapolated and used to help explain M2, this is a tentative venture due to the following two limitations. First of all, Q5 was an open-ended question that did not directly focus on the impact of language proficiency on collective coping for the participants. Participants were oriented to discuss their heritage language proficiency, but were not oriented to discuss collective coping. While this was done intentionally, owing to the qualitative nature of the planned analyses, this limited the applicability of the findings as they related to the

specific mechanism of M2. The second limitation is that the findings from Q5 cannot necessarily be generalized to the population at large. In the context of this study this presents a conundrum since the quantitative findings are indeed generalizable, but the qualitative findings, which are drawn from the same sample, are not necessarily generalizable. Taking all of this into consideration, it appears that the combined themes extracted from Q5 may be relevant in explaining the relationship between heritage language proficiency and collective coping, though this may need to be verified with further research. In sum, despite the limitations of the quantitative findings of M2, and the qualitative findings of Q5, the use of both types of data and information in this study has offered broader and more nuanced insights into the phenomena under study.

7.2 Implications for Practice

In addition to the theoretical considerations above, the study's findings hold practical significance by providing important insight for clinicians and counsellors working with culturally and linguistically diverse communities. Due to the difficulty in describing and truly understanding the nature of collective coping, the brief typology of collective coping behaviours contained in section 6.2 is thought to be useful for any professional working with individuals who might engage in collective coping on a regular basis. Additionally, the brief typology in section 6.4 containing compensatory behaviours employed by individuals who lack heritage language proficiency is thought to be very useful due to the importance of heritage language proficiency in facilitating social behaviour.

The purpose of Q1 in this study was intended to provide a direct answer to the question asking, 'what are participants *actually* carrying out with respect to collective coping behaviours?' While the CCCS is useful since it documents the extent to which participants use collective coping behaviours as an aggregate, it does not provide an idiosyncratic experience-near account of the

specific behaviours participants employed. The brief inventory of collective coping behaviours extracted from Q1 and reported under 6.2 represents an organized and evidence-based account of various types of collective coping behaviours. This information is particularly useful for psychotherapists working with culturally diverse populations. It is essential for therapists engaging in multicultural counselling to have a baseline knowledge of the culture of the individuals and groups they work with (Singh et al., 2020; Sue et al., 1992). In other words, therapists who work with culturally diverse clients should be familiar with possible collective coping behaviours these cultural groups might use. The findings generated from the participants' responses to Q1 therefore allow therapists to gain a broader knowledge of the various collective coping behaviours clients resort to. Therapists should be aware of the role of collective coping in multilingual and culturally diverse clients as a critical source of support in times of distress. If therapists are more informed about collective coping, they are likely to be better equipped to recognize, encourage, and work with collective coping in practice when working with culturally diverse clients. The practical limitation to the current typology is that it does not categorize the collective coping behaviours by cultural groups. As such, future work should aim to identify which cultural groups tend to use which types of collective coping behaviours, so that therapists can be more informed about the specific collective coping behaviours employed by specific cultural groups. That said, it has been found that there are common factors that underly all collective coping behaviours (Yeh et al., 2006-a). As such, a general overview of collective coping behaviours, such as the typology presented in Q1, offers a good introduction for therapists who are unfamiliar with the concept.

The typology of compensatory acts displayed in section 6.4 offers another important source of practical insight for psychotherapists, educators, and professionals working with multilingual communities. From a general perspective, the compensatory acts demonstrate the propensity for

participants to problem-solve and cope with the stress that comes from lacking proficiency in their heritage language. More practically, the compensatory acts described above provide a basic selection of viable strategies for communicating with and for staying close to one's culture despite lapses in heritage language proficiency. The one notable exception to this statement would be that of Language Avoidance, which would be predicted to be a less effective strategy. These compensatory behaviours described in the data are applicable for therapists for the same reason as in Q1– it is essential that therapists gain knowledge about the groups they are attempting to treat. Therefore, if therapists are attempting to work with multilingual populations, it is important that they understand types of compensatory behaviours employed by clients. Obviously heritage language proficiency is preferable to a lack thereof, as demonstrated by M2 and Q5. But for those who lack heritage language proficiency, the existence of compensatory strategies marks an important set of alternative responses and resources that could be identified and promoted, to better help support these individuals. In terms of future research, an important topic to explore would be to assess which of the compensatory acts identified in the present study are the most effective at promoting cultural integration and communication for multilingual individuals.

Another critical implication of the present study's results relates to the real-world impact of heritage language proficiency on multilinguals' subjective well-being, collective self-esteem, connectedness, authenticity, etc. As discussed previously, the impact of language policies that forcibly prevent individuals from speaking their heritage languages, such as residential schools for members of the First Nations in Canada, has had profound irreversible damage on the linguistic and cultural vitality of indigenous groups (Graham, 1997). The findings of this project clearly stand in opposition to linguicism and linguicide. Canada's Residential School system was a particularly long-lasting and damaging example (Graham, 1997). It is, however, by no means the

only example internationally. Throughout modernity, there have been many examples of nation-states attempting to consolidate hegemony and project a national image of unification and wholeness by insisting on a single national language. Such policies have resulted in many instances where local indigenous languages were prohibited. Examples outside of the Canadian context include Taiwan's language policy from 1949-1987 (Hsiau, 1997). In the wake of the Chinese Civil War, the Chinese Nationalist Party (KMT) viewed the Chinese Communist Party as an external threat to their legitimacy in representing China. Therefore, the promotion of Mandarin as the State Language served an essential role in supporting the KMT's national narrative as being the *Real* China. This had the consequence of mandating non-Mandarin speakers to abolish their 'localism', and 'sacrifice their dialects' (Hsiau, 1997). In practice, this took the form of forcibly interrupting intergenerational transmission of indigenous/local languages and dialects in the schools, and often involved fining, hitting, or shaming children (requiring they wear a placard around their neck that said "I am a dog") if they spoke a word of their 'local dialect' or *fangyan* (Sandel, 2003).

A strikingly similar policy occurred in France from the 1880s to the 1950s. During this period, Standard Parisian French was promoted across the country, and non-standard dialects were prohibited and shamed (Joubert, 2011). The phenomenon of public shaming and humiliation at school for speaking one's heritage language was strikingly similar to the methods described in the example of Taiwan presented above, including public mockery, corporal punishment, and manual labour (Pollard, 2011). In many examples, the idea of speaking one's heritage language was compared to being unhygienic or dirty. The policies used in France, along with those used in Taiwan and Canada were all abhorrent and were only abolished within living memory. Unfortunately, linguicide and linguicism (systemic discrimination on the basis of language) are

not curiosities of the distant past, but remain contemporary issues inherently tied to the politics of modernity and colonialism (Isern & Fort, 2014).

Given this historical and political context, the practical significance of the present research taps into a familiar issue that has been known by indigenous populations for a long time. The present results affirm that the loss of one's heritage language has negative consequences for subjective well-being, collective self-esteem, connectedness, and authenticity. Given these findings, the next steps for social justice must relate to promoting heritage language proficiency. This task becomes more challenging given that participants report an internalized sense of embarrassment, anxiety, and fear of rejection as a result of being non-proficient in their heritage language. That said, many participants also reported using compensatory acts that involved recruiting other members of their community, specifically when engaging in Network Interpretation. Participants also reported having key individuals in their communities that were accommodating to their lower levels of proficiency, and who were helpful by meeting them. Therefore, potential interventions to help bolster heritage language proficiency should involve supporting and expanding the use of compensatory acts within minority language communities.

Although encouraging compensatory acts is important, there must also be a parallel effort to lessen the feeling of embarrassment and anxiety associated with being non-proficient. At its core, this sense of anxiety likely has a strong relational cause, especially if an individual comes from an interdependent cultural context. Specifically, if an individual senses that their lack of proficiency will result in exclusion or ostracism, it should come as no surprise that they would compensate using Language Avoidance, as this may at the very least preserve the hope of future connection at the expense of present connection (Fairbairn, 1943; Greenberg & Mitchell, 1983) . It is therefore essential that psychotherapists working with individuals from linguistic minority

communities be cognizant of anxieties relating to language proficiency, and help clients work through such issues in a psychotherapeutic context.

7.3 Methodological and Analytical Limitations

This study had a few limitations relating to the sample characteristics and the resultant effect of the sample quality on external validity. One issue mentioned previously relates to the gender characteristics of the current sample – the predominance of female participants compared to male particiapnts. Imbalances in the base rate gender distributions in the undergraduate classes where recruitment took place may explain the imbalance in the sample. This hypothesis is consistent with the broader trend of skewed gender distributions in psychology, with women outnumbering people of other genders. Data from 2018 in the United States estimated that 78% of undergraduate students in Psychology identified as female (Gruber et al., 2021; National Science Foundation, 2018). If this base rate probability translates to the University of Windsor, then this would go a long way in explaining the skewed gender distribution in the present sample, given that 94% of the sample consisted of undergraduate students in psychology. Furthermore, the remainder of the sample was recruited from the population of undergraduate Linguistics students at the University of Toronto, and the majority of students in Linguistics also identify as female (Linguistics Society of America, 2021). If the base rate probability of being female is approximately 78%, then the present gender distribution (~83% female in the overall sample) appears to be unremarkable. All this being said, the population of interest was undergraduate students in Ontario, not just psychology and linguistics undergraduate students. As of the 2020 Census, 55% of Ontario undergraduate students identified as female, and 44% identified as male (Statistics Canada, 2022). Although the gender distribution in the current sample is unsurprising, it is still sub-optimal given the true base rate gender distribution among Ontario undergraduate

students. Future research on this topic should therefore aim to maintain a more balanced gender distribution to mirror the broader undergraduate population in Ontario.

Another concern with the sample characteristics relates to the imbalance in sample sizes between the subsample collected at the University of Windsor (n = 278) and the subsample collected at the University of Toronto (n = 18). There is a distinct possibility that these two sources of participants do not behave consistently with one another. This threat is further exacerbated by virtue of the participants being drawn from different university departments (Psychology vs. Linguistics) and being recruited with different strategies (course credit vs. gift card raffle). While these inconsistencies should not be ignored, they are also fairly surface-level, as they were unlikely to heavily bias the recruitment process at either site. For this reason, the two subsamples recruited at each university location most likely represent the study population of undergraduate students in Ontario, and does not substantially threaten the validity of the present results.

Other than minor issues with recruitment and sample characteristics, there were several analyses that were not conducted in the present study but would be important for future work. Recall that this project is the first of its kind studying the effect of heritage language proficiency on coping behaviour. As such, the focus of this project was to provide a proof of concept. For this reason, the present statistical analyses focused on the aggregate data, rather than on controlling for every source of error, or comparing every factor in the questionnaires. In the original study by Kuo et al., (2018), their version of M1 included a multinomial control variable on the basis of ethnic identity. With this addition, the authors were able to control for variance in the regression pathways that was introduced by virtue of participants' ethnic identities. Although such a control would have been beneficial, it was also unnecessary, as it would have added additional complexity to the process of model comparison.

Another methodological consideration relates to the CSES. Previous work has established the theoretical argument for analyzing each factor separately and checking the correlations between factors. Crocker et al. (1994) found that there was practically no correlation between the Public and Private factors of the CSES in African American college students. In other words, these findings show that African American college students' internal attitudes about their group membership did not correspond with their perceptions of others' attitudes about their group membership. The authors interpreted these findings to represent a 'survival strategy' for maintaining collective self-esteem within an oppressed group (Crocker et al., 1994; Constantine et al., 2002). Within certain social and cultural contexts involving systemic marginalization, marginalized groups will display a dislocation of private and public collective self-esteem. For this reason, the authors argue in favour of analyzing the CSES factor correlations in order to accurately interpret results. Although this may be theoretically advantageous in certain circumstances, the present analyses represent an aggregate of multilingual and culturally diverse individuals, and do not represent data from any homogenous cultural group. For this reason, any analysis of factor correlations would need to be parsed by-ethnicity. Given that the CSES has 4 factors, and there are 7 ethnicities recorded in the data, this would represent 28 unique factor correlations. Given the volume of correlations to examine, and the fact that there are no a priori hypotheses relating to the CSES factor correlations in the data, such a venture would be little more than an opportunity to commit Type I errors and fish for illusory effects in the data.

In addition to the quantitative considerations described above, there were some limitations associated with the qualitative component of this project. The process of coding was only conducted by the present author. As such, there was no opportunity to check for intercoder reliability (ICR). ICR refers to the degree of concordance between two individuals tasked with

coding the same data using the same coding protocol (O'Connor & Joffe, 2020). ICR is a common practice for qualitative coding as it acts as assurance that the phenomena extracted from the data are indeed real, perceptible, and consistently measurable. Although ICR helps increase the consistency and reliability of qualitative findings, O'Connor and Joffe (2020) also concede that, ICR is often at odds with the epistemological framework of qualitative research. The very premise of ICR is tenuous due to its promotion of a positivist epistemology - the notion that researchers should be uncovering a unified, objective, external truth about the world (Bauer et al., 2000). The consensus opinion among qualitative researchers is that there are multiple truths that stem from within the participants constituting the data, from within the researcher(s), and from the socially constructed realities surrounding all parties (Bauer et al., 2000; O'Connor & Joffe, 2020; Braun & Clark, 2006). Therefore, ICR was not sought due to the epistemological controversies outlined above and due to practical limitations.

Another methodological consideration relates to the observation that only 2 out of 5 short answer questions were coded and qualitatively analyzed. Although this does not present a *limitation* per se, it does mean that some clinically-applicable questions have remained unanswered. Questions 2, 3, and 4 were important since they were effectively asking participants to describe their coping behaviours when they were not able to engage in collective coping (Q2), to describe their cognitive and affective experiences before and after engaging in collective coping (Q3), and to describe their use of collective coping specifically in the context of academic stress (Q4). The data answering these questions were collected but remained unanalyzed due to practical limitations. Although the answers to these questions are important and should be uncovered as part of a follow-up project, their absence does not diminish the breadth, depth, or utility of the data that were analyzed for this project.

References

Abu-Lughod, L. (1988). Veiled sentiments: Honor and poetry in a Bedouin society. Berkeley: University of California Press.

Akaike, H. (1973). Information theory and an extension of the maximum likelihood principle. In B. N. Petrov and F. Csaki (Eds.), Second international symposium on information theory. Budapest: Akademiai Kiado.

Avruch, K. (1998). *Culture & conflict resolution*. US Institute of Peace Press.

Ayres-Bennett, W., & van Ostade, I. T. B. (2016). Prescriptivism in a Comparative Perspective. The Case of France and England. *Prescription and Tradition in Language: Establishing Standards across Time and Space*, 105-20.

Azur, M. J., Stuart, E. A., Frangakis, C., & Leaf, P. J. (2011). Multiple imputation by chained equations: what is it and how does it work?. International journal of methods in psychiatric research, 20(1), 40-49.

Bauer, M. W., Gaskell, G., & Allum, N. C. (2000). Quality, Quantity and Knowledge Interests: Avoiding Confusions. Qualitative Researching with Text, Image and Sound: A Practical Handbook for Social Research, 1.

Beck, J.S. (2021). *Cognitive Behavior Therapy: Basics and Beyond*, (3rd ed.) (pp. 26-55). Guildford Press: New York.

Bell, A. (2014). *The guidebook to sociolinguistics*. John Wiley & Sons.

Bemak, F., & Chung, R. C-Y. (2000). Psychological intervention with immigrant and refugees. In J. F. Aponte & J. Wohl (Eds.), Psychological intervention and cultural diversity, (2nd ed.) (pp. 200-213). Boston: Allyn and Bacon.

Bettencourt, B. A., & Dorr, N. (1997). Collective self-esteem as a mediator of the relationship between allocentrism and subjective well-being. Personality and Social Psychology Bulletin, 33, 955-964.

Bialystok, E., Dey, A., Sullivan, M. D., & Sommers, M. S. (2020). Using the DRM paradigm to assess language processing in monolinguals and bilinguals. *Memory & Cognition*, 1-14.

Billings, A. G., & Moos, R. H. (1981). The role of coping responses and social resources in attenuating the stress of life events. *Journal of behavioral medicine*, *4*(2), 139-157.

Blaine, B., & Crocker, J. (1995). Religiousness, race, and psychological well-being: Exploring social psychological mediators. Personality and Social Psychology Bulletin, 21, 1031-1041.

Bodenmann, G., Ledermann, T., and Bradbury, T. N. (2007). Stress, sex, and satisfaction in marriage. *Pers. Relatsh.* 14, 551–569. doi: 10.1111/j.1475-6811.2007.00171.x

Bodenmann, G., Falconier, M. K., & Randall, A. K. (2019). Dyadic coping. *Frontiers in psychology*, *10*, 1498.

Bor, J., Venkataramani, A. S., Williams, D. R., & Tsai, A. C. (2018). Police killings and their spillover effects on the mental health of black Americans: a population-based, quasi-experimental study. *The Lancet*, *392*(10144), 302-310.

Boroditsky, L., Schmidt, L. A., & Phillips, W. (2003). Sex, syntax, and semantics. *Language in mind: Advances in the study of language and thought*, 61-79.

Bossy, S. (2000). Academic pressure and impact on Japanese students. McGill Journal of Education, 35, 71–84.

Bozdogan, H. (1987). Model selection and Akaike's information criterion (AIC): The general theory and its analytical extensions. Psychometrika, 52(3), 345–370.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Brown, T. A. (2015). Confirmatory factor analysis for applied research (2nd Edition). New York, NY: Guilford Press.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), Testing structural equation models (pp. 136–162). Newbury Park, CA: Sage.

Burnham, K. P., & Anderson, D. R. (2004). Multimodel inference: understanding AIC and BIC in model selection. Sociological methods & research, 33(2), 261-304.

Chelliah, S. L., & Willem, J. (2010). *Handbook of descriptive linguistic fieldwork*. Springer Science & Business Media.

Cheung, F. M. (2000). Deconstructing counseling in a cultural context. Counseling Psychologist, 28, 123–132. doi:10.1177/0011000000281008.

Chou, C. P., Bentler, P. M., & Satorra, A. (1991). Scaled test statistics and robust standard errors for nonnormal data in covariance structure analysis: A Monte Carlo study. British Journal of Mathematical and Statistical Psychology, 44, 347–357.

Chou, T., Asnaani, A., & Hofmann, S. G. (2012). Perception of racial discrimination and psychopathology across three US ethnic minority groups. *Cultural Diversity and Ethnic Minority Psychology*, *18*(1), 74.

Chun, C.-A., Moos, R. H., & Cronkite, R. C. (2006). Culture: A fundamental context for the stress and coping paradigm. In P. T. P. Wong & L. C. J. Wong (Eds.), Handbook of multicultural perspectives on stress and coping (pp. 29–53). New York, NY: Springer. doi:10.1007/0-387-26238-5_2.

Constantine, M. G., Donnelly, P. C., & Myers, L. J. (2002). Collective self-esteem and africultural coping styles in African American adolescents. Journal of Black Studies, 32(6), 698–710. doi:10.1177/00234702032006004.

Conway, K. (1985). Coping with the stress of medical problems among Black and White elderly. International Journal of aging and human development, 21, 39-48.

Crocker, J., Luhtanen, R., Blaine, B., & Broadnax, S. (1994). Collective self-esteem and psychological well-being among White, Black, and Asian college students. *Personality and social psychology Bulletin*, *20*(5), 503-513.

Cudeck, R., & Browne, M. W. (1983). Cross-validation of covariance structures. Multivariate Behavioral Research, 18(2), 147–167.

Daly, A., Jennings, J., Beckett, J. O., & Leashore, B. R. (1995). Effective coping strategies of African Americans. Social Work, 40, 240-248.

De Certeau, M., Julia, D., & Revel, J. (2002). Une Politique de la langue: la Révolution française et les patois: l'enquête de Grégoire. Gallimard.

Deci, E. L., & Ryan, R. M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of happiness studies*, *9*(1), 1-11.

Dedoose Version 9.0.17, web application for managing, analyzing, and presenting qualitative and mixed method research data (2021). Los Angeles, CA: SocioCultural Research Consultants, LLC www.dedoose.com.

Díaz, D., Stavraki, M., Blanco, A., & Gandarillas, B. (2015). The eudaimonic component of satisfaction with life and psychological well-being in Spanish cultures. *Psicothema*, *27*(3), 247-253.

Dickerson, S. S., & Kemeny, M. E. (2004). Acute stressors and cortisol responses: a theoretical integration and synthesis of laboratory research. *Psychological bulletin*, *130*(3), 355.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. Journal of Personality Assessment, 49(1), 71–75. doi:10.1207/s15327752jpa4901_13.

Disain, P. (n.d.). Language: Dene Elder Quotes. Saskatchewan Indigenous Cultural Centre. Retrieved from: https://sicc.sk.ca/dene-elders-quotes/.

Duangdao, K. M., & Roesch, S. C. (2008). Coping with diabetes in adulthood: A meta-analysis. Journal of Behavioral Medicine, 31, 291–300. doi:10.1007/s10865-008-9155-6.

Dunkel-Schetter , C., Gurung, R. A. R., Lobel, M., & Wadhwa, P. D. (2001). Stress processes in pregnancy and birth: Psychological, biological, and sociocultural influences. In A. Baum, T. Revenson, & J. Singer (Eds.), Handbook of health psychology (pp. 495-518). Mahwah, NJ: Lawrence Erlbaum.

Eckert, P. (1989). *Jocks and burnouts: Social categories and identity in the high school*. Teachers college press.

Eidelson, R. J. (1997). Complex adaptive systems in the behavioral and social sciences. *Review of General Psychology*, *1*(1), 42-71.

Fairbairn, W. R. D. (1943). The repression and the return of bad objects. In Psychoanalytic studies of the personality (pp. 59-70). New York: Routledge (Reprint Edition).

Falconier, M. K., Jackson, J. B., Hilpert, P., & Bodenmann, G. (2015). Dyadic coping and relationship satisfaction: A meta-analysis. *Clinical Psychology Review*, *42*, 28-46.

Ferraro, G. P. (2021). *The cultural dimension of international business*. Prentice Hall.

Fiske, A. P., Kitayama, S., Markus, H. R., & Nisbett, R. E. (1998). The cultural matrix of social psychology.

Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annu. Rev. Psychol.*, *55*, 745-774.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of health and social behavior*, 219-239.

Fontaine, L. S. (2017). Redress for linguicide: Residential schools and assimilation in Canada. *British journal of canadian studies*, *30*(2), 183-205.

Fugard, A. J., & Potts, H. W. (2015). Supporting thinking on sample sizes for thematic analyses: a quantitative tool. *International Journal of Social Research Methodology*, *18*(6), 669-684.

Gal, S. (2006). Migration, minorities and multilingualism: Language ideologies in Europe. In *Language ideologies, policies and practices* (pp. 13-27). Palgrave Macmillan, London.

Goerner, S. (2014). Chaos, evolution, and deep ecology. In *Chaos theory in psychology and the life sciences* (pp. 17-38). Psychology Press.

Graham, Elizabeth, 1997, The Mush Hole: Life at Two Indian Residential Schools (Waterloo, ON: Heffle Pub.).

Greenberg, J. R., & Mitchell, S. A. (1983). W.R.D. Fairbairn. In Object relations in psychoanalytic theory (pp. 151-174). Harvard University Press.

Gruber, J., Mendle, J., Lindquist, K. A., Schmader, T., Clark, L. A., Bliss-Moreau, E., ... & Williams, L. A. (2021). The future of women in psychological science. Perspectives on Psychological Science, 16(3), 483-516.

Harrell, S. P. (2000). A multidimensional conceptualization of racism-related stress: Implications for the well-being of people of color. *American journal of Orthopsychiatry*, *70*(1), 42-57.

Hebert, K. R., Fales, J., Nangle, D. W., Papadakis, A. A., & Grover, R. L. (2013). Linking social anxiety and adolescent romantic relationship functioning: Indirect effects and the importance of peers. *Journal of youth and adolescence*, *42*(11), 1708-1720.

Heppner, P. P., Wei, M., Neville, H. A., & Kanagui-Muñoz, M. (2014). A cultural and contextual model of coping. In *APA handbook of multicultural psychology, Vol. 2: Applications and training.* (pp. 83-106). American Psychological Association.

Hofstede, G., Hofstede, G. J., & Minkov, M. (1991). Cultures and Organizations. Software of the Mind. London: McGraw Hili. *Culture's Consequences. Comparing Values, Behaviors, Institutions, and Organizations Across Nations*.

Hollaway, J. E. (1990). The origins of African American culture. In J. E. Hollaway (Ed.), Africanisms in American culture (pp. 1-18). Bloomington, IN: Indiana University Press.

Hsiau, A. C. (1997). Language ideology in Taiwan: The KMT's language policy, the Tai-yu language movement, and ethnic politics. Journal of multilingual and multicultural development, 18(4), 302-315.

Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. Psychological Methods, 3(4), 424–453. doi:10.1037/1082-989x.3.4.424.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6,* 1–55.

Hussein, B. A. S. (2012). The sapir-whorf hypothesis today. *Theory and Practice in Language Studies*, *2*(3), 642-646.

Hymes, D. (1972). Models of the interaction of language and social life. In J.J. Gumpers & D. Hymes (Eds). *Directions in Sociolinguistics*. New York: Holt Rinehart & Winston. 35-71.

Isern, N., & Fort, J. (2014). Language extinction and linguistic fronts. *Journal of the Royal Society Interface*, *11*(94), 20140028.

Itzhak, I., Vingron, N., Baum, S. R., & Titone, D. (2017). Bilingualism in the real world: How proficiency, emotion, and personality in a second language impact communication in clinical and legal settings. *Translational Issues in Psychological Science*, *3*(1), 48.

Jackson, A. P., & Sears, S. J. (1992). Implications of an Africentric worldview in reducing stress for African American women. Journal of Counseling & Development, 71, 184-190.

Jackson, D. (2021). *Exploratory Factor Analysis*. Retrieved from: https://web.microsoftstream.com/video/477202d4-b4f3-4292-902e-c254a12177e4.

Jaffe, A. M. (1999). *Ideologies in action: Language politics on Corsica* (Vol. 3). Walter de Gruyter.

Jönsson, H., Michaud, M., & Neuman, N. (2021). What is commensality? A critical discussion of an expanding research field. International Journal of Environmental Research and Public Health, 18(12), 6235.

Joubert, A. (2011). A comparative study of the evolution of prestige formations and of speakers' attitudes in Occitan and Catalan. The University of Manchester (United Kingdom).

Kahneman, D., Diener, E., & Schwarz, N. (Eds.). (1999). *Well-being: Foundations of hedonic psychology*. Russell Sage Foundation.

Kenny, D.A. (2012). *Identification*. Retrieved from: http://davidakenny.net/cm/identify_formal.htm#B3b.

Kenny, D. A. (2020). *Measuring Model Fit*. Retrieved from: http://www.davidakenny.net/cm/fit.htm.

Kitayama, S., Markus, H. R., & Matsumoto, H. (1995). "Culture, self, and emotion: A cultural perspective on" self-conscious" emotions." Pp. 439-464 in Self-Conscious Emotions, edited by J.P. Tangney and K.W. Fischer. New York: The Guilford Press.

Kline, R. B. (2015). Principles and practice of structural equation modeling. Guilford publications.

Konishi, T. (1993). The semantics of grammatical gender: A cross-cultural study. *Journal of psycholinguistic research*, *22*(5), 519-534.

Kovelman, I., Baker, S. A., & Petitto, L. A. (2008). Age of first bilingual language exposure as a new window into bilingual reading development. *Bilingualism: Language and Cognition*, *11*(2),203-223.

Koven, M. (2007). *Selves in two languages: Bilinguals verbal enactments of identity in French and Portuguese* (Vol. 34). John Benjamins Publishing.

Kuo, B. C., Soucie, K. M., Huang, S., & Laith, R. (2018). The mediating role of cultural coping behaviours on the relationships between academic stress and positive psychosocial well-being outcomes. *International Journal of Psychology*, *53*, 27-36.

Kuo, B. C. H., Roysircar, G., & Newby-Clark, I. R. (2006). Development of the Cross-Cultural Coping Scale: Collective, avoidance, and engagement strategies. Measurement and Evaluation in Counseling and Development, 39, 161–181.

Krohne, H. W. (2002). Stress and coping theories. *International Encyclopedia of the Social Behavioral Sciences*, *22*, 15163-15170.

Lazarus, R S, (1966). Psychological Stress and the Coping Process. New York: McGraw-Hill.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.

Leung, G. S. M., Yeung, K. C., & Wong, D. F. K. (2010). Academic stressors and anxiety in children: The role of parental support. Journal of Child and Family Study, 19(1), 90–100. doi:10.1007/s10826-009-9288-4.

Lin, L. C., Huang, P. H., & Weng, L. J. (2017). Selecting path models in SEM: A comparison of model selection criteria. Structural Equation Modeling: A Multidisciplinary Journal, 24(6), 855-869.

Lindsey, D. T., & Brown, A. M. (2009). World Color Survey color naming reveals universal motifs and their within-language diversity. *Proceedings of the National Academy of Sciences*, *106*(47), 19785-19790.

Little, T. D. (2013). Longitudinal structural equation modeling. New York, NY: Guilford Press.

Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. Personality and Social Psychology Bulletin, 18(3), 302–318. doi:10.1177/0146167292183006.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. Psychological Methods, 1, 130–149.

MacCallum, R., Lee, T., & Browne, M. W. (2010). The issue of isopower in power analysis for tests of structural equation models. *Structural Equation Modeling*, *17*(1), 23-41.

McWilliams, N. (1994). Chapter 6: Secondary (Higher-order) Defensive Processes. In Psychoanalytic Diagnosis (pp. 117-144). New York, NY: Guilford Press.

Markus, H. R., & Kitayama, S. (2010). Cultures and selves: A cycle of mutual constitution. *Perspectives on psychological science*, *5*(4), 420-430.

Markus, H.R., & Kitayama, S. (2003). Models of agency: Sociocultural diversity in the construction of action. In V.M. Berman & J.J. Berman (Eds.), Nebraska symposium on motivation: Crosscultural differences in perspectives on the self (Vol. 49, pp. 1–58). Lincoln: University of Nebraska Press.

Markus, H.R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. Psychological Review, 98, 224–253.

Marian, V., Blumenfeld, H. K., & Kaushanskaya, M. (2007). The Language Experience and Proficiency Questionnaire (LEAP-Q): Assessing language profiles in bilinguals and multilinguals. *Journal of Speech, Language, and Hearing Research*.

Michels, N., Sioen, I., Boone, L., Braet, C., Vanaelst, B., Huybrechts, I., & De Henauw, S. (2015). Longitudinal association between child stress and lifestyle. *Health Psychology*, 34, 40–50. doi:10.1037/hea0000108.

Miner, J., Biros, M. H., Trainor, A., Hubbard, D., & Beltram, M. (2006). Patient and physician perceptions as risk factors for oligoanalgesia: A prospective observational study of the relief of pain in the emergency department. *Academic Emergency Medicine*, 13(2), 140-146. doi: 10.1197/j.aem.2005.08.008.

Morling, B., & Fiske, S. T. (1999). Defining and measuring harmony control. Journal of Research in Personality, 33, 379-414.

Morris, M. C., Ciesla, J. A., & Garber, J. (2010). A prospective study of stress autonomy versus stress sensitization in adolescents at varied risk for depression. *Journal of abnormal psychology*, *119*(2), 341.

Moshagen, M., & Erdfelder, E. (2016). A new strategy for testing structural equation models. Structural Equation Modeling, 23, 54–60. https://doi.org/10.1080/10705511.2014.950896

Moskowitz, J. T., Hult, J. R., Bussolari, C., & Acree, M. (2009). What works in coping with HIV? A meta-analysis with implications for coping with serious illness. Psychological Bulletin, 135, 121–141. doi:10.1037/a0014210.

Mustajoki, M., Forsén, T., & Kauppila, T. (2015). The association between patient-reported pain and doctors' language proficiency in clinical practice. *Pain Research and Treatment*, 2015. doi: 10.1155/2015/263904.

National Science Foundation [NSF], National Center for Science and Engineering Statistics. (2018). Doctorate recipients from U.S. universities: 2017 (Special Report NSF 19-301). Retrieved from https://ncses.nsf.gov/pubs/nsf19301.

Neff, L. A., and Karney, B. R. (2007). Stress crossover in newlywed marriage: a longitudinal and dyadic perspective. *J. Marr. Fam.* 69, 594–607. doi: 10.1111/j.1741-3737.2007.00394.x

Noh, S., Kaspar, V., & Wickrama, K. A. (2007). Overt and subtle racial discrimination and mental health: Preliminary findings for Korean immigrants. *American journal of public health*, *97*(7), 1269-1274.

Obbarius, N., Fischer, F., Liegl, G., Obbarius, A., & Rose, M. (2021). A Modified Version of the Transactional Stress Concept According to Lazarus and Folkman Was Confirmed in a Psychosomatic Inpatient Sample. *Frontiers in psychology*, *12*, 405.

O'Connor, C., & Joffe, H. (2020). Intercoder reliability in qualitative research: debates and practical guidelines. International journal of qualitative methods, 19, 1609406919899220.

O'grady, W., & Archibald, J. (2015). *Contemporary linguistic analysis: An introduction*. Pearson Canada.

Ortega, L. (2020). The study of heritage language development from a bilingualism and social justice perspective. *Language Learning*, *70*, 15-53.

Park, C. L., Armeli, S., & Tennen, H. (2004). The daily stress and coping process and alcohol use among college students. Journal of Studies on Alcohol, 65, 126–135.

Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of general psychology*, *1*(2), 115-144.

Pituch, K. A., & Stevens, J. P. (2015). *Applied multivariate statistics for the social sciences: Analyses with SAS and IBM's SPSS*. Routledge.

Polard, A. (2011). "Cet obscur sentiment qu'est la honte. Editions Harmattan, 9.

Polinsky, M., & Kagan, O. (2007). Heritage languages: In the 'wild' and in the classroom. *Language and linguistics compass*, *1*(5), 368-395.

Poplack, S. (1980). Sometimes i'll start a sentence in spanish y termino en espanol: toward a typology of code-switching1. *Linguistics, 18*(7-8), 581-618.

Preacher, K. J., & Coffman, D. L. (2006, May). Computing power and minimum sample size for RMSEA [R Statistical Software]. Available from http://quantpsy.org/.

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software, 48*(2), 1–36. doi:10.18637/jss.v048.i02.

RStudio Team (2020). RStudio: Integrated Development for R. RStudio, PBC, Boston, MA URL http://www.rstudio.com/.

Salmela-Aro, K., Kiuru, N., Leskinen, E., & Nurmi, J.-E. (2009). School Burnout Inventory (SBI): Reliability and validity. *European Journal of Psychological Assessment, 25*(1), 48–57. doi:10.1027/1015-5759.25.1.48.

Sandel, T. L. (2003). Linguistic capital in Taiwan: The KMT's Mandarin language policy and its perceived impact on language practices of bilingual Mandarin and Tai-gi speakers. Language in Society, 32(4), 523-551.

Sapir, E. (1929). The Status of Linguistics as a Science. In E. Sapir (1958). Culture, Language and Personality (ed. D. G. Mandelbaum). Berkeley, CA: University of California Press.

Sarid, O., Anson, O., Yaari, A., & Margalith, M. (2004). Academic stress, immunological reaction, and academic performance among students of nursing and physiotherapy. *Research in nursing & health*, *27*(5), 370-377.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., ... & Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and operationalization. Quality & quantity, 52, 1893-1907.

Saussure, F. D. (1916). Cours de Linguistique Générale. Paris: Payot. Dt. Übers.: Grundfragen der allg. *Sprachwissenschaft. Berlin: de Gruyter*.

Schein, E. H. (1984). Coming to a new awareness of organizational culture. *Sloan management review*, *25*(2), 3-16.

Schein, E. H. (1990). *Organizational culture* (Vol. 45, No. 2, p. 109). American Psychological Association.

Schrader, A. (2021). The State of Linguistics in Higher Education Annual Report 2020. Linguistic Society of America.

Schwarz, G. (1978). Estimating the dimension of a model. Annals of Statistics, 6(2), 461–464.

Selye, H. (1956). The stress of life.

Senghas, R. J., Senghas, A., & Pyers, J. E. (2014). The emergence of Nicaraguan Sign Language: Questions of development, acquisition, and evolution. In *Biology and knowledge revisited* (pp. 305-324). Routledge.

Shankar, N. L., & Park, C. L. (2016). Effects of stress on students' physical and mental health and academic success. *International Journal of School & Educational Psychology*, *4*(1), 5-9.

Shrout, P. E., & Rodgers, J. L. (2018). Psychology, science, and knowledge construction: Broadening perspectives from the replication crisis. Annual review of psychology, 69, 487-510.

Singh, A. A., Nassar, S. C., Arredondo, P., & Toporek, R. (2020). The past guides the future: Implementing the multicultural and social justice counseling competencies. Journal of Counseling & Development, 98(3), 238-252.

Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of experimental social psychology*, *35*(1), 4-28.

Spencer-Oatey, H., & Franklin, P. (2012). What is culture. *A compilation of quotations. GlobalPAD Core Concepts*, 1-22.

Statistics Canada. (2022). Table 37-10-0135-02. Proportion of male and female postsecondary graduates, by field of study and International Standard Classification of Education. Ottawa. DOI: https://doi.org/10.25318/3710013501-eng.

Statistics Canada. (2017). *Canada [Country] and Canada [Country]* (table). *Census Profile*. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017. https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E (accessed April 21st, 2021).

Struthers, C. W., Perry, R. P., & Menec, V. H. (2000). An examination of the relationship among academic stress, coping, motivation, and performance in college. *Research in higher education*, *41*(5), 581-592.

Sue, D. W., Arredondo, P., & McDavis, R. J. (1992). Multicultural counseling competencies and standards: A call to the profession. Journal of counseling & development, 70(4), 477-486.

Sue, D. W. & Sue, D. (2003). Counseling the Culturally Diverse: Theory and Practice, 4th ed. John Wiley & Sons, Inc.

Suldo, S. M., Shaunessy, E., & Hardesty, R. (2008). Relationships among stress, coping, and mental health in high-achieving high school students. *Psychology in the Schools*, *45*(4), 273-290.

Susen, S. (2018). Saussure, Ferdinand de. *The Wiley Blackwell Encyclopedia of Social Theory*, 2001-2006.

Tandoc Jr, E. C., & Takahashi, B. (2017). Log in if you survived: Collective coping on social media in the aftermath of Typhoon Haiyan in the Philippines. *New Media & Society*, *19*(11), 1778-1793.

Tosco, M. On counting languages, diversity-wise. EUT Edizioni Università di Trieste.

Triandis, H. C. (1995). Individualism and collectivism. Boulder, CO: Westview Press.

Turner, J. C., & Oakes, P. J. (1986). The significance of the social identity concept for social psychology with reference to individualism, interactionism and social influence. British Journal of Social Psychology, 25(3), 237-252.

Utsey, S. O., Adams, E. P., & Bolden, M. (2000). Development and initial validation of the Africultural Coping Systems Inventory. Journal of Black Psychology, 26(2), 194–215. doi:10.1177/0095798400026002005.

Vanstone, D. M., & Hicks, R. E. (2019). Transitioning to university: Coping styles as mediators between adaptive-maladaptive perfectionism and test anxiety. *Personality and individual differences*, *141*, 68-75.

Veenhoven, R. (1988). The utility of happiness. *Social indicators research*, *20*(4), 333-354.

Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of personality and social psychology*, *64*(4), 678.

Weinreich, M. (1945). Der Yivo Un Di Problemen Fun Undzer Tsayt. Yivo Bleter.

Wierzbicka, A. 2006. *English: Meaning and culture*. Oxford: Oxford University Press.

Wiklund, M., Maimgren-Olsson, E.-B., Öhman, A., Bergström, E., & Fjellman-Wiklund, A. (2012). Subjective health complaints in older adolescents are related to perceived stress, anxiety and gender: A cross sectional school study in northern Sweden. BMC Public Health, 12, 993. doi:10.1186/ 1471-2458-12-993.

Williams, A., Srinivasan, M., Liu, C., Lee, P., & Zhou, Q. (2020). Why do bilinguals code-switch when emotional? Insights from immigrant parent-child interactions. *Emotion*, *20*(5), 830.

Winawer, J., Witthoft, N., Frank, M. C., Wu, L., Wade, A. R., & Boroditsky, L. (2007). Russian blues reveal effects of language on color discrimination. *Proceedings of the national academy of sciences*, *104*(19), 7780-7785.

Wong, P. T. P. (1993). Effective management of life stress: The resource-congruence model. Stress Medicine, 9, 51-60.

Wong, P. T. P., Wong, L. C. J., & Scott, C. (2006). Beyond stress and coping: The positive psychology of transformation. In P. T. P. Wong, L. C. J. Wong, & W. J. Lonner (Eds.),

Handbook of multicultural perspectives on stress and coping (pp. 1–26). New York, NY: Springer. doi:10.1007/0-387-26238-5_1.

Yahya, Z., Ibrahim, N., Ramli, R., Yusof, N. M., & Othman, Z. (2017). YOUR LANGUAGE MY CULTURE (YLMC): DEVELOPING A LOCALCULTURE ELT MATRIX FOR SCHOOLS IN TERENGGANU, MALAYSIA. *Kajian Malaysia: Journal of Malaysian Studies*, *35*(2).

Yeh, C. J., Arora, A. K., & Wu, K. A. (2006a). A new theoretical model of collectivistic coping. In P. T. P. Wong & L. C. J. Wong (Eds.), Handbook of multicultural perspectives on stress and coping (pp. 55–72). New York, NY: Springer.

Yeh, C. J., Inman, A. G., Kim, A. B., & Okubo, Y. (2006-b). Asian American families' collectivistic coping strategies in response to 9/11. *Cultural Diversity and Ethnic Minority Psychology*, *12*(1), 134.

Yeh, C. J., Inose, M., Kobori, & Chang, T. (2001). Self and coping among college student in Japan. Journal of College Student Development, 42, 242-256.

Yeh, C. J., & Wang, Y-W. (2000). Asian American coping attitudes, sources, and practices: Implications for indigenous counseling strategies. Journal of College Student Development, 41, 94-103.

Yue, X. (2001). Culturally constructed coping among university students in Beijing. Journal of Psychology in Chinese Societies, 2, 119-137.

Zimmermann, H. (1996). *Speaking, listening, understanding*. SteinerBooks.

Appendix A – Tables and Figures

Table 5.1 – Missing data for DATA2

Number of items incomplete	*Percent missing*	*Number of Cases*
0	0%	217
1	5.88%	30
2+	>11.7%	50

Table 5.2 Sample characteristics across DATA1 and DATA2

Sample Characteristic	*DATA1*	*DATA2*
Female, Male	83%, 14%	86%, 13%
Multilingual, Monolingual	85%, 15%	84%, 16%
Middle Eastern	35%	38%
Caucasian/European	26%	27%
South Asian	15%	14%
East Asian	7%	6%
Black/African	9%	9%
Hispanic/Latinx	5%	4%
Native/First Nation	2%	2%

Table 5.3. Descriptive statistics for DATA1 and DATA2

Variable	$Mean_{DATA1}$	$Mean_{DATA2}$	$Median_{DATA1}$	$Median_{DATA2}$	SD_{DATA1}	SD_{DATA2}
EXH	15.70	15.65	16.00	16.00	4.08	4.09
CYN	10.83	10.85	11.00	11.00	3.72	3.62
INAD	7.75	7.78	8.00	8.00	2.40	2.36
CC	28.76	28.82	29.00	29.00	6.97	7.17
AC	33.55	33.67	33.00	33.00	7.28	7.52
EC	36.19	36.27	37.00	36.50	5.09	5.03
CSE	65.72	66.02	66.00	66.00	5.54	5.37
SWLS	15.36	15.52	15.00	15.50	4.64	4.64
LEAP	-	88.32	-	86.00	-	30.61

Note: EXH = Exhaustion; CYN = Cynicism; INAD = Inadequacy; CC = Collective Coping, AC = Avoidance Coping; EC = Engagement Coping; CSE = Collective Self-Esteem; SWLS = Satisfaction with Life Scale; LEAP = Language Experience and Proficiency (Questionnaire)

Table 5.4. Fit indices for Models 1 and 2.

Fit Index	*Fit Index Value (M1)*	*Fit Index Value (M2)*	*Cut-off Value*
$\chi^2_{(13),\,(20)}$	23.10, $p < .05$	48.94, $p < .05$	N/A
$RMSEA_{[C.I.\ 90\%]}$	$.052_{[.011,\ .086]}$	$.077_{[.050,\ .105]}$	$x < .08$
SRMR	.043	.068	$x < .08$
TLI	.955	.884	$x > .95$
CFI	.979	.936	$x > .95$

Table 5.5. Standardized Parameter Estimates and Significance tests for M1.

Regression Path	*Std. Parameter Estimates*	*SE*	*z-score*	*p-value*
CC ~ AS	-0.04	.15	-0.61	.545
AC ~ AS	0.45	.16	7.25	< .001
EC ~ AS	-0.32	.11	-5.05	< .001
CSE ~				
CC	0.18	.05	3.11	.002
AC	0.02	.05	0.24	.814
EC	0.16	.07	2.63	.009
AS	0.19	.14	2.54	.011
SWLS ~				
CC	0.31	.03	6.03	< .001
AC	-0.04	.04	-0.75	.454
EC	0.20	.05	3.71	< .001
AS	-0.26	.11	-3.78	< .001

Note: '~' = Y predicted by X, CC = Collective Coping, AC = Avoidance Coping; EC = Engagement Coping; CSE = Collective Self-Esteem; SWLS = Satisfaction with Life Scale.

Table 5.6. Standardized Parameter Estimates from Current and Past research examining M1.

Regression Path	*Std. Parameter Estimates*	*Std. Parameter Estimates from Kuo, et al., 2018*
CC ~ AS	-0.04	-0.15*
AC ~ AS	0.45*	0.49*
EC ~ AS	-0.32*	-0.39*
CSE ~		
CC	0.18*	0.24*
AC	0.02	0.04
EC	0.16*	0.10
AS	0.19*	0.14
SWLS ~		
CC	0.31*	0.23*
AC	-0.04	0.01
EC	0.20*	0.17*
AS	-0.26*	-0.22*

* $p < .05$

Note: '~' = Y predicted by X, CC = Collective Coping, AC = Avoidance Coping; EC = Engagement Coping; CSE = Collective Self-Esteem; SWLS = Satisfaction with Life Scale.

Table 5.7 Standardized Parameter Estimates and Significance tests for M2.

Regression Path	*Std. Parameter Estimates*	*SE*	*z-score*	*p-value*
CC ~ AS	-0.01	.17	-0.12	.903
AC ~ AS	0.46	.17	6.82	< .001
EC ~ AS	-0.35	.12	-5.21	< .001
CSE ~				
CC	0.16	.01	2.64	.008
LEAP·CC	0.09	.05	2.22	.026
AC	0.06	.01	0.78	.814
EC	0.07	.07	0.98	.438
AS	0.13	.15	1.53	.125
SWLS ~				
CC	0.32	.04	5.76	< .001
LEAP·CC	0.10	.01	2.22	.026
AC	-0.04	.04	-0.60	.547
EC	0.17	.05	2.78	.006
AS	-0.27	.12	-3.62	< .001

Note: '~' = Y predicted by X, CC = Collective Coping, AC = Avoidance Coping; EC = Engagement Coping; CSE = Collective Self-Esteem; SWLS = Satisfaction with Life Scale; LEAP = Language Experience and Proficiency (Questionnaire).

Table 5.8. Comparison of Information Criteria for DATA1 and DATA2

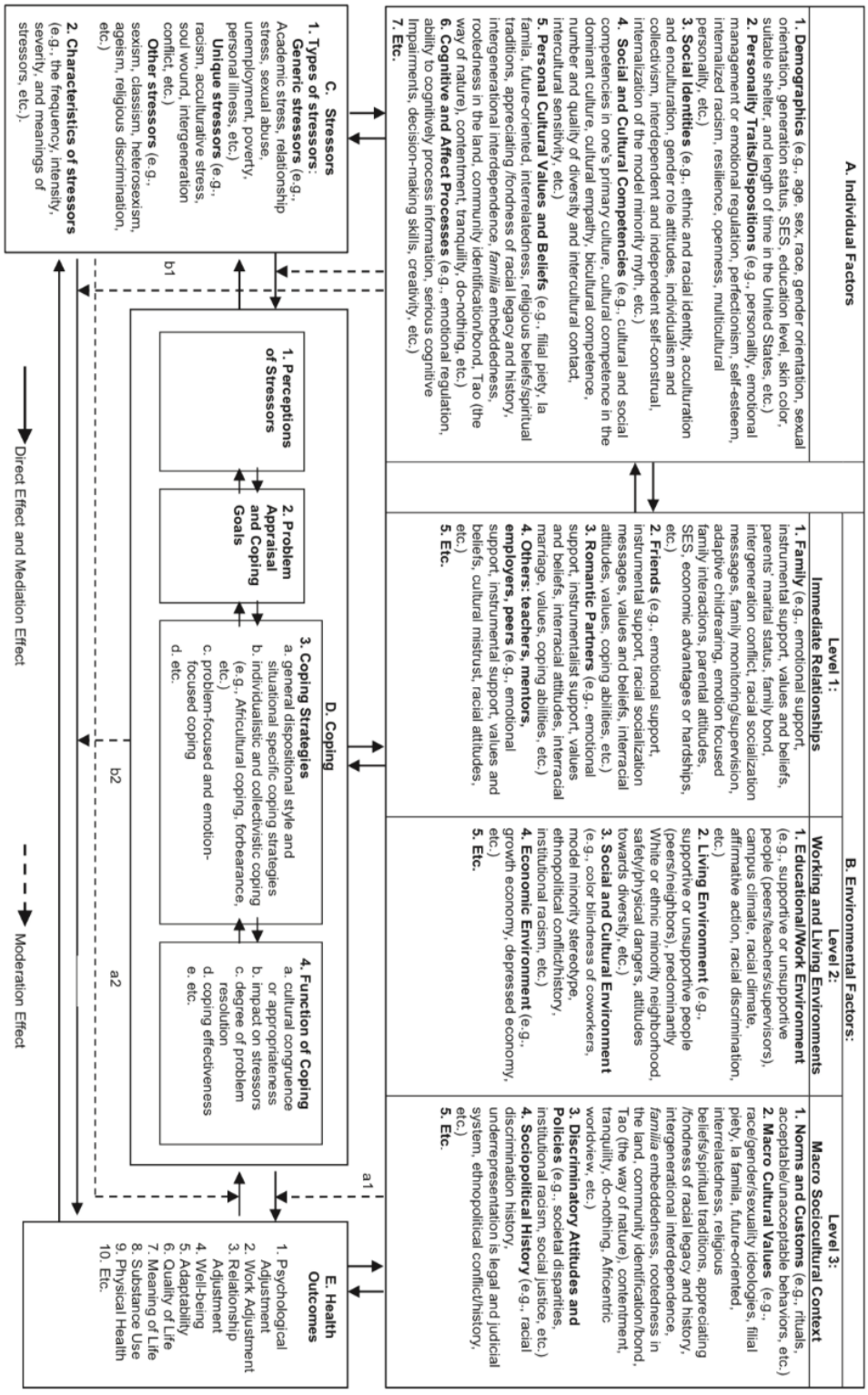
Information Criterion	$M1_{DATA2}$	$M2_{DATA2}$	$\Delta_{DATA2 - DATA2}$
AIC	11,183.30	11,180.83	-2.47
SABIC	11,190.83	11,188.68	-2.15
SPBIC	11,144.47	11,140.02	-4.45
HBIC	11,095.03	11,088.72	-6.31

Δ = change in information criterion value

Table 5.9. Supplemental fit Indices for M1 tested with DATA1 and DATA2.

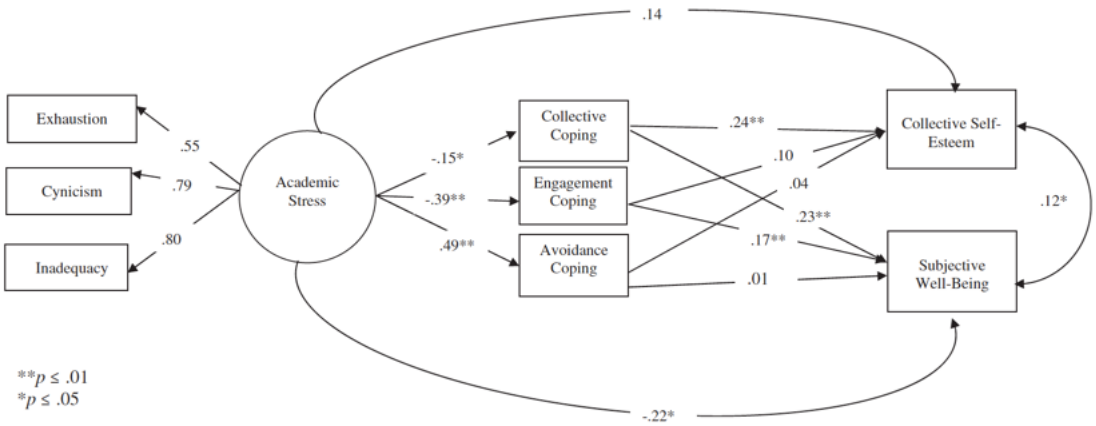
Fit Index	*Fit Index Value* ($M1_{DATA1}$)	*Fit Index Value* ($M1_{DATA2}$)	*Cut-off Value*
$\chi^2_{(13)}$	23.10, $p < .05$	25.92, $p < .05$	N/A
$RMSEA_{[C.I.\ 90\%]}$	$.052_{[.011, .086]}$	.064 [.026, .100]	$x < .08$
SRMR	.043	.048	$x < .08$
TLI	.955	.935	$x > .95$
CFI	.979	.970	$x > .95$

Figure 2.1 – Heppner's CCMC



Heppner et al., 2014

Figure 3.1: Model 1 (M1)



Kuo et al., 2018

Figure 3.2 – Model 2 (M2)

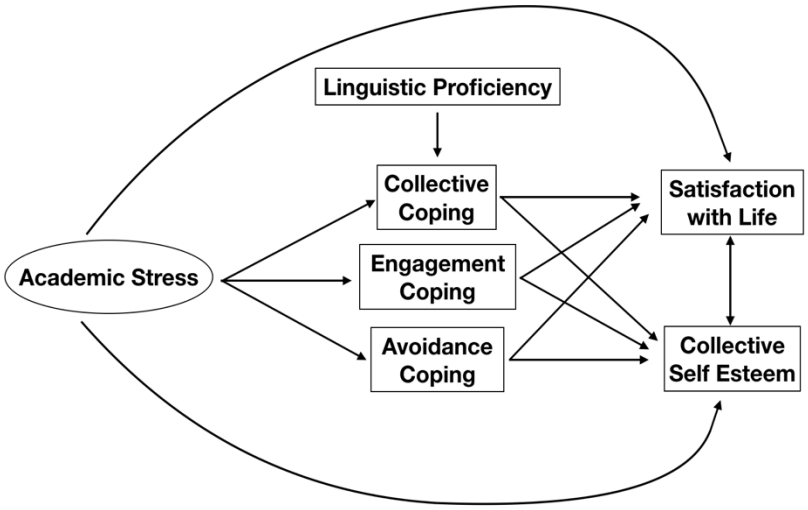


Figure 5.1a. Histograms of studentized residuals for DATA1

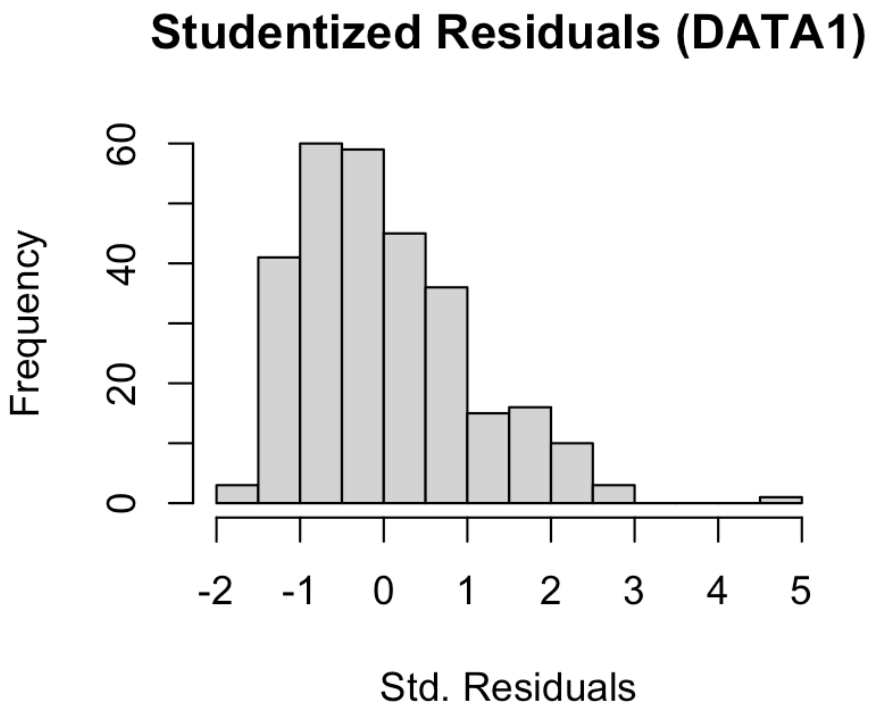


Figure 5.1b. Histogram of studentized residuals for DATA 2

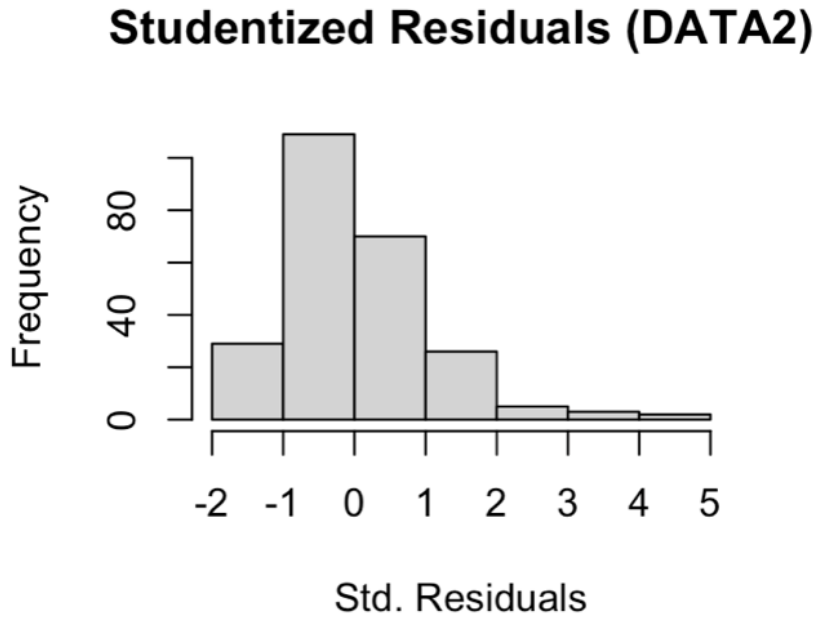


Figure 5.2a. Q-Q plot of studentized (standardized) residuals for DATA1

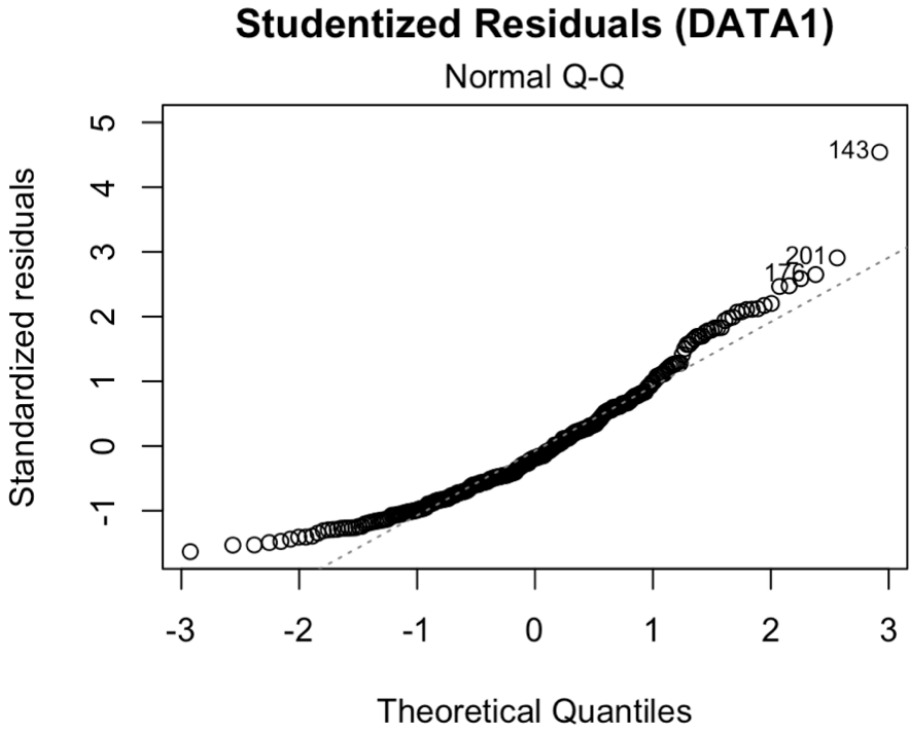


Figure 5.2b. Q-Q plot of studentized (standardized) residuals for DATA2

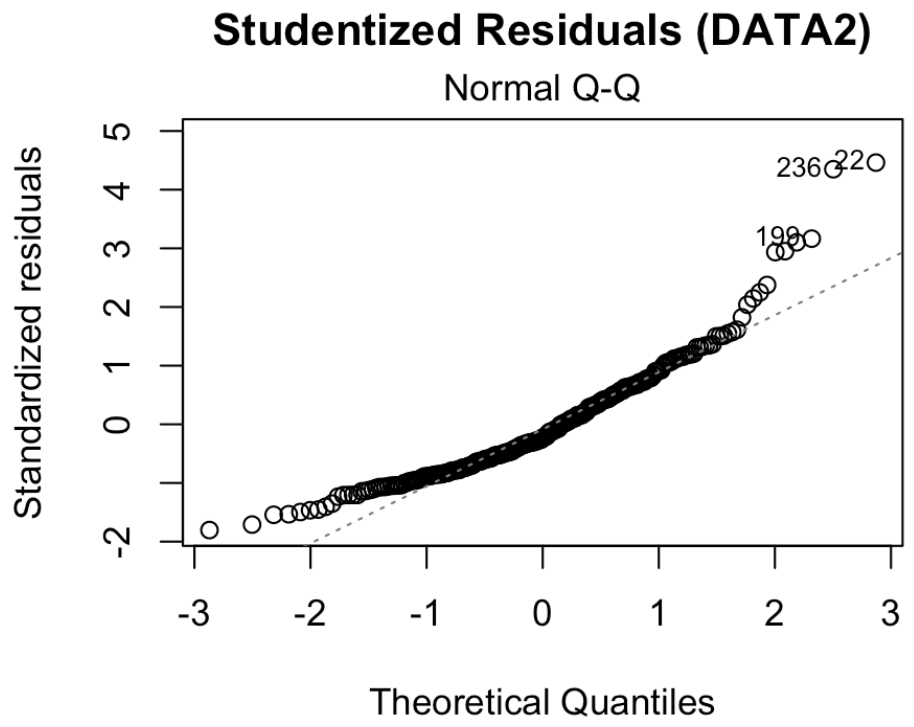


Figure 5.3a. Studentized residuals plotted against fitted values for DATA1.

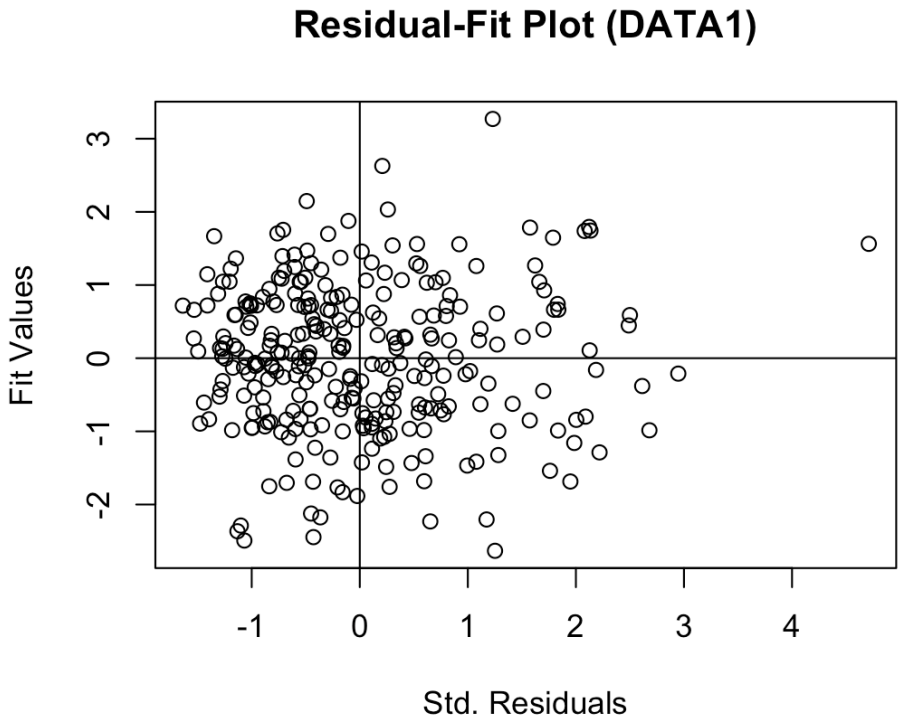


Figure 5.3b. Studentized residuals plotted against fitted values for DATA2.

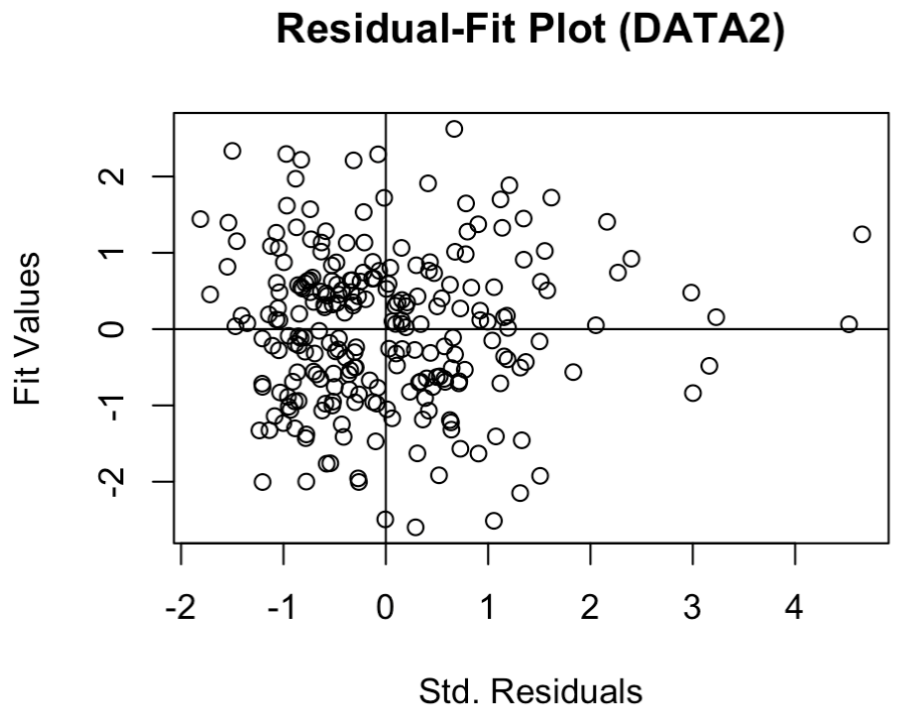


Figure 5.4a. Intercorrelations across all variables for DATA1

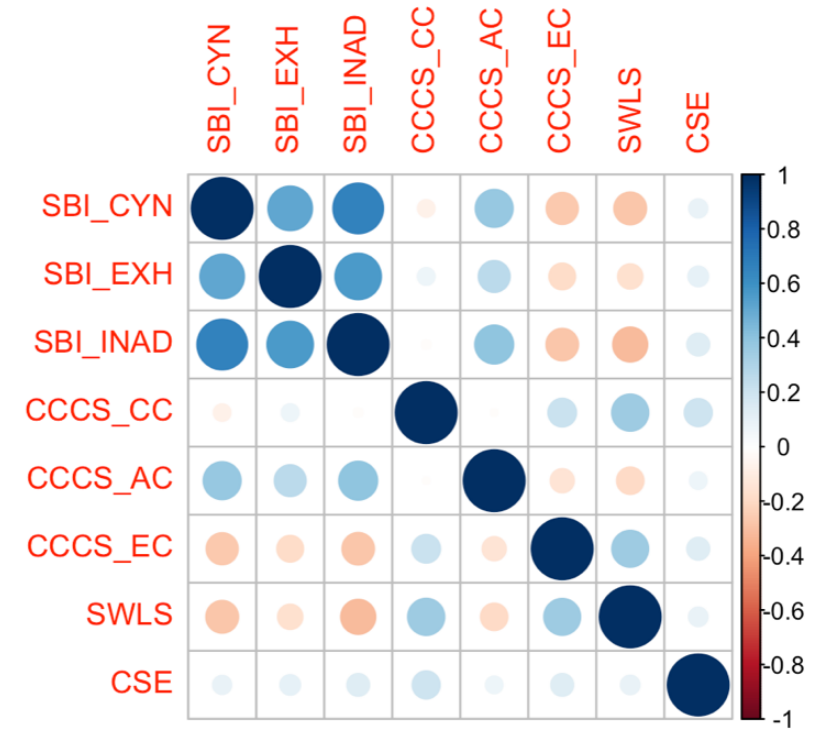


Figure 5.4b. Intercorrelations across all variables for DATA2

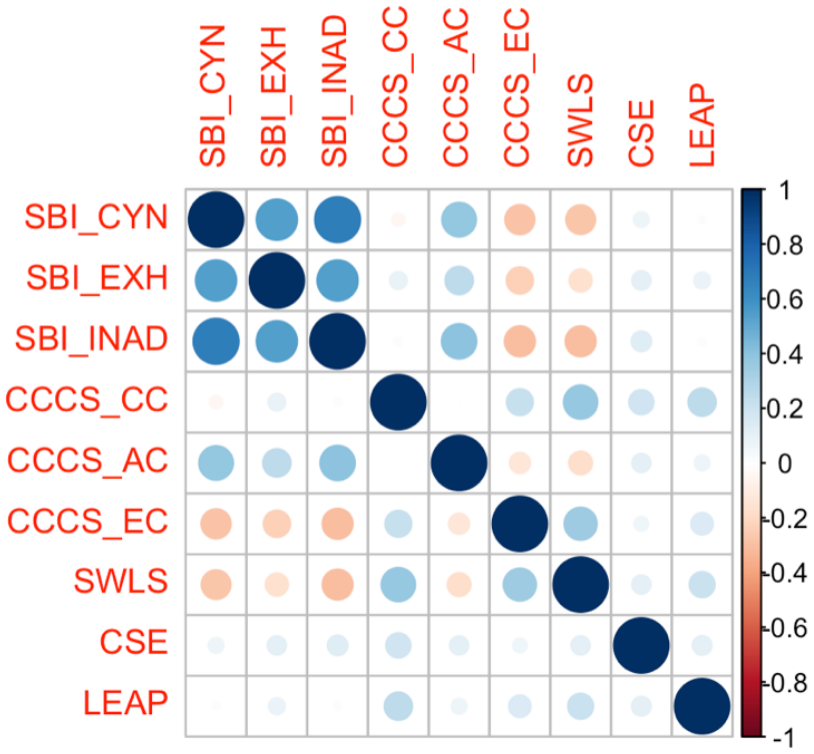


Figure 5.5. Diagram of M1 fit to DATA1.

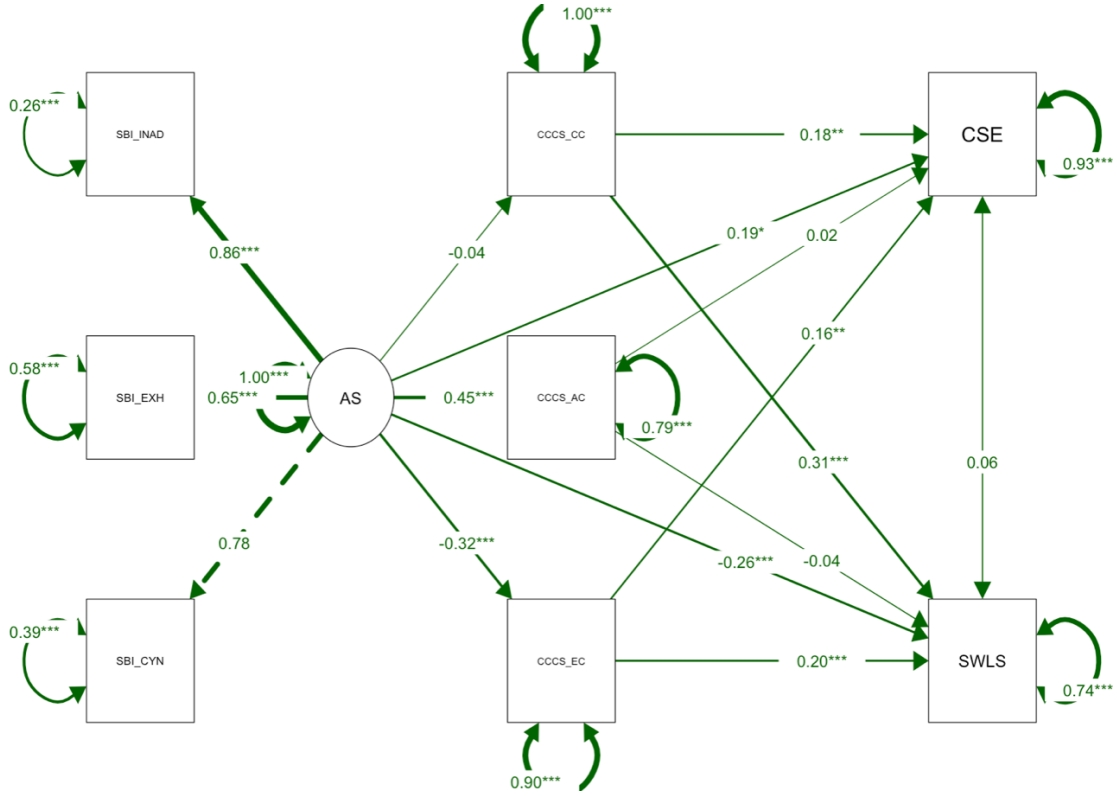
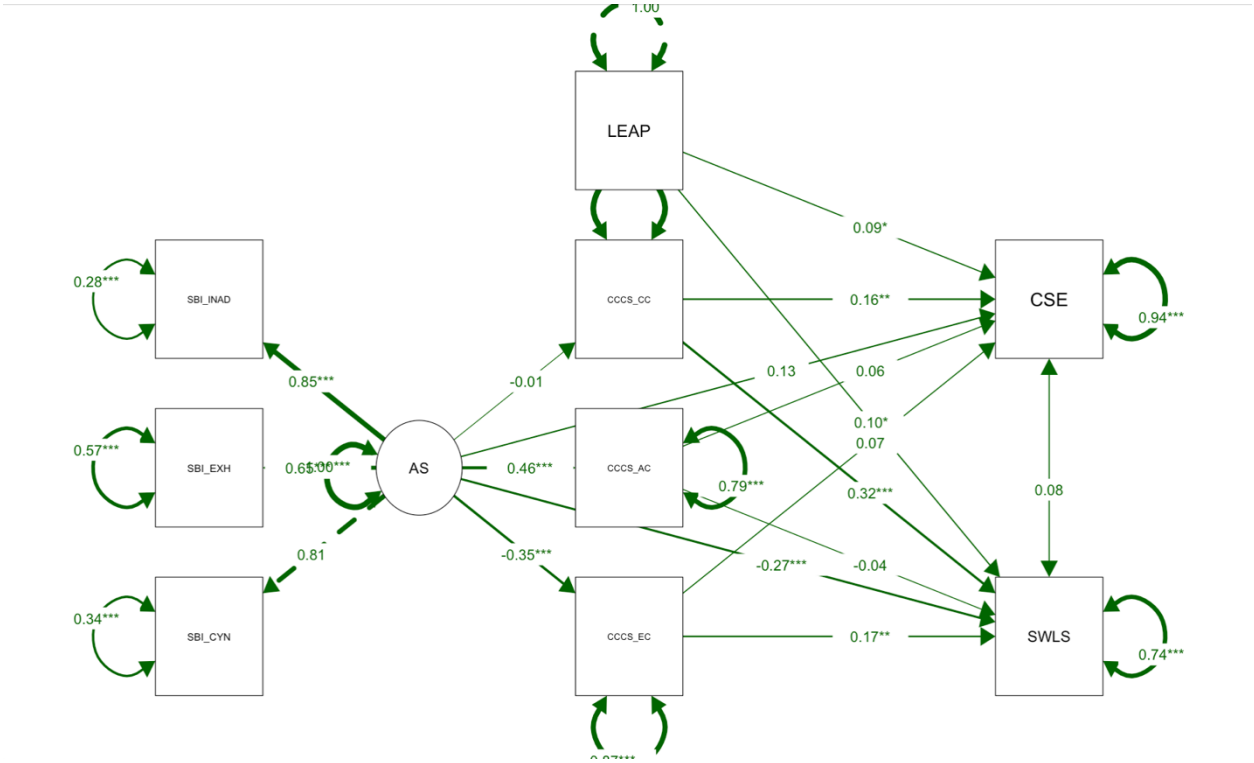


Figure 5.6. Diagram of M2 fit to DATA2.



Appendix B – Materials

School Burnout Inventory (SBI)

Instructions: Please choose the alternative that best describes your situation (estimation from previous month)

		Completely disagree	Partly disagree	Disagree	Partly agree	Agree	Completely agree
1.	I feel overwhelmed by my schoolwork	1	2	3	4	5	6
2.	I feel a lack of motivation in my schoolwork and often think of giving up	1	2	3	4	5	6
3.	I often have feelings of inadequacy in my schoolwork	1	2	3	4	5	6
4.	I often sleep badly because of matters related to my schoolwork.	1	2	3	4	5	6
5.	I feel that I am losing interest in my schoolwork	1	2	3	4	5	6
6.	I'm continually wondering whether my schoolwork has any meaning	1	2	3	4	5	6
7.	I brood over matters related to my schoolwork a lot during my free time	1	2	3	4	5	6
8.	I used to have higher expectations of my schoolwork than I do now	1	2	3	4	5	6
9.	The pressure of my schoolwork causes me problems in my close relationships with others	1	2	3	4	5	6

The Cross-Cultural Coping Scale (CCCS)

PLEASE READ THIS FOLLOWING PARAGRAPH FIRST!!

Lately you are experiencing more pressure and difficulty with academic life and with being in the university/college than usual. You've found out that you did poorly in the last round of tests/exams despite the immense efforts you put in preparing for them. You know that these unsatisfactory grades will inevitably hurt your chances of getting into graduate/professional school and your career goals down the road. On top of that, you have several assignments due and an upcoming midterm all in the same week. You really want and need to do well in them to improve your previous grades, but you are not sure if you can manage. <u>This has led you to feel extremely stressed over school and academic work. If this happens to you, how likely would you use the following methods to deal with this stressful situation?</u>

		Very inaccurate	Inaccurate	Somewhat inaccurate	Somewh at accurate	Accurate	Very accurate
1	I think about the situation carefully and think of options before I decide what to do.	1	2	3	4	5	6
2	I deal with the problem by doing what my parents may do or say with regard to the situation.	1	2	3	4	5	6
3	I look for something good or positive in this difficult situation.	1	2	3	4	5	6
4	I take the course of action that seems most acceptable to my cultural values.	1	2	3	4	5	6
5	I engage in activities that will help me to relax or feel better (e.g., sports, listening to or playing music, getting online, etc.).	1	2	3	4	5	6
6	I just accept the fact that this happens and tell myself that I can't do much about it	1	2	3	4	5	6
7	I hold firmly to my position and face the problem.	1	2	3	4	5	6
8	I get involved in other activities to keep my mind off the problem (e.g., study harder so as not to think about the problem).	1	2	3	4	5	6

		Very inaccurate	Inaccurate	Somewhat inaccurate	Somewhat accurate	Accurate	Very accurate
9	**I turn to friends who have a similar ethnic/cultural or language background as me to obtain information or resources in dealing with my problem.**	**1**	**2**	**3**	**4**	**5**	**6**
10	**I rely on myself to take action (e.g., finding out solutions) to deal with the situation.**	**1**	**2**	**3**	**4**	**5**	**6**
11	**I engage in activities my parents would not approve to ease my anxiety or nervousness, such as smoking, drinking, and doing drugs.**	**1**	**2**	**3**	**4**	**5**	**6**
12	**I try to block out or forget about what's bothering me.**	**1**	**2**	**3**	**4**	**5**	**6**
13	**I talk with and get help from other members of my family (e.g. siblings, cousins, aunts, uncles, etc.).**	**1**	**2**	**3**	**4**	**5**	**6**
14	**I tell myself that my problems will go away on their own.**	**1**	**2**	**3**	**4**	**5**	**6**
15	**I take the course of action that seems most acceptable to my family.**	**1**	**2**	**3**	**4**	**5**	**6**
16	**I turn to friends who have a similar ethnic/cultural or language background as me to get their understanding and support.**	**1**	**2**	**3**	**4**	**5**	**6**
17	**I talk with and get help from one or both of my parents.**	**1**	**2**	**3**	**4**	**5**	**6**
18	**I keep my emotions to myself and do not show them.**	**1**	**2**	**3**	**4**	**5**	**6**
19	**I choose to resolve my problems in ways that would attract the least attention to me.**	**1**	**2**	**3**	**4**	**5**	**6**
20	**I seek advice and help from someone els whom I consider to be wiser than me (e.g., teachers, parents, or elders).**	**1**	**2**	**3**	**4**	**5**	**6**
21	**I put extra efforts or work extra hard to resolve the problem.**	**1**	**2**	**3**	**4**	**5**	**6**
22	**I come up with a plan before tackling th situation.**	**1**	**2**	**3**	**4**	**5**	**6**
23	**I trust my personal strengths and believ in myself in resolving the problem**	**1**	**2**	**3**	**4**	**5**	**6**
24	**I try to make myself feeling better by telling myself that the problem is not as bad as it appears.**	**1**	**2**	**3**	**4**	**5**	**6**
25	**I give up trying to solve the problem**	**1**	**2**	**3**	**4**	**5**	**6**
26	**Instead of dealing with the problem, I find myself daydreaming more.**	**1**	**2**	**3**	**4**	**5**	**6**

27	**If the situation described above were to happen to you, how <u>stressful</u> would you say it may be for you?**	**1**	**2**	**3**	**4**	**5**	**6**

Satisfaction with Life Scale

DIRECTIONS: Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number in the line preceding that item. Please be open and honest in your responding.

		Strongly Disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly agree	Agree	Strongly Agree
1.	**In most ways my life is close to my ideal**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2.	**The conditions of my life are excellent**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3.	**I am satisfied with life**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4.	**So far I have gotten the important things I want in life**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
5.	**If I could live my life over, I would change almost nothing**	**1**	**2**	**3**	**4**	**5**	**6**	**7**

Collective Self- Esteem Scale (CSE)

INSTRUCTIONS: We are all members of different social groups or social categories. We would like you to consider **your race or ethnicity (culture or cultural group, e.g., being Polish, being Brazilian, etc.).** There are no right or wrong answers to any of these statements; we are interested in your honest reactions and opinions. Please read each statement carefully, and respond by using the following scale from 1 to 7.

		Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
1	I am a worthy member of my race/ethnic group.	1	2	3	4	5	6	7
2	I often regret that I belong to my racial/ethnic group.	1	2	3	4	5	6	7
3	Overall, my racial/ethnic group is considered good by others.	1	2	3	4	5	6	7
4	Overall, my race/ethnicity has very little to do with how I feel about myself.	1	2	3	4	5	6	7
5	I feel I don't have much to offer to my racial/ethnic group.	1	2	3	4	5	6	7
6	In general, I'm glad to be a member of my racial/ethnic group.	1	2	3	4	5	6	7
7	Most people consider my racial/ethnic group, on the average, to be more ineffective than other groups.	1	2	3	4	5	6	7
8	The racial/ethnic group I belong to is an important reflection of who I am.	1	2	3	4	5	6	7
9	I am a cooperative participant in the activities of my racial/ethnic group.	1	2	3	4	5	6	7
10	Overall, I often feel that my racial/ethnic group is not worthwhile.	1	2	3	4	5	6	7
11	In general, others respect my race/ethnicity.	1	2	3	4	5	6	7
12	My race/ethnicity is unimportant to my sense of what kind of a person I am.	1	2	3	4	5	6	7

13	**I often feel I'm a useless member of my racial/ethnic group.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
14	**I feel good about the race/ethnicity I belong to.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
15	**In general, others think that my racial/ethnic group is unworthy.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
16	**In general, belonging to my race/ethnicity is an important part of my self image.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**

Demographic Questionnaire

INSTRUCTIONS: The following information will be used to describe characteristics of participants who respond to this survey.

1. What is your age:
2. What is your gender identity:
3. Please list all the languages you know **in order of dominance** (once you list all the languages you know, leave the remaining cells blank):
4. Please list all the languages you know **in order of acquisition** (the first language you learned should be first, followed by the second language you learned, etc. Once you list all the languages you know, leave the remaining cells blank):
5. Please list what percentage of the time you are currently and on average exposed to each language. (Your percentages should add up to 100%):
6. When choosing to read a text available in all your languages, in what percentage of cases would you choose to read it in each of your languages? Assume that the original was written in another language, which is unknown to you. (Your percentages should add up to 100%):
7. When choosing a language to speak with a person who is equally fluent in all your languages, what percentage of time would you choose to speak each language? Please report percent of total time. (Your percentages should add up to 100%):
8. Do you consider yourself Bilingual/Trilingual/etc.?
9. What are your parents' native languages?
10. Please name the cultures with which you identify in the text fields below. (Examples of possible cultures include Canadian, Mainland Chinese, Jewish, Inuit, etc.):
11. On a scale from 0-10, please rate the extent to which you identify with each of the cultures indicated in question 10:
12. How many years of formal education do you have?
13. Please check your highest education level:
14. If you are completing an Undergraduate Degree, what is your current year? (If you are not currently enrolled in an Undergraduate Degree program, please skip this question)
15. What is the country you currently live in?
16. Please list every country in which you have lived for at least 12 months continuously:
17. Please state your nationality/nationalities:
18. Please check your ethnic/cultural background:
19. Which of the following best describes your generation status in the country where you currently live (e.g., Canada, Russia, the Netherlands, China, Taiwan…etc.)?

Language Experience and Proficiency Questionnaire (LEAP-Q)

Your heritage language refers to the language you most strongly associate with your family, community, and cultural identity. Your Heritage Language may be your first language, or you may only know a few words. So long as you associate it with your family, community, and cultural identity, it is considered your heritage language.

Which of the following would you consider to be your heritage language? (You are encouraged to pick 1 answer).
{Participants pick from list generated from languages provided in the Demographics Form}

QUESTIONNAIRE MODULE ON FOLLOWING 2 PAGES

Northwestern Bilingualism & Psycholinguistics Research Laboratory

Please cite Marian, Blumenfeld, & Kaushanskaya (2007). The Language Experience and Proficiency Questionnaire (LEAP-Q): Assessing language profiles in bilinguals and multilinguals. *Journal of Speech Language and Hearing Research, 50* (4), 940-967.

Language Experience and Proficiency Questionnaire (LEAP-Q)

Last Name		First Name		Today's Date	
Age		Date of Birth		Male ☐	Female ☐

(1) Please list all the languages you know **in order of dominance**:

1	**2**	**3**	**4**	**5**

(2) Please list all the languages you know **in order of acquisition** (your native language first):

1	**2**	**3**	**4**	**5**

(3) Please list what percentage of the time you are *currently* and *on average* exposed to each language.
(*Your percentages should add up to 100%*):

List language here:					
List percentage here:					

(4) When choosing to read a text available in all your languages, in what percentage of cases would you choose to read it in each of your languages? Assume that the original was written in another language, which is unknown to you.
(*Your percentages should add up to 100%*):

List language here					
List percentage here:					

(5) When choosing a language to speak with a person who is equally fluent in all your languages, what percentage of time would you choose to speak each language? Please report percent of total time.
(*Your percentages should add up to 100%*):

List language here					
List percentage here:					

(6) Please name the cultures with which you identify. On a scale from zero to ten, please rate the extent to which you identify with each culture. (Examples of possible cultures include US-American, Chinese, Jewish-Orthodox, etc):

List cultures here					
	(click here for scale	(click here for scale	(click here for scale	(click here for scale	(click here for scale

(7) How many years of formal education do you have? _____ _____
Please check your highest education level (or the approximate US equivalent to a degree obtained in another country):

☐ Less than High School ☐ Some College ☐ Masters
☐ High School ☐ College ☐ Ph.D./M.D./J.D.
☐ Professional Training ☐ Some Graduate School ☐ Other:

(8) Date of immigration to the USA, if applicable ___ _____
If you have ever immigrated to another country, please provide name of country and date of immigration here. _____ _____

(9) Have you ever had a vision problem ☐, hearing impairment ☐, language disability ☐, or learning disability ☐ ? (Check all applicable). If yes, please explain (including any corrections):
_____ _____

Language:

This is my (please select from pull-down menu) language.

All questions below refer to your knowledge of .

(1) Age when you…:

began acquiring :	*became fluent* in :	*began reading* in :	*became fluent reading* in :

(2) Please list the number of years and months you spent in each language environment:

	Years	Months
A country where is spoken		
A family where is spoken		
A school and/or working environment where is spoken		

(3) On a scale from zero to ten, please select your *level of* ***proficiency*** in speaking, understanding, and reading from the scroll-down menus:

Speaking	(click here for scale	Understanding spoken language	(click here for scale)	Reading	(click here for scale

(4) On a scale from zero to ten, please select how much the following factors contributed to you learning :

Interacting with friends	(click here for pull-down scale)	Language tapes/self instruction	(click here for pull-down scale
Interacting with family	(click here for pull-down scale)	Watching TV	(click here for pull-down scale
Reading	(click here for pull-down scale)	Listening to the radio	(click here for pull-down scale

(5) Please rate to what extent you are currently exposed to in the following contexts:

Interacting with friends	(click here for pull-down scale)	Listening to radio/music	(click here for pull-down scale
Interacting with family	(click here for pull-down scale)	Reading	(click here for pull-down scale
Watching TV	(click here for pull-down scale)	Language-lab/self-instruction	(click here for pull-down scale

(6) In your perception, how much of a foreign accent do you have in ?

(click here for pull-down scale)

(7) Please rate how frequently others identify you as a non-native speaker based on your accent in :

(click here for pull-down scale)

(8) Would you consider this language to be your 'heritage language'? (yes / no)

Vita Auctoris

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