Breaking the vicious cycle of language barriers: Growth language-mindsets improve communication experience for migrant university students

by

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Abstract

Language mindsets have been found to play an important role in learners' motivation and resilience in language learning classrooms (Lou & Noels, 2016, 2017; Mercer & Ryan, 2010). This dissertation aims to understand whether and how language mindsets are also important in understanding the social and interpersonal processes in intercultural interactions outside the classroom. To this ends, I examine English-as-a-Second-Language (ESL) students' language mindsets and their responses to communication challenges. In Chapter 1, adapting Dweck's mindset theory (1999) into the context of second language acquisition, I discuss how mindsets are linked to language learning motivation and propose that language mindsets (i.e., beliefs about whether language learning ability is fixed or malleable) shape students' language learning and language use experiences. In the following chapters, I report on five studies that were conducted to test the role of mindsets on ESL students' language-based rejection sensitivity, perceived rejection, contact avoidance, and willingness to interact with peers. Chapter 2 (Studies 1 and 2; n = 292) examines whether language mindsets influence language-based rejection sensitivity (i.e., the tendency to anxiously expect rejection from native speakers due to one's lack of language proficiency). The results showed that students who held or were primed with entity beliefs (versus incremental beliefs) reported stronger language-based rejection sensitivity, which in turn predicted more intergroup anxiety towards members of the target language community, less perceived connectedness with the host country, and worse cross-cultural adaptation. Chapter 3 (Studies 3 to 5; n = 581) examines whether language mindsets influence migrant students' communication with peers in different communication tasks. The results generally showed that growth language mindsets mitigated struggling students' negative perceptions of rejection and improved their motivation to interact with peers. Importantly, growth mindsets have a stronger

influence on reducing perceived rejection and improving motivation among low-competence students compared with high-competence students. The findings highlight that growth mindsets are an important protective factor for language minority students during their university experience, especially for those with low English competence. In Chapter 4, I proposed a research agenda for future research on language mindsets.

Keywords: Implicit theories, goal orientations, second language learning, L2 competence

Preface

This dissertation is an original work by Man-Tou Lou. The research project, of which this dissertation is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name "Lay theory and adjustment", No. Pro00060488, 26th October, 2015 to 28th October, 2019.

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Introduction

> *"After all those years dreaming of America, I hated it… I couldn't understand anything. I didn't talk. I was afraid someone would laugh at my pronunciation. And they did make fun of me. I thought to myself, I was a good student in Korea. Here I am stupid……. Finally I realized I had to reach out. To be a better speaker I had to be active and overcome my fear*."
>
> – The Colors of Freedom: Immigrant Stories (Bode, 1999)

> "*My main difficulty now is making friends in class and in everyday life. Now, most of my friends are from Japanese student organization. I don't know how to make friends with my classmates. I am waiting for my classmates to come to talk to me*" (Sayuri, US college student who migrated from Japan).
>
> –– Wu, Garza, & Guzman, 2015

> "*My English proficiency is not very good now……. When the professor assigned us in the discussion group, I was left out. My peers might not want to let me join their group*." (Hana, US college student who migrated from Korea).
>
> –– Wu, Garza, & Guzman, 2015

Learning and using a second language (L2) is an integral part of everyday life to many migrants. When navigating their everyday life in an L2, migrants often encounter communication obstacles, some of which are followed by negative feedback and social rejection from native speakers (Lippi-Green, 2012). For example, it is not uncommon for migrants in North America to be ignored and to receive signs of impatience and prejudice due to their non-native or

non-standard English (Gluszek & Dovidio, 2010a; Lee & Rice, 2007). Research shows that these day-to-day negative experiences with communication barriers are disruptive to migrants' motivation and undermine their confidence in their use of the L2. Some migrants develop strong anxiety and less willingness to communicate in the L2 with locals; this avoidance influences their adaptation and sense of belonging to the new culture, as well as their physical and mental health (Wei, Liang, Du, Botello, & Li, 2015; Gallagher, 2013; Gluszek & Dovidio, 2010a; Yoo, Gee, & Takeuchi, 2009). To help migrants adjust to a new culture, it is important to understand the psychological processes through which migrants cope with the fear of being rejected due to low levels of communicative competence.

With unprecedented numbers of immigrants and international students entering higher education, challenges have arisen for ensuring migrant students' social integration and acceptance by faculty members and other students (e.g., Gurin, Dey, Hurtado, & Gurin, 2002; Kanno & Harklau, 2012; Pinheiro, Chalrles, Jones, 2016). Given that most migrant students[1] belong to ethnolinguistic minority groups who learn and use the local language as a second language (L2), it is a common part of the acculturation process to experience negative daily social encounters due to language barriers (e.g., peer rejections/segregation, being misunderstood, awkward interactions, and being criticized for their accent and writing). Social difficulties and academic struggles due to language barriers place migrant students at risk for depression and drop-out (Kanno & Cromley, 2013). Accordingly, education research has focused on how to improve migrant students' linguistic competence (Adesope, Lavin, Thompson, & Ungerleider, 2011; Kieffer, 2008; Slama, 2012). Because most studies were conducted in the K-12 setting and

[1] I use the term of "migrant students" in this paper to refer to students who were international students or first-generation immigrants.

focused on supporting students' academic development, little is known about how to support ESL university students to overcome language-related challenges to social integration, despite the fact that many ESL university students who have passed required language tests still struggle with using English and engaging in social activities (Glass, 2012; Kanno & Cromley, 2013; Ranta & Meckelborg, 2013; Wilton & Constantine, 2003). Therefore, it would be of great value to address this important gap and identify factors that improve ESL migrant university students' social experience.

Research in social and educational psychology suggests that people's emotional and behavioural responses to challenging situations are partly rooted in their beliefs about whether their attributes (e.g., personality, cultural characteristics, and language aptitude) are fixed or malleable (Dweck & Leggett, 1988). These beliefs are argued to be the core of the meaning system, or "mindset", through which people construe or make sense of their learning and social experiences (Carr, Rattan, & Dweck, 2012). Specifically, those who believe their ability is fixed, termed an "fixed mindset", tend to attribute failure to their lack of aptitude (i.e., an uncontrollable factor). They have a strong fear of failure and thus avoid interactions where negative feedback is possible. In contrast, those who believe their competence is malleable, termed an "growth mindset", tend to attribute failure to their effort (i.e., a controllable factor). They regard challenges as opportunities for improvement and thus tend to be less concerned about failure.

Mindsets have been researched extensively, such that growth (versus fixed) mindsets predict adaptive behaviours and resilient outcomes among students who undergo different academic and social challenges (Claro, Paunesku, & Dweck, 2016; Dweck, 1999; Yeager & Dweck, 2012; Yeager, Trzesniewski, Tirri, Nokelainen, & Dweck, 2011; Yeager et al., 2016b).

However, little research has examined the effect of mindsets on language learning motivation, and even less on language minority students' social experience. In this research, I investigated whether and how mindsets are linked to ESL students' motivational, emotional, and behavioral responses in social interactions with English-speaking peers – situations that many language minority students consider to be challenging (Kanno & Cromley, 2013; Wu et al., 2015).

Chapter 1: Review of the Literature

"Mindset" is an influential concept that has had a wide impact on the motivation research in the past thirty years, as well as on recent reform of educational practices (Dweck, 1999; 2006). Mindsets, also termed as lay/implicit theories, refer to beliefs about whether a person's characteristics, such as personality and intellectual abilities, are mutable or immutable (i.e., a growth mindset/incremental theory or a fixed mindset/entity theory, respectively). These beliefs, which are often taken for granted and seldom reflected upon in a systematic manner, orient people's thoughts and actions towards activities in which the personal characteristics are relevant. Despite pervasive lay beliefs about natural talent and biological constraints (e.g., age) in foreign language learning, not until recently have researchers in second language acquisition (SLA) addressed how mindsets play a role in motivational processes (Mercer & Ryan, 2010; Ryan & Mercer, 2012; Lou & Noels, 2016, 2017).

Given the increasing interests of mindsets in SLA, this chapter provides an overview of research and theories addressing the value of studying language mindsets, particularly in understanding how learners sustain motivation during second/foreign language (L2) development. I first discuss the theoretical conceptualization of language mindsets by reviewing its relation to and distinctiveness from mindsets in other domains. I then synthesize relevant research with a proposed model regarding how language mindsets are linked to two different meaning-making systems that underlie language learning motivation. Third, I elaborate language mindsets as part of a dynamic and contextualized motivational system. Finally, I discuss current research limitations and provide suggestions for the development of L2 motivation theory and research using the lens of language mindsets.

Language Mindsets

How much do you believe these three statements are true? “People either have a knack for languages or they do not; the ability to learn foreign languages is mostly innate and immutable; adults do not have the capacity to learn a new language like children do.” For decades, scientists have attempted to address these questions with different theories and come up with different conclusions. Like scientists, lay people also have their own theories explaining how human psychology functions, and they often assume that some people have a certain psychological capacity that makes them better or worse at learning an L2 than others. This analogy of “lay theory” offers a useful way of studying how people think and make sense of language learning.

Although lay people rarely explicitly and systematically test their theories, they make use of them in their everyday life to simplify complicated information and to make sense of their experience (Molden & Dweck, 2006; Ross & Nisbett, 2011). For example, using a theory that language intelligence and foreign language aptitude is genetically based can create a cognitive frame that helps people to explain a variety of individual differences and make sense of different learning situations. With such a theory to guide them, people can reasonably attribute past failures and current struggles to their lack of talent, and thus predict any future difficulty to be unmanageable, or only attainable through luck or extraordinary circumstances. Those who subscribe to a belief that the capability to acquire a new language is biologically determined by age (resembling the critical period hypothesis) can use this belief to understand and explain to themselves and others why adults cannot learn an L2. Simply put, lay theories are information-processing paradigms that help people to form, revise, transform, and even change their everyday experience into a meaningful system of beliefs (Kelley & Michela, 1980; Oyserman & Yan, in press; Ross 1977). Studying these lay theories thus yields important

insights into how language learners make sense of their learning experiences, which is fundamental to motivational processes and to the sense of self.

Recognizing this long tradition of research on lay theories, Dweck (2006) suggested that the fixed and growth mindsets are fundamental to motivation because they can guide people in how to think, feel, and act across different domains, including learning and education and interpersonal relationships (e.g., Lou & Li, 2017; Molden & Dweck, 2006). For example, in education, students who hold growth mindsets (i.e., beliefs that their intellectual abilities can be improved) are *motivated to develop competence* through hard work because they believe that intelligence is attributable to changeable factors (e.g., stimulating environment and effort). Accordingly, they seek out challenging experiences that enable them to develop skills and acquire new knowledge. Conversely, learners who hold fixed mindsets (i.e., beliefs that intelligence is immutable) are *motivated to validate competence* because they believe that intellectual abilities are attributable to fixed personal factors (e.g., genes). Consequently, they develop the tendency to avoid challenging situations, in which potential failures may invalidate their innate ability (Hong, Chiu, Dweck, Lin, & Wan, 1999). Many studies found that learners with growth (vs. fixed) mindsets are more motivated, adaptive, and successful (Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2013).

It is important to note that the terms mindsets, lay theories/beliefs, and implicit theories/beliefs are used interchangeably in the literature. However, the notion of "implicit" can create confusion, because, in cognitive psychology, implicit often refers to people's inability to report the existence of (unconscious) attitudes and beliefs (e.g., Nosek & Banaji, 2002). Research on mindsets runs counter to this idea because most people are aware of and able to report their beliefs, although they might have only seldom had a reason to articulate them and might rarely

frame them as "theories" when explaining phenomena. In fact, mindsets are argued to be "learned knowledge systems" accessible to most people (Poon & Koehler, 2006). Therefore, although implicit theories are used often in academic literature, in this chapter, I use the term, mindsets.

Dimensions and measurement of language mindsets

Regarding the construct of mindsets, some earlier work describes a dichotomous framework, such that individuals are either entity theorists or the incremental theorists. Some incautious educators may adopt this oversimplified framework and even differentiate students as either a fixed-mindset learner or a growth-mindset learner (see a recent response to this issue from Dweck, 2015). A dichotomous formulation of mindsets has received little support in research. For example, an interview study reported that language learners are able to express a clear opinion about fixed and growth language mindsets to various degrees, and many learners have a mix of both mindsets (Mercer and Ryan, 2010). This finding suggests that fixed and growth mindsets are commonly endorsed among language learners, and the dichotomy of fixed-vs-growth fails to reflect what learners actually think (Mercer, Ryan, & Williams, 2012). From a methodological perspective, dividing language mindsets into two categories may simplify measurement and research designs, but it can also lessen measurement reliability and validity, minimize individual variations, and bias effect sizes and statistical significance (MacCallum, Zhang, Preacher, & Rucker, 2002).

The content of both fixed and growth language mindsets is comprised of at least three prevalent themes: General-language-intelligence beliefs, L2-aptitude beliefs, and age-sensitivity beliefs. These three themes resemble three lines of academic debates in SLA that are also common in public discussion. Firstly, general-language-intelligence beliefs concern the concept

of linguistic/verbal intelligence that are central to multicomponential intelligence theories (e.g., H. Gardner, 2011). Some researchers maintain that there is a fixed linguistic/verbal intelligence that determines one's ability in language-related tasks, including L2 learning. Some may believe the ability to become a successful writer, orator, and/or translator is wired into the brain; you either have it or not (Dogil & Reiterer, 2009). Secondly, L2-aptitude beliefs parallel scholarly debate about whether the aptitude to learn an L2 (distinct from native language/general language ability) is fixed and genetic base or changeable through training and effort (L2B; Wen, 2012). Lastly, age-sensitivity beliefs correspond with arguments around the critical/sensitive period hypothesis. Some scientists strongly argue that the capacity in SLA is malleable up to a younger age, and then drops thereafter due to neurobiological changes (DeKeyser, 2000). This claim is in line with the popular belief that adults cannot "fully" acquire native-like proficiency in a new language as well or as quickly as young children can. However, others argue that age does not biologically constrain one's capability to learn (Abello-Contesse, 2009). They may further explain that age differences mainly reflect adults' lack of time and motivation due to social constraints and stereotypes (Marinova-Todd, Marshall, & Snow, 2000).

This operationalization of language mindsets emphasizes that these beliefs are neither a categorical nor a unidimensional construct. Based on these propositions, I developed and validated the Language Mindsets Inventory (LMI) with learners of a variety of foreign languages and students who use English as their L2 (Lou & Noels, 2018; Lou & Noels, 2017, in press). I found that the LMI confirmed the underlying theoretical framework: learners endorse different degrees of entity and incremental theories regarding general-language-intelligence, L2-aptitude, and age-sensitivity beliefs. These different beliefs can be further reduced into two hierarchical structures reflecting fixed and growth mindsets (Lou & Noels, 2017). Moreover, although fixed

and growth mindsets are negatively correlated, factor analyses did not support that they were a single construct. This finding indicates that many people can be flexible, dialectical thinkers who ascribe to seemingly contradictory concepts if they are not forced to choose one concept or the other, and thus endorsing both entity and growth theories (Kruglanski, 1989). Therefore, treating language mindsets as a single bipolar factor may obfuscate the nuances of language mindsets, although such reduction may be more practical and warranted depending on a study's objectives (Lou & Noels, 2017).

The construct of language mindsets is related to but distinct from other mindsets. Language mindsets were only weakly correlated with mindsets about general intelligence and other specific abilities such as athletics and math (Lou & Noels, 2017). These findings support the domain-specific nature of mindsets (Dweck, Chiu, & Hong, 1995). As such, it is possible that people hold a weak growth language mindset but a strong growth mindset in other intellectual domains (Ryan & Mercer, 2012). More importantly, learners' motivation is context-specific and thus corresponds better with mindsets when both constructs are assessed within the same domain. For example, compared to general intelligence mindsets, language mindsets are a more direct and stronger predictor of language motivation (Lou & Noels, 2017). Therefore, to understand language motivation, it is more appropriate to assess learners' language mindsets rather than their intelligence mindsets.

Language mindsets and motivation

To illustrate how language mindsets contribute to language learning motivation, I conceptualized the Language-Mindset Meaning System (LMMS). This framework highlights the central role of mindsets among different language beliefs identified to be important in language motivation (e.g., Dörnyei & Ryan, 2015; Henry, 2014; Horwitz, 2007; Kalaja, Barcelos, & Aro,

2018; Yashima, Nishida, & Mizumoto; 2017). I argue that language mindsets are cornerstones for meaning-making that guide people to make sense of their L2 experiences. Specifically, the LMMS comprises the growth-oriented and fixed-oriented meaning subsystems. Each subsystem includes a parallel constellation of allied beliefs and affective and motivational tendencies, together produce systematic differences in a range of fundamental motivational processes that guide how people think, feel, and act (Molden & Dweck, 2006).

In the following discussion, I focus on mindset-driven motivational processes particularly in challenging situations, which are inherent to the long-term language learning process (e.g., rejection by interlocutors, making mistakes in communication, criticism from teachers and peers, and performing badly in language tasks). I emphasized that language mindsets can guide learners to construe these situations and develop different affective and behavioural coping strategies. Specifically, the LMMS synthetizes a set of descriptive and prescriptive functions for meaning-making (e.g., "What do effort and failure mean?"; "What are the reasons I can't speak the language well?"; "Should I continue learning?"), which are different from the evaluative meaning-making structures (e.g., attitudes and values; Plaks, Levy, Dweck, 2009). Table 1 presents how fixed and growth mindsets are systematically linked to different motivational beliefs and self-regulatory processes: effort beliefs, attributions, achievement goals, failure mindsets, self-regulatory tendencies, and competence-based emotional tendencies. Although many of these concepts and connections have been addressed in the SLA literature, some have not, and thus the following discussion of LMMS includes research published in educational psychology literature.

Table 1. Language-Mindset Meaning System

	Fixed-oriented subsystem	Growth-oriented subsystem
Effort beliefs: What does effort mean?	**Negative:** effort is futile, and exertion of effort reflects one's lack of natural talent.	**Positive:** effort is the key to improvement and a means to become talented.
Attribution: What causes different learning outcomes?	**Uncontrollable:** interpret successes to one's own talent and failures to the lack of natural ability.	**Controllable:** interpret success to hard work and challenges/mistakes to the insufficient effort.
Achievement goals: What are your goals for your learning activities?	**Performance goals:** aim to out-perform others and validate ability (when perceived competence is high) or avoid being seen as incompetent (when perceived competence is low).	**Mastery goals:** aim to develop and improve language competence; focus on the learning process.
Failure/mistake mindsets: What does failure mean?	**Failure as debilitating:** Failure or making mistakes inhibits one's learning and debilitates one's performance; one should avoid failure or making mistakes in order to learn and perform well.	**Failure as enhancing:** failure or making mistakes provides opportunity to understand what is needed and to facilitate improvement; one should take advantage of failure to learn and grow.
Self-regulatory tendency: What do you tend to do when dealing with setbacks?	**Self-defensive strategies:** avoid similar situations to protect self-esteem.	**Self-improvement strategies:** seek for better learning strategies and feedback to improve.
Competence-based emotional tendency: How do you tend to feel about your language ability in challenging tasks?	**Anxiety:** afraid of challenges and failure; anxious to use the target language and fear of being judged/ rejected.	**Confidence:** enjoy difficult tasks; confidence to use the language and to develop competence.

Note. It is important to note that the description of fixed- and growth-oriented systems are extremes of two independent but correlated continuums; it does not suggest that learners hold only one or the other system. It is likely that learners have a mix of both systems.

Effort beliefs: Believing in the utility of purposeful effort. Learners' language mindsets are tied to their perceptions about what effort can do (Lou & Noels, 2017). For learners who believe their ability can be developed, effort is an *effective* way to become more competent. They believe the harder they strive, the better they will become at language learning (e.g., "Effort is the key to improvement"). However, for learners who believe language ability is fixed, effort may reflect one's lack of natural ability. They believe that effort is *ineffective* in language success, and showing others that they are hardworking can also make them feel less talented (e.g.,

"Those who try hard obviously don't have the talent"). Because effort expenditure is one of the most powerful predictors of language achievement, positive effort beliefs are considered a key motivational factor in the pathway of language success (Csizér & Dörnyei, 2005).

Attribution: Interpret successes and failures. Learners with different mindsets also explain their performance with different rationales. Those with entity beliefs tend to attribute achievement and challenges to one's talent and/or lack thereof – success validates their natural ability and failures indicate their incapability to learn. This *uncontrollable* attribution tendency undermines learners' sense of autonomy and intrinsic motivation. In contrast, learners with incremental beliefs attribute performances to their own efforts – success indicates their effort has paid off and making mistakes signals more effort is needed. This *controllable* attribution tendency is important in sustaining motivation for future learning tasks (Kelley & Michela, 1980; Weiner, 2014; [cross reference to demotivation chapter]). These different attributions of performance, derived from different mindsets, can in turn guide learners feel and act differently in learning situations.

Achievement goals orientations: Goal of mastering the language or presenting a positive self-image. Language mindsets are also linked to learners' purpose for becoming competent in language learning and/or succeeding in the language class. Learners strive for language success for various reasons (Woodrow, 2006; [cross reference to Kormos]): to master the language and improve their competence (i.e., *mastery, or learning,* goals); to prove their ability and outperform other students (i.e., *performance-approach* goals); and to hide their lack of competence and to avoid performing worse than the others (i.e., *performance-avoidance* goals). Mastery goals concern self-development and competence per se; they are linked to stronger effort and motivational intensity, persistence, and better oral test performance. On the

other hand, the two performance goals concern normative achievement relative to others. Performance-approach goals are associated with stronger language anxiety, and performance-avoidance goals are related to stronger language anxiety and poorer oral test performance (Woodrow, 2006). This pattern possibly arises because people with performance goals are easily distracted from learning by the need to validate their performance through social comparison.

Based on Dweck and Leggett's work (1988), I argue that learners' goal setting relies on both their mindsets and evaluations of their language competence. Learners with growth mindsets set mastery goals to "learn as much as possible from their language class" (Lou & Noels, 2017). Holding growth mindsets provide learners with a sense of control over their own ability, and thus orients them towards the learning process itself rather than towards performance (Dweck & Leggett, 1988). According, these learners may be more likely to develop learner autonomy, to take responsibility, and to engage in activities that enable them to grow (Lou et al., 2016). Conversely, fixed mindsets predict performance-approach goals, particularly when learners think that they have high language competence. These learners are more likely to engage in activities that portray them in a positive light. However, I did not find that learners' mindsets predict performance-avoidance goals. It is possibly because the effects of language mindsets on avoidance goals are more salient when learners are facing actual challenges, for example, receiving negative feedback and experiencing language-based rejection in intercultural contact (Sisk et al., 2018).

Failure mindsets: Are failures debilitating or enhancing? Fixed and growth mindsets also guide people to construe failure in different ways, above and beyond controllable vs. uncontrollable attributions. When performance is unsatisfactory, learners with growth mindsets

are more likely to positively reappraise their setbacks, to reflect on their mistakes, and look for ways to improve. For example, they are more likely to think, "This misunderstanding makes me realize that I should improve my pronunciation" and "Even though I used the wrong word, I learned the right word in the process; I learned something new because of my mistake." They see failures as a means to facilitate learning and growth. Conversely, learners with fixed mindsets tend to regard failure as debilitating; they assume the failures is lasting and uncontrollable. They may say that, "If I can't communicate well in my target language, it means I really am not a language person" and "I won't talk because I don't know how to say it perfectly." Research in general education shows that failure-is-enhancing and failure-is-debilitating mindsets are only moderately related to (thus distinct from) intelligence mindsets (Haimovitz & Dweck, 2016).

Self-regulatory tendencies: Implications for perseverance. Language mindsets also impact learners' tendencies to engage in self-regulation or to resign from goal pursuit (Burnette et al., 2013; Molden & Dweck, 2006). When their goals are not met, learners with growth mindsets intend to take remedial actions. They adopt a self-improvement orientation that prompts them to take control over their own learning, such as actively seeking help to improve their learning (Waller & Papi, 2017; Heine et al., 2001). Conversely, people with fixed mindsets aim to prevent failures from hurting their self-esteem. They are more likely to avoid future learning opportunities when criticism is possible; they are also more concerned about negative judgments from teachers, as they construe corrective feedback and help-seeking as an exhibition of "being dumb". Instead, they utilize self-defensive strategies, such as avoidance and self-handicapping (i.e., avoid effort and create obstacles that allow them to justify possible failures; Nussbaum & Dweck, 2008). As a result, compared to learners with incremental beliefs,

learners with entity beliefs are more likely to give up studying foreign languages (Lou & Noels, 2017).

Competence-based emotional tendencies: Confidence and anxiety. During and after learning activities, learners' emotional responses will be activated based on their existing emotional tendencies developed through their reactions to previous similar situations (Barrett, 2017). By constantly guiding learners' emotional reactions to achievement situations, learners' mindsets can facilitate the development of different competence-based emotional tendencies (Robins & Pals, 2002). Fixed mindsets are linked to maladaptive emotional tendencies, including language anxiety, fear of failure, and concerns over being rejected by interlocutors (Fenyvesi, Hansen, Cadierno, in press; Lou & Noels, in press). In line with resilience perspectives, learners with growth mindsets reported a weaker tendency for language anxiety (Lou & Noels, 2017, 2018), possibly because they tend to reappraise and regulate their emotions by seeing the positive in failure situations (e.g., think that obstacles can be overcome if they work harder; Chaffee, Lou, & Noels, 2018). Given that language confidence is comprised of a positive self-perception of competence and low anxiety (Sampasivam, & Clément, 2014), it is not difficult to imagine the link between mindsets and language confidence. I found that learners with growth mindsets have more positive emotions and confidence to use the target language and have more positive expectation about interacting with native speakers (Lou & Noels, 2018). Furthermore, the effect of language mindsets on language anxiety is found to go beyond what goal orientations and perceived language competence predict, suggesting that language mindsets play a unique role in emotional experiences (Lou & Noels, in press).

Chapter summary

I started this chapter by discussing the consensus that language mindsets should be conceived as a more complex construct than a dichotomous categorical or a bipolar unidimensional formulation implies, based on both qualitative and quantitative research (Mercer & Ryan, 2010; Lou & Noels, 2017). With this assumption, I operationalized language mindsets as the crux of two meaning-making subsystems by positing a growth-oriented subsystem and a fixed-oriented subsystem (Molden & Dweck, 2006). This approach aims to understand how conceptually similar language motivational constructs, including effort beliefs, attributions, and achievement goals, work together and give rise to how learners think, feel and act (Lou & Noels, 2016). The fixed-oriented system includes negative effort beliefs, uncontrollable attributions, performance goals, failure-is-debilitating mindsets, self-defensive strategies, and language anxiety, which are assumed to be maladaptive. In contrast, the growth-oriented system includes positive effort beliefs, controllable attributions, mastery goals, failure-is-enhancing mindsets, self-improvement strategies, and self-confidence. I maintain that a growth-oriented system can serve as a personal resource, or a form of motivational capital, which buffers the negative effects of competence threats on motivation by guiding people to proactively cope with failure situations (Yeager & Dweck, 2012; Nussbaum & Dweck, 2008). Moreover, this motivational capital can be increased with backing from the socio-cultural learning environment, and in turn, supports the long-term investment in language learning.

Readers must be mindful that these two subsystems are not mutually exclusive and that everyone is likely to possess both mindset-systems to a different extent, which can change depending on domains, social contexts, and time. The two mindset-based subsystems are considered two complex dynamic systems – learners' *meaning-making processes* are not stable across time and situation but rather fluctuate, due not only to powerful contextual influences but

also as a result of learners' personal agency. Different mindset-related tendencies can also co-occur depending on learning situations and they operate together to predict language development and intercultural communication. Therefore, I conclude that language motivation can be conceived of as embedded in a dynamic meaning-making system.

Chapter 2:

Does language mindsets predict sensitivity to language-based rejection?

Chapter 1 summarizes why mindsets are an important framework for understanding language motivation and achievement emotion. In Chapter 2, I explore whether language mindsets predict English-as-a-second-language students' language anxiety. I propose that migrants' language mindsets (i.e., beliefs about whether L2 ability is fixed or improvable) can heighten or lessen their sensitivity towards being rejected on the basis of their language ability, which in turn influences their interpersonal relations with members of the target language group as well as their adaptation to the target culture (see Figure 1). To elaborate on this model, I first describe the central construct of the model – language-based rejection sensitity (language-RS), by reviewing related concepts, including language anxiety and rejection sensitivity in other social and educational domains. I then examine the hypothesized outcomes of language-RS on intercultural experience by reviewing research showing how perceived social rejection is linked to negative experiences in various intergroup contexts. Finally, I discuss why language mindset is a key antecedent of language-RS, by examining evidence that entity (vs. incremental) beliefs heighten learners' negative responses in different contexts, including language learning.

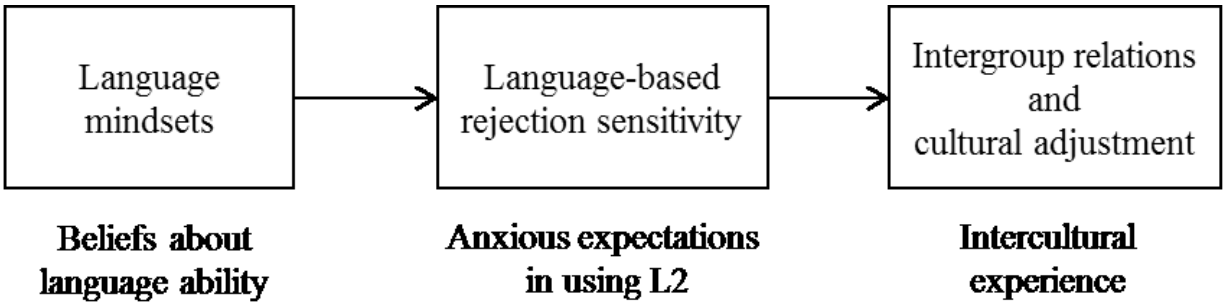

Figure 1. A theoretical model in which language mindsets influence intercultural experience through language-based rejection sensitivity.

Language-based Rejection Sensitivity

Similar to other social categories (e.g., race, gender, age, and social class) in which stereotypes and prejudice are rooted, language can be a social marker that influences social perceptions and impression formation (e.g., Kinzler, Shutts, & Correll, 2010; Rakić, Steffens, & Mummendey, 2011). With considerable consistency, research shows that migrants who speak nonstandard local language(s) often experience prejudice and discrimination in the workplace, at school, and in the local community (see Lippi-Green, 2012). For instance, even when no other demographic information is available, speakers of nonstandard English in the United States are perceived as less competent and credible, lower in social status, and less "American" compared to standard English speakers (Gluszek & Dovidio, 2010b; Lippi-Green, 2012; Rakić et al., 2011). Moreover, migrants who experience more language-based discrimination report more depression symptoms and worse physical health, and these effects are independent of and extend beyond migrants' experience of racial discrimination (Yoo et al., 2009). Despite research showing that language-related discrimination is prevalent, disruptive, and distinct from other forms of discrimination, little is known about how members of linguistic minority group perceive and expect language-based rejection, and how their expectations influence their socio-cultural adjustment and intergroup relations.

To address this gap, I draw from the status-based rejection sensitivity (RS-status) framework, which accounts for individual differences in response to possible discriminatory cues (Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002). This framework is grounded in an attachment approach to interpersonal relationships (Bowlby, 1969), which suggests that repeated rejection experiences with significant others (e.g., caregivers) in childhood result in the development of an insecure attachment style, characterized by a tendency to excessively worry

about others' rejection. Extending Bowlby's attachment theory of child development, Downey and Feldman (1996) argue that rejection experiences also shape adults' cognitive-affective processing in interpersonal situations, such that some people develop a disposition to be anxious about anticipatory rejection by others (i.e., rejection sensitivity). Based on this model, Mendoza-Denton et al. (2002) proposed that direct or vicarious experiences of rejection due to one's personal and social characteristics (e.g., race, gender, age, social status, and sexual orientations) can also lead to the development of anxious expectations of rejection based on one's minority status (i.e., RS-status). Excessively anxious expectations of rejection can direct people to readily interpret others' behaviours as intentional rejection, even when signs of rejection are highly ambiguous. Therefore, minority members who are sensitive to rejection may react negatively in intergroup situations where rejection is possible (Mendoza-Denton et al., 2002).

Research shows that RS-status predicts minority group members' psychological health and social experiences with the dominant group (Mendoza-Denton et al., 2002). Members from stigmatized, lower status groups who feel a high RS were more likely to avoid interacting with majority group members, showed stronger intergroup anxiety, and reported a lessened sense of belonging in the majority-dominant settings (Chan & Mendoza-Denton, 2008). In response to minority members' avoidant behaviours, majority group members may react negatively and further avoid interaction. That is to say, a strong RS may be part of a vicious cycle of adverse intergroup experiences.

The RS-status framework provides insight into the social-cognitive process of intergroup relations by capturing how individuals' awareness and perceptions of being rejected can lead to behaviours that confirm their expectations and thus undermine intergroup relations. The present

research extends this framework into the L2 context to understand non-native speakers' cognitive, affective, and behavioural attitudes with the majority ethnolinguistic group. In line with the RS model, I define language-based rejection sensitivity (language-RS) as a tendency to anxiously anticipate rejection by the dominant ethnolinguistic group because of one's lack of proficiency. As noted earlier, it is not uncommon for migrants to experience poor treatment due to a low language ability (Lippi-Green, 2012). As a result, some migrants become more and perhaps overly concerned about how they might be treated as a member of a non-dominant ethnolinguistic group, and expect that future attempts at affiliation are unlikely to be successful. But unlike rejection sensitivity based on some other characteristics, such as racial appearance, language-RS is based on a characteristic that is presumably changeable, at least to some extent. Given that many migrants are motivated to improve their language skills in order to affiliate with and avoid exclusion from the dominant group, an improvement of language ability may directly reduce migrants' language-RS.

Two constructs that are related to language-RS is language anxiety, defined as an anxious reaction associated with learning or using an L2 (e.g., tension, apprehension, frustration; Horwitz, 2001; MacIntyre & Gardner, 1989), and language self-confidence, defined as a positive evaluation of one's own L2 competence along with low levels of language anxiety (Sampasivam & Clément, 2014). Although these two constructs share some features with language-RS, in that they both reference the negative emotional experience as a result of poor L2 competency and negative intergroup contact/ L2 use experience, they are conceptually distinct from language-RS. Language anxiety and confidence are usually assessed as more general reactions to L2 learning and use, whereas language-RS is referred specifically to a cognitive-affective process involved in

one's expectations of how they might be treated in interactions with members of the target language community.

Consequences of Language-RS. One goal of this research is to understand the consequences of language-RS in an intercultural context. First, to highlight the central role of language-RS in intercultural relations, I will examine the link between language-RS and intergroup anxiety. Intergroup anxiety captures the emotional experiences and reactions associated with interacting with outgroup members (Stephan & Stephan, 1985). The cause of intergroup anxiety is suggested to be rooted in the expectation of negative consequences, including perceived evaluations by others (see also Plant & Devine, 2003). In line with this claim, research showed that racial minorities who are high in race-based RS (i.e., anxiously expect others to reject them because of their race) also experience more anxiety when interacting with White Americans (Chan & Mendoza-Denton, 2008). Based on these findings, I predicted that migrants who have a strong tendency for language-RS will experience higher intergroup anxiety with the majority ethnolinguistic group.

In addition to experiencing distress when interacting with locals, migrants who are high in language-RS may also suffer long-term social and psychological consequences derived from their disappointing intergroup experiences. Previous studies on RS-race found that racial minority immigrants who anxiously expected that white Americans would reject them felt less connected with the host country (Chan & Mendoza-Denton, 2008). A longitudinal study also showed that international students who were overly concerned that the locals may reject them because of their "foreigner" status felt less adjusted to their new country (Chao, Takeuchi, & Farh, 2017). Similarly, I predict that language-RS negatively influence migrants' sense of belonging and cross-cultural adjustment. Regarding cross-cultural adaptation, Black and

Stephens (1989) suggested that there are at least three aspects required to understand how well adapted people are to their new cultural context, including interpersonal adjustment (e.g., making friends and interactions with people), general adjustment (e.g., familiarity and ease with social customs and values), and work/academic adjustment (e.g., satisfactory work or academic performance). Previous studies found that concerns about not being accepted by the majority influence not only minorities' interpersonal relationships but also their academic motivation and achievement, sense of social fit, and general well-being (Mendoza-Denton et al., 2002). Thus, I predicted that language-RS would influence migrants' overall adjustment.

Language Mindsets and Language-RS

I argued that not all migrants develop rejection expectations and anxiety about using an L2 with native speakers during their acculturation processes. Although several contextual and personal factors can heighten or lessen one's sensitivity towards rejection by others, one important personal characteristic is mindsets. To understand the role of language mindsets in language-RS and intercultural communication, I first illustrate the construct of mindsets in relations to similar concepts. Mindsets are arguably related to another socio-cognitive construct, self-efficacy, or beliefs about one's capabilities to achieve in a situation or attain a goal (Bandura, 1977). Self-efficacy emphasizes attribution and control beliefs in motivational processes. For instance, learners with low self-efficacy believe that they are not capable of mastering the learning task and possess little control over the learning situation; thus, they exert little effort and give up easily. However, self-efficacy and mindsets are conceptually and empirically different: self-efficacy refers to beliefs regarding whether one possesses the capacity to achieve a goal in a specific situation, whereas mindsets are beliefs about whether one's ability is a changeable characteristic (Dweck, Chiu, & Hong, 1995; Lou, Masuda, & Li, 2017). Consequently, they have

independent influences on learning motivation and outcomes (e.g., Diseth, Meland, Breidablik, 2014). In the L2 context, Lou and Noels (2017) also found that one's language mindsets are only weakly related to their perceived language competence, and that they both make unique contributions to predicting learning goals and effort beliefs.

Mindsets are domain-specific, meaning that individuals can hold incremental beliefs about one domain and entity beliefs about another (e.g., math vs. physical fitness; Dweck et al., 1995). Moreover, individual's expectations and responses to adverse situations in one domain are systematically linked to their mindsets in that particular domain (Dweck et al., 1995). Nonetheless, the effect of mindsets on motivated actions is found to be generalizable across domains, including L2 learning (Lou & Noels, 2017a; Mercer & Ryan, 2010). In particular, learners with entity language beliefs are more likely to set performance goals (e.g., to look competent or avoid situations that make one look incompetent), to attribute failures to a lack of language aptitude, and thus feel more anxious and helpless when they recall expected "failures," such as negative feedback and rejections from interlocutors (Lou & Noels, 2016). In contrast, learners with incremental beliefs are more likely to set mastery goals (i.e., to focus on the learning process), attribute failures to lack of effort, and expect to overcome setbacks with hard work.

Mindsets not only influence people's learning experience but also their social experience (Carr et al., 2012). That is, people construe social situations, including those involving interpersonal rejection, based on the mindsets relevant to the context. From this perspective, migrants' concerns about language-based rejection rest on their beliefs about language ability:

Entity theorists[2] construe language-based rejection as inevitable because they believe they have little control over changing their poor ability. Thus, they worry that others may judge their ability and question whether they can connect with the majority ethnolinguistic group. Conversely, incremental theorists see rejection as a temporary part of the language learning process, because they believe that they can overcome these challenges by investing more effort and increasing interaction with members of the target community. Indeed, correlational studies in other social domains have supported the link between mindsets and RS; people who endorsed fixed beliefs were more sensitive to rejection in intracultural (i.e., interpersonal; Lou & Li, 2017) and intercultural interactions (Chao et al., 2017), and report a lessened sense of belonging (Good, Rattan, & Dweck, 2012).

Although mindsets are usually treated as relatively stable individual differences, they can be changed by situational cues, likely because most people hold a mixture of entity and incremental beliefs (Dweck & Leggett, 1988). Some researchers have experimentally manipulated mindsets by having participants read a mock article in support of either incremental theories or entity theories (Dweck et al., 1995). This experimental technique is useful for activating language mindsets while simultaneously influencing learners' perceptions, goals, attributions, and responses to setbacks in ways that are comparable to self-reported methods (Lou & Noels, 2016). By using both a questionnaire survey and a lab experiment research designs, I will examine the correlational and causal links between mindsets and RS in the language domain.

[2] Although implicit theories are conceptualized as dimensional constructs, for the sake of simplicity, I use the categories of entity and incremental theorists to describe people who hold a relatively strong entity belief and people who hold a relatively strong incremental belief (Dweck et al., 1995).

Overview of Research in Chapter 2

Beliefs and expectancies can crucially affect social experiences, including intercultural interactions (Bandura, 1977; Dweck & Leggett, 1988). Rooted in this social-cognitive perspective, the present research examines a) whether and how migrants' anxious expectations of language-RS are linked to their intercultural experience with the target language community, and b) whether and how their language mindsets intensify or reduce language RS, and c) whether language mindsets indirectly influence intergroup anxiety and adjustment experience through language-RS (see Figure 1).

To examine this model, I conducted two studies, examining international and immigrant students who were non-native English speakers studying in a predominantly Anglophone region of Canada. I focus on immigrants and international students who arrived in Canada during adolescence or adulthood because these older migrants are more likely to experience problematic intercultural interactions due to communication difficulties than those who migrated prior to their early teens (Sam & Berry, 2016). In Study 1, I used a cross-sectional design to examine correlations among language mindsets, language-RS, intergroup anxiety, connectedness with Canadians, and cross-cultural adaptation. Based on previous research on mindsets and the RS model in the domains of race and cultural groups (Chan & Mendoza-Denton, 2008; Chao et al., 2017; Lou & Li, 2017), I predicted that language mindsets would be associated with language-RS, which in turn would exacerbate intergroup anxiety, inhibit a sense of belonging, and hinder adjustment in the new culture. In Study 2, I adopted an experimental design to examine whether priming entity beliefs (vs incremental beliefs) would heighten language-RS, and whether this shift in language-RS would then influence expectancies of intergroup anxiety and cross-cultural adjustment.

Recognizing that there are multiple individual factors that influence migrants' language use, intercultural contact experiences, and cultural adjustment, I included perceived language competence and length of residence as covariates. First, language-RS is conceptualized as an anxious expectation based on one's evaluation of their L2 ability, and therefore I hypothesize that language-RS is correlated with perceived language competence. Perceived language competence is also an important part of language confidence, which is shown to correlate with language use and intercultural contact (Sampasivam & Clément. 2014; Gallagher, 2013; Noels, Pon, & Clément, 1996). People with lower language confidence are hypothesized to feel rejected, due to a higher likelihood of experiencing negative social interactions using an L2. Second, the length of residence in Canada is assumed to reflect migrants' breadth and depth of cultural knowledge and the extent and quality of contact migrants have with members of the receiving society (Ward & Rana-Deuba, 1999). Many studies have documented that language competence and length of contact are interrelated and both positively predict cultural adjustment and negatively predict communication anxiety (e.g., Ward & Rana-Deuba, 1999; Yang, Noels, & Saumure, 2006). Therefore, it was important to ensure that any observed relations between language-RS and the outcome variables were not simply due to these confounding variables.

Study 1

Procedure and Participants. This study was conducted at a large western Canadian university with students from diverse ethnolinguistic groups. At the beginning of the semester, students in first-year undergraduate psychology courses completed a questionnaire regarding their demographic information, including ethnic background, language background, country of birth, and length of time in Canada (indicated by years and months). I recruited non-European Canadian/non-Caucasian students who were born in a non-English speaking country, did not

identify English as their native/first language or heritage language, and had lived in Canada for 8 years or less. Eligible participants were invited to complete an online questionnaire for a partial course credit.

The 176 participants (60.8% female) ranged in age from 17 to 26 years (M = 20.01, SD = 1.69). They included people from primarily East Asia (e.g., China, Japan, Taiwan, and Korea; N = 143) and Southeast Asia (e.g., Indonesia, Thailand, and Vietnam; N = 17), although a small number were from South Asia, the Middle East, Latin America, and Africa (N = 15). They spoke diverse native languages, including Chinese (69.0%), Korean (9.1%), Tagalog (2.8%), Vietnamese (2.3%), Arabic (2.3%), Japanese (2.3%), Punjabi (1.7%), and other languages (10.5%; Afrikaans, Bengali, Bisaya, Cebuano, Hindi, Indonesian, Ilonggo, Kankanaey, Kirundi, Russian, Serbian, Spanish and Tibetan). Among these participants, 127 (72.2%) were international students, 34 (19.3%) were permanent residents, and 15 (8.5%) were Canadian citizens. Their average length of residence in Canada was 35.10 months (SD = 25.82), ranging from 2 months to 96 months.

Materials.

The Language Mindsets Inventory (LMI). The LMI was used to assess participants' language mindsets (Lou & Noels, 2017a). Along with the instructions, I provided participants with a definition of language intelligence as "the capacity to use spoken and written language, including your native language and perhaps other languages, to express what's on your mind and to understand other people. People with high language intelligence display a facility with words and languages. They are typically good at reading, writing, and telling stories." The LMI consists of 9 items reflecting entity views of language ability (e.g., "It is difficult to change how good you are at foreign languages.") and 9 items reflecting incremental views (e.g., "No matter who you

are, you can significantly change your language intelligence level"). Participants indicated the extent to which they agreed with each item on a 6-point Likert scale (from 1= strongly disagree to 6 = strongly agree). The mean score was calculated by combining the entity items with the reversed incremental items (α = .84). As such, higher scores indicate stronger agreement with entity beliefs and weaker agreement with incremental beliefs.

Language-based Rejection Sensitivity. To assess participants' sensitivity to rejection by native English speakers, I used the 10 scenarios descripted in the Intercultural Rejection Sensitivity Questionnaire (Chao et al., 2017) and adapted the items of each scenario into a language-use related response. The scenarios were created based on focus-group findings that elicited situations in which international students and immigrants commonly experience anxiety interacting with locals (Chao et al., 2017). Specifically, these scenarios included interactions with native English speakers who are friends (e.g., in daily conversation), classmates (e.g., for a group project), authorities on campus (e.g., professors and staffs at the student administrative office), and strangers in the local community or public facilities (e.g., customer service). In each scenario, respondents rated their a) *anxiety or concern* about the possible rejection (1 = very unconcerned to 6 = very concerned) and b) *perceived likelihood of being rejected* due to the fact that they were not native English speakers (1 = very unlikely to 6 = very likely). It is important to note that this measure should include situations that are representative to the study population; the scenarios should be adapted carefully when studying non-university-student populations.

The RS score for each scenario was computed by multiplying the score for anxiety/concern with the score for perceived likelihood (Mendoza-Denton et al., 2002). A higher quotient in each scenario represents a stronger language-RS tendency (i.e., a high expectation of rejection paired with a strong concern) and a lower quotient represents a weaker language-RS

tendency (i.e., a lower expectation and a lower concern). Thus, if a person expects rejection because she/he cannot speak the language fluently and feels anxious about being rejected, she/he is identified as experiencing low rejection sensitivity. The mean language-RS score was calculated by averaging the quotient scores for all scenarios, with higher scores indicating more sensitivity to rejection by native English speakers (α = .88).

Self-evaluation of English Competence. Participants rated their English proficiency in reading, writing, speaking, and listening comprehension on a 7-point scale (1= not fluent at all to 7 = completely fluent). I averaged these 4 items as the mean score of perceived language proficiency (α = .93).

Intergroup Anxiety. I used the Intergroup Anxiety Instrument developed by Stephan and Stephan (1985) to measure participants' anxiety while interacting with Anglo-Canadians. Participants were asked to imagine that they were interacting (e.g., talking, working on a project) with English-speaking Canadians and to indicated their feelings (10 items: awkward, self-conscious, happy, accepted, confident, irritated, impatient, defensive, suspicious, and careful) on a 6-point scale (1 = not at all to 6 = extremely). The positive items were reverse coded, such that a higher mean score indicates stronger intergroup anxiety (α = .85).

Perceived Connectedness. I adapted the Cameron's In-group Ties Scale (2004) to assess participants' perceived connectedness with Canadians. Participants responded to four items ("I have a lot in common with Canadians;" "I feel strong ties to Canadians;" "I find it difficult to form a bond with Canadians;" "I don't feel a sense of being "connected" with Canadians.") on a 5-point scale (1 = strongly disagree to 5 = strongly agree). The negatively worded items were reverse coded, such that a high mean score reflects a stronger sense of connectedness (α = .84).

Socio-Cultural Adjustment. In line with Chao et al.'s (2017) study, I combined Gong and Fan's (2006) measures of academic adjustment (i.e., schoolwork, academic requirements, professors' teaching styles, instructional methods) and interpersonal adjustment (i.e., interacting with people in academic and non-academic activities, interpersonal relationships, associating with Canadians, talking to Canadians, and social gatherings) with Black and Stephens's (1989) measure of general cultural adjustment (i.e., values and beliefs, customs and practices, and living conditions in general) to assess their overall experience of cross-cultural adaptation. Participants reported how adjusted they were on a 7-point scale (1 = not well adjusted at all to 7 = very well adjusted). These three dimensions of adjustment were moderately correlated (rs > .49, ps < .001). To examine the overall adjustment, a mean index of cultural adjustment was also calculated (α = .92).

Results.

Preliminary Analyses. The descriptive statistics and correlations between key variables are reported in Table 2. There was no significant difference between genders for any key variables; therefore, gender was not included in the main analyses. As expected, the length of residence and self-evaluation of language competence were positively correlated. Both variables were negatively associated with language-RS and intergroup anxiety, and were positively associated with perceived connectedness and cultural adjustment. Neither length of residence nor self-evaluation of language competence was correlated with language mindsets.

Table 2. ***Study 1: Descriptive Statistics and Correlations among Variables.***

	1	2	3	4	5	6	7
1. Length of residence (months)	--	.40**	.09	−.19*	−.17*	.21**	.30**
2. Self-evaluation of English competence		--	−.07	−.31**	−.31**	.27**	.40**
3. Language mindsets[a]			--	.29**	.05	−.17*	−.12
4. Language-based rejection sensitivity				--	.47**	−.30**	−.28**
5. Intergroup anxiety					--	−.47**	−.44**
6. Perceived connectedness						--	.47**
7. Cross-cultural adjustment							--
Mean	35.10	4.97	3.16	8.91	2.75	3.99	4.94
SD	25.82	1.10	0.61	5.24	0.79	1.13	1.00
Theoretical Range	1−96	1−7	1−6	1−36	1−7	1−7	1−7
Cronbach's Alpha	--	.93	.84	.88	.85	.84	.92

Notes. $^{**}p < .01$, $^{*}p < .05$.

[a] A higher score indicates stronger entity beliefs and weaker incremental beliefs.

Path Analyses. I used Mplus 7.0 to examine our hypothesized path model and its indirect effects (see Figure 2; see Table 3 for the rationales for using path analysis). The model fit the data well ($\chi^2 = 4.32$, $df = 3$, $p = .23$, CFI = .99, RMSEA = .05, SRMR = .02).[3] As expected, language mindsets positively predicted language-RS, suggesting that migrants who held stronger entity beliefs (vs. incremental beliefs) were more sensitive to rejection based on their language ability. I also found that language-RS positively predicted intergroup anxiety, and negatively predicted perceived connectedness and cultural adjustment; migrants who were more sensitive to rejection by native English speakers were also more anxious in intergroup interactions, felt less connected to Canadians, and felt that they were less culturally adjusted.

[3] The modification indices did not indicate any extra paths should be added in the model. I also tested an alternative model in which the variable language mindsets was moved from being an exogenous variable (antecedent) to an endogenous variable (outcome), without other changes. I found that the model fit indices were the same with the hypothesized model. Given the alternative model and hypothesized model are equivalent regarding the model fit indices, the distinctions are dependent on theoretical considerations (Kline, 2015). The hypothesized model is based on the theory which posits mindsets as an antecedent of rejection sensitivity (Lou & Li, 2017; Chao et al., 2017).

Table 3. *Study 1: Standardized Estimates for the Path Analyses.*

Outcome variable	Predictor	β	t	R^2
Language-RS				.18*
	Control variable			
	Self-evaluation of language competence	−.25	−3.37**	
	Length of residence	−.12	−1.54	
	Focal predictor			
	Language mindsets	.29	4.28**	
Intergroup anxiety				.21**
	Control variable			
	Self-evaluation of language competence	−.14	−1.60	
	Length of residence	−.03	−0.50	
	Focal predictor			
	Language-RS	.38	4.95**	
Perceived connectedness				.13**
	Control variable			
	Self-evaluation of language competence	.16	2.05*	
	Length of residence	.11	1.38	
	Focal predictor			
	Language-RS	−.22	−2.89**	
Cross-cultural adjustment				.21**
	Control variable			
	Self-evaluation of language competence	.29	3.89**	
	Length of residence	.16	2.16*	
	Focal predictor			
	Language-RS	−.16	−2.31*	

Note. β = *S*tandardized path coefficient.
** $p < .01$; * $p < .05$.

The path analysis also showed that perceived language competence and language mindsets jointly predict language-RS; that is, each had an independent impact on language-RS.[4] People who believed they were less competent in English also had a stronger language-RS, suggesting language-RS is indeed a language-based anxious expectation. In addition, perceived language competence was negatively associated with a sense of connectedness and cultural adjustment, whereas the length of residence was positively associated with cultural adjustment.

[4] Additional regression analyses showed that perceived language competence did not moderate the effect of language mindsets on language-RS.

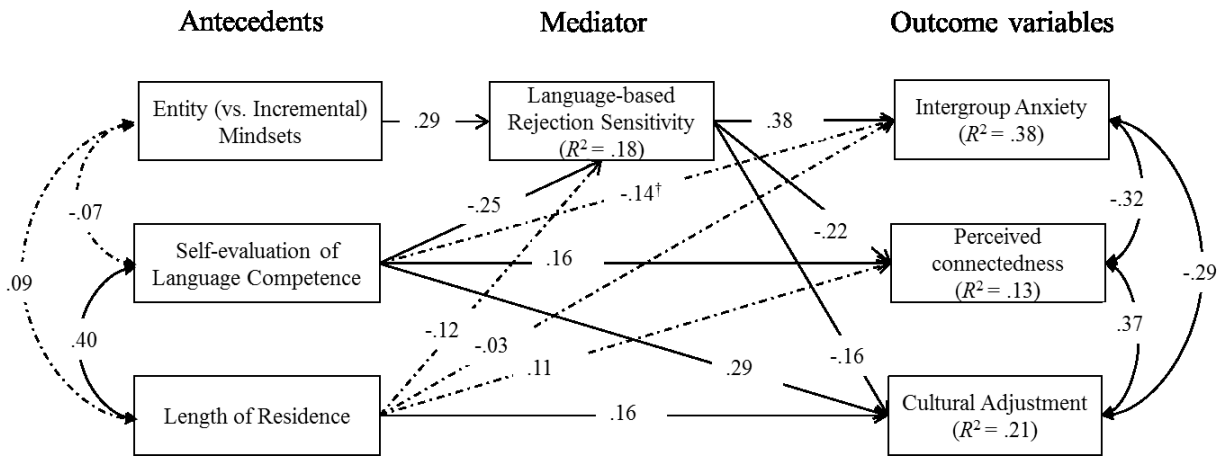

Figure 2. Study 1: Path analytic results with standardized path coefficients. The solid lines represent the statistically significant paths. The dash lines represent non-significant hypothesized paths.

Tests of Indirect Effects. To examine the hypothesized process, whereby language mindsets predict intercultural experience through language-RS, I ran mediation analyses to test whether antecedents (i.e., language mindsets, perceived competence, and length of residence) predict the mediator (i.e., language-RS), which in turn predicts the outcome variables (i.e., intergroup anxiety, cultural adjustment, and sense of belonging). First, I found that the indirect effects of language mindsets on intergroup anxiety (indirect effect = .14, *SE* = .04, 95% C.I. = [.064, .237]), perceived connectedness (indirect effect = −.06, *SE* = .03, 95% C.I. = [−.247, −.016]), and cultural adjustment (indirect effect = −.05, *SE* = .03, 95% C.I. = [−.184, −.005]) through the mediation of language-RS were significant (with 5000 bootstrappings). Second, I tested whether perceived language competence predicts the outcomes variables through language-RS. I found that the indirect effects of perceived language competence on intergroup anxiety (*b* = −.07, SE = .03, 95% C.I. = [−.134, −.024]), perceived connectedness (*b* = .06, SE = .03, 95% C.I. = [.011, .131]) and cross-cultural adjustment (*b* = .04, SE = .03, 95% C.I. = [.003, .102]) through the mediation of language-RS were significant. Third, because the length of residence did not

predict language-RS, no indirect effect was found. In summary, these results support the claim that language-RS mediates the relation between language mindsets and perceived language competence, on the one hand, and intergroup anxiety, perceived connectedness, and cross-cultural adjustment, on the other hand.

Study 2

Although the results of Study 1 were consistent with the hypotheses, this cross-sectional design does not allow us to confirm a causal relation. Therefore, in Study 2, I sought to replicate and extend the main findings of Study 1 through an experimental design in which participants' language mindsets were manipulated, and the impact of this manipulation on language-RS was assessed. As well, I examined the indirect effects of the mindset manipulation, through language-RS, on intergroup anxiety and cultural adjustment. Because I wished to determine the influence of the manipulation on one's anxious expectations of rejection and its consequences, the outcome measures were modified to be future-oriented instead of focused on participants' disposition or past experiences, as in Study 1.

Procedure and Participants. At the beginning of the semester, students at the same university as Study 1 filled out a pre-test measures in a mass-testing questionnaire survey of students registered in introductory psychology courses. The survey included demographic information and the 18-item Language Mindsets Inventory (Lou & Noels, 2017a). Using the same recruitment criterion in Study 1, a new sample of 116 participants was recruited for the experiment. This sample aged from 17 to 24 years (*M* = 19.60, *SD* = 1.65), and consisted of 78 females (67.2 %). Among these participants, 85 (73.3%) were international students, 20 (17.2%) were permanent residents, and 11 (9.5%) of them were Canadian citizens. The average length of residence in Canada was 31.67 months (*SD* = 25.27, ranging from 1 month to 95 months). Most

participants were from East Asia (e.g., China, Japan and Korea; $N = 94$) and Southeast Asia (e.g., Indonesia, Thailand, and Vietnam; $N = 14$, while other participants were from South Asia, Middle East, Latin America, and Africa ($N = 8$). Participants were also from diverse ethnolinguistic backgrounds, including Chinese (71.6%), Korean (8.6%), Tagalog (5.2%), Arabic (3.4%), Vietnamese (2.6%), Japanese (2.6%), and other languages (6.0%, including Azerbaijani, Bisaya, Farsi, Indonesian, Malay, Spanish, and Thai).

I invited the participants to a group-testing session two to three months after the pre-test survey. They were informed that they would take part in two different studies in exchange for partial credit for their psychology course. They were told that the first study sought to investigate students' memory by having them read an article and recall information about the article at the end of the session. The ostensive purpose of the second study was to investigate their attitudes towards living in Canada. Participants indicated their consent and were then randomly assigned to read an article supporting either incremental or entity theories about language intelligence (described below). As part of the cover story, after reading the article, participants were given a new consent form for the second study and then completed a questionnaire, which included their perceived language competence, language-RS, anticipated intergroup anxiety, and cultural adjustment expectancy (described below in the order of presentation to the participants). At the end of the session, participants filled out a short questionnaire concerning language mindsets and their comprehension of the article (i.e., manipulation check). The experimenters then fully debriefed them about the use of deception and the purpose of the experiment. Participants were also probed about suspicions concerning the connection between "the two studies." None of the participants reported a suspicion that the reading task was intended to influence their subsequent reports on the outcome variables.

Materials.

Language Mindsets Manipulation Articles. Following a previous experimental study (Lou & Noels, 2016), I manipulated participants' language mindsets by using two mock Psychology Today™ magazine articles regarding language intelligence. Participants were randomly assigned to read an article supporting either an entity theory ($N = 57$) or an incremental theory ($N = 59$) of language intelligence. At the end of the experiment, they were asked to rate how difficult the article was to comprehend (1 = not at all difficult to 7 = extremely difficult). I found that both the entity article ($M = 1.77$) and the incremental article ($M = 1.70$) were easy for the participants to read and that there was no difference between the two conditions, F (1, 119) = .19, $p = .66$. Participants also answered a multiple-choice question regarding the main idea of the article and they were all able to answer it correctly.

Self-evaluation of English Competence. Participants reported their perceived English competence (speaking, writing, reading and listening comprehension) on a 10-point scale (1 = not fluent at all to 10 = completely fluent; $\alpha = .91$).

Language-based Rejection Sensitivity. The Language-RS Scale described in Study 1 was used to measure participants' rejection sensitivity. Because Study 2 aimed to investigate the immediate effects of the manipulation, I asked participants to report how they would feel and what they would expect "right now", instead of asking them to report their chronic tendency. The mean language-RS scores were calculated by averaging the responses of the 10 scenarios, with higher scores indicating more sensitivity to rejection by native English speakers ($\alpha = .85$).

Anticipated Intergroup Anxiety. I used Plant and Devine's (2003) Intergroup Anxiety Scale to measure participants' expected anxiety in situations involving interaction with Anglo-Canadians. This widely used measure is based on Stephan and Stephan's (1985) measure,

and research by Plant and Devine shows it is associated with avoidance and perceived hostility in intergroup interaction settings. In this study, the instructions and items were modified to assess participants' expectations of future interactions (5 items; e.g., I will get anxious when I interact with English-speaking Canadians). The positively worded item (I will feel relaxed when I interact with English-speaking Canadians) was reversed and averaged with the other items, such that a high mean score represents a stronger intergroup anxiety ($\alpha = .87$).

Cultural Adjustment Expectancies. The socio-cultural adjustment scale (Black & Stephens, 1989; Gong & Fan, 2006) described in Study 1 was used to measure participants' expectations of adjustment. Participants were asked to envision what their adjustment would be like in the next month and to rate their expectations on a 7-point scale (1 = not at all adjusted to 7 = very well adjusted). In line with Study 1, I calculated the mean for overall cultural adjustment ($\alpha = .92$).

Language Mindsets Inventory (LMI). The LMI (Lou & Noels, 2017a) described in Study 1 was used to measure language mindsets in the mass testing survey (pre-test; $\alpha = .85$) and at the end of the experiment (post-test; $\alpha = .89$).

Results

Manipulation Check and Perceived Competence. I conducted a 2 (within subject: pre-test and post-test language mindsets) by 2 (between subject: entity condition vs. incremental condition) ANOVA to examine the effectiveness of the manipulation. I found that the within-subject main effect was not significant (F [1, 114] = 3.23, $p = .08$, $\eta^2 = .03$), but the between-subject main effect (F [1, 114] = 10.12, $p = .002$, $\eta^2 = .08$) and the interaction effect (F [1, 114] = 27.92, $p < .001$, $\eta^2 = .20$) were significant. To unpack these effects, I first conducted two between-subject ANOVAs. The analyses showed that the two conditions did not differ on the pre-test language mindsets, F (1, 114) = .12, $p = .73$, $\eta_p^2 = .001$, but participants in the entity

condition reported stronger entity beliefs (vs. incremental beliefs) than participants in the incremental condition on the post-test language mindsets, F (1, 114) = 26.62, $p < .001$, $\eta_p^2 = .19$. As well, two within-subject ANOVAs examined the change within each condition. In the incremental condition, participants reported lower scores (i.e., more incremental-oriented) for the post-test language mindsets (M = 2.85, SD = 0.64) than for the pre-test (M = 3.22, SD = 0.65), F (1, 58) = 36.80, $p < .001$, $\eta_p^2 = .39$. In the entity condition, participants' reported higher post-test language mindsets (M = 3.43, SD = 0.59) than the pre-test (M = 3.27, SD = 0.51), F (1, 56) = 4.54, $p = .04$, $\eta_p^2 = .08$. Thus the manipulations were effective in changing the participants' language mindsets.

I also examined whether the manipulation influenced participants' rating of perceived English competence. The results of a one-way ANOVA showed that there was no significant difference between the entity condition (M = 6.56, SD = 1.40) and the incremental condition (M = 6.92, SD = 1.37) on perceived language competence, F (1, 114) = 1.87, $p = .18$, $\eta^2 = .02$. Consistent with previous findings (Lou & Noels, 2016), reading the incremental article or entity article did not alter people's self-evaluation of their current language ability.

Preliminary Analyses. The descriptive statistics and correlations among variables are presented in Table 4. I found that the two conditions did not differ in terms of participants' length of residence in Canada. Consistent with the findings in Study 1, perceived language competence was positively associated with length of residence and cultural adjustment expectancy, and negatively associated with language-RS and anticipated intergroup anxiety. Similarly, longer residence in Canada was associated with less language-RS and less intergroup anxiety.

Table 4. ***Study 2: Descriptive Statistics and Correlations among Variables.***

	1	2	3	4	5	6
1. Length of residence (months)	--	.38**	.01	−.27**	−.21*	.15
2. Self-evaluation of English competence		--	−.13	−.26**	−.28**	.42**
3. Language mindset manipulations			--	.20*	.06	−.01
4. Language-based rejection sensitivity				--	.42**	−.27**
5. Intergroup anxiety					--	−.32**
6. Expected cross-cultural adjustment						--
Mean	31.67	6.74	−.02	8.94	3.31	4.68
SD	25.27	1.39	1.00	4.98	1.03	0.77
Theoretical Range	1−96	1−10	−1 or 1	1−36	1−7	1−7
Cronbach's Alpha	--	.91	--	.85	.87	.92

Note. $^{**}p < .01$, $^{*}p < .05$.
[a] *language mindsets manipulations were coded as: −1 = incremental and 1 = entity.*

Manipulation Effects on Language-RS and Outcomes. As expected, I found that the manipulation of language mindsets had a significant impact on language-RS, F (1,115) = 4.87, p = .03, η^2 = .04. Participants who were exposed to entity theories reported a stronger tendency to anxiously expect rejection from native English speakers (M_{entity} = 9.98, SD = 4.52) than did participants who were exposed to incremental theories ($M_{\text{incremental}}$ = 7.96, SD = 5.23), even accounting for the effects of perceived language competence and length of residence, F (1,111) = 4.15, p = .04, η^2 = .04. However, the manipulation did not directly predicted intergroup anxiety, F (1,115) = .37, p = .55, or cross-cultural adjustment, F (1, 115) = .02, p = .89.

Rejection Sensitivity on Outcomes. Consistent with the findings of Study 1, language-RS was associated with intergroup anxiety and anticipated cultural adjustment (see Table 4). After controlling for the effects of perceived competence and length of residence, language-RS still predicted anticipated intergroup anxiety (β = −.20, p = .04) and cultural adjustment expectancy (β = .27, p = .01).

Tests of Indirect Effects. I first found that the data met the assumptions for using regression analysis to test mediation effects. To test for mediating, indirect effects, I used a bootstrapping

procedure that does not require a large sample size (Preacher & Hayes, 2008). Specifically, I tested two mediation models for mindset manipulations on anticipated intergroup anxiety (Figure 3a) and cultural adjustment expectancy (Figure 3b), including perceived language competence and length of residence as covariates. The findings showed that the indirect effects of mindset manipulations on anticipated intergroup anxiety ($b = -.05$, $SE = .03$, 95% C.I. = [−.184, −.005]) and cultural adjustment expectancy ($b = -.05$, $SE = .03$, 95% C.I. = [−.088, −.002]), through the mediation of language-RS, were significant, consistent with our hypotheses.

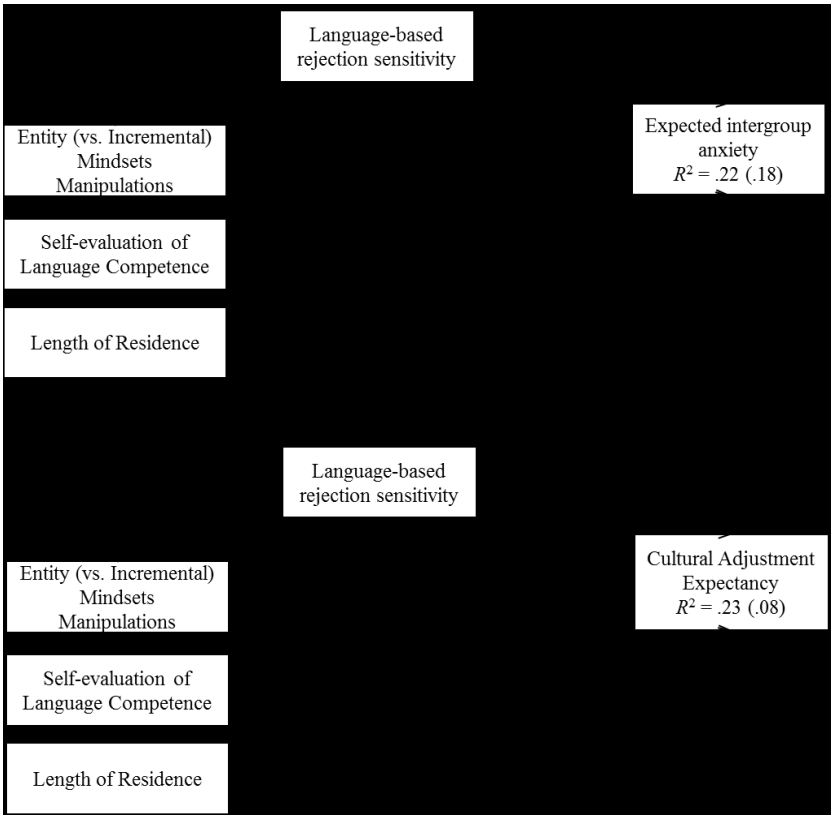

Figure 3. Study 2: The mediation effects of the language mindsets manipulation on anticipated intergroup anxiety (3a) and cultural adjustment expectancy (3b) through language-based rejection sensitivity. The standardized regression coefficients are presented, with the coefficients prior to controlling for perceived language competence and length of residence in parentheses.

Supplementary Analyses. I tested whether participants' self-reported language mindsets (i.e., the measure at the end of the experiment used as a manipulation check) also predict language-RS. To do this, I combined participants' reports from both conditions and examined the individual

variations that are induced by language mindset manipulations. Consistent with Study 1, I found that participants who reported strong entity beliefs (vs incremental beliefs) on language mindset also reported more language-RS (β = .24, t = 2.60, p = .01), even after controlling for the length of residence and perceived language competence (β =.20, t = 2.20, p = .03).

Discussion

The goal of this research was to understand how migrants' beliefs and expectations about learning and using an L2 influence their intercultural experience. In Study 1, I found that migrants who more strongly endorsed entity beliefs (vs. incremental beliefs) reported a greater anxious expectation that they would be rejected by native speakers, which in turn predicted higher anxiety in intergroup interactions and a lower sense of belonging and cultural adjustment, including in school and interpersonal domains. Study 2 further supported these findings and established a causal link between language mindsets and language-RS. I found that exposing migrants to articles highlighting entity theories (vs. incremental theories) activated stronger language-RS, which in turn predicted higher levels of intergroup anxiety and lower levels of cultural adjustment. Furthermore, these observed effects held after accounting for the effects of perceived language competence and length of residence. I will discuss these findings in terms of their theoretical implications, potential future avenues for research in language contact, and practical implications for intercultural education and interventions.

Theoretical Implications. Researchers in applied linguistics and social psychology have long been interested in the complex interaction between L2 learning processes and intercultural communication (e.g., Clément, 1986; Giles & Byrne, 1982). Migrants' self-evaluations of L2 competence are argued to be an important predictor of adaptive outcomes in intercultural communication (Kang, 2006; Noels et al., 1996; Yang et al., 2006). Consistent with this research,

the present findings show that migrants' self-perceptions of low language ability predict worries that the majority ethnolinguistic group will reject them. It further highlights that migrants' language mindsets have an impact on these worries above and beyond the effect of perceived language competence. Entity theorists were more concerned about being rejected because of their (perceived) low L2 skills and thus were more apprehensive about interacting with native speakers, whereas incremental theorists were motivated to improve and were thus more likely to approach social encounters with locals. Furthermore, this research shows that situationally activated mindsets yielded a similar effect on language-RS as the self-reported chronic mindsets did, suggesting people's "meaning system" may shift depending on which mindset was more accessible to them in that situation. The access to incremental beliefs may help to reappraise negative group-related emotions and expectations, and thus improve migrants' intergroup relations with the majority ethnolinguistic group members.

This research also expands previous conceptualizations of language anxiety in intercultural interactions. Although research has shown that intercultural contact can result in many fruitful outcomes regarding intergroup relations and adjustment among migrants (e.g., Sam & Berry, 2016; Stephan & Stephan, 1985), interactions with majorities can also be stressful and are often avoided, especially by minority members who anticipate rejection (Horwitz, 2001; Plant & Devine, 2003). This research shows that the expectations and awareness of rejection by the majority ethnolinguistic group are important precursors of intergroup anxiety, sense of belonging, and cultural adaptation (cf. Stephan & Stephan, 1985). The present study is in line with previous research on RS-status based on other characteristics (e.g., race and gender) that shows that RS undermines minority members' academic motivation as well as their experiences interacting with majority group's members (Chan & Mendoza-Denton, 2008). Therefore,

language-RS may hinder not only the development of language competence but also intercultural experiences with members of the target language community (Horwitz, 2001; Mendoza-Denton et al., 2002).

Limitations. There are some limitations to these studies that I hope can stimulate future research. First, investigating this paradigm in different migrant populations, such as younger and older migrants, foreign workers, and refugees, is an important avenue for future research. The present research focused on young adult migrants who were university students and had lived in the host country less than 9 years; however, migrants' language ability, intercultural experience, and adjustment differs depending on their age, length of residence, status in the host country, among other factors (Sam & Berry, 2016). Thus, the current findings should be extrapolated to other populations with caution. In particular, the effect of mindsets and rejection sensitivity may differ for people who have little discrimination experience (Mendoza-Denton et al., 2002). People's language experiences and contact with locals may differ depending on the relative ethnolinguistic vitalities (i.e., language status) of their first and second language groups (Clément, 1986; Giles, & Byrne, 1982). For example, considering the status of English as a global language, migrants who are standard-English speakers may experience less language-based rejection even when in non-Anglophone countries (Jenkins, 2009), and thus language-RS may have a weaker association with their language use and intercultural experiences.

In addition to language-use experiences, cultural environments also shape people's mindsets and rejection sensitivity (Lou & Li, 2017). For example, compared to North Americans, Asians have been reported to be more incrementally oriented regarding their intelligence and ability (Heine et al., 2001) but to be more sensitive to social rejection (Lou & Li, 2017). It is possible this tendency in East Asian nations is influenced Confucian values that emphasize the

importance of effort and improvement and by collectivistic values prioritizing social harmony and relationship safeguarding (Heine et al., 2001; Markus & Kitayama, 1991). Moreover, people may carry these culturally learned beliefs and expectations into intercultural communication. Future research should examine language mindsets and language-RS across different societies, and examine whether and how people's beliefs and communication behaviours in intercultural contact are shaped by different cultural values (e.g., individualism-collectivism), self-construals (e.g., interdependence-independence) and other culturally variant frames of reference.

Second, although this research provides a unique contribution to understanding rejection sensitivity from a language perspective, other group markers (e.g., race, socioeconomic status, gender, sexual orientations, and cultural background) could also elicit negative interactions and thus become the bases for rejection sensitivity in intercultural contexts (e.g., Chao et al., 2017; Mendoza-Denton et al., 2002; Chan & Mendoza-Denton, 2008). How these markers combine to influence RS has not received much attention. There are several possibilities. It is possible that these stigmatized characteristics simultaneously affect RS given that both audio cues (e.g., language use and accent) and visual cues (e.g., skin colour) are primary sources for discrimination in intercultural interactions (Kinzler et al., 2010; Rakić et al., 2011). It is also conceivable that these multiple stigmatized characteristics may function in a more complex manner whereby minority individuals experience different types of RSs depending on the context. For example, language-based RS and race-based RS may have a joint impact on a new Asian immigrant's interaction and relations with Anglo-European Canadians; however, a new Asian immigrant's interaction and relations with Anglo-Asian background Canadians will only be affected by language-RS due to having a similar physical appearance. Another possibility is that a general cognitive-affective process underlies these different status-based RSs. As such, a

person with a trait of high interpersonal RS is more sensitive across different social contexts. To further understand the construct of language-RS and its impact on intercultural communication, more research is needed to compare and contrast it with other anxiety constructs and rejection sensitivities from both dispositional and situational perspectives.

Third, exploring the relation between language-RS, on the one hand, and behavioural responses and other psychological outcomes, on the other, is another avenue for future studies. RS is argued to influence not only minority group members' cognitive and affective responses toward majority members, but also their behavioural reactions in the context where rejection is possible (Chan & Mendoza-Denton, 2008; Mendoza-Denton et al., 2002). Participants in this study were only asked to imagine interactions with native speakers and to self-report their responses in language-RS and intergroup anxiety. Although research supports that people's imagination as it pertains to intergroup interactions can evoke cognitive and behavioural effects similar to those they experience in actual interactions (Crisp & Turner, 2009), future research should examine whether incremental mindsets or reduced language-RS can elicit positive behaviours in real-life intercultural interaction contexts, such as the workplace and school. Furthermore, for a more comprehensive understanding about the influence of mindsets and language-RS on acculturation, it is important to examine whether language mindsets and language-RS have long-lasting impacts on adjustment and achievement outcomes (e.g., grades and work performance) as well as psychological outcomes (e.g., self-esteem, well-being, and depression).

Fourth, although Study 2 focused on the causal effects of mindsets on language-RS and indirectly on adjustment and intergroup anxiety, I do not dismiss the possibility of reciprocal relations. As such, positive contact and L2 use experience can reduce language-RS and foster

incremental mindsets and language competence. Positive intergroup contact and adaptation experiences can guide people to believe in their capacity for language improvement and to reduce communication anxiety, whereas negative experiences may intensify fixed mindsets and the sensitivity of rejection (Carr et al., 2012; Mendoza-Denton et al., 2002). Together, language mindsets and language-RS, on the one hand, and adjustment and intergroup relations, on the other hand, possibly operate as dynamic, interrelated systems. Future longitudinal studies should examine this possible dynamic process of language beliefs, intergroup expectations, language contact, and cross-cultural adaptation more carefully.

Practical Implications. This research provides insights relevant to migrants' acculturation and language training programs. Many migrants get caught in a vicious cycle of poor language ability, unwillingness to communicate, negative intercultural experiences, and poor cultural adaptation (Sevinç & Backus, 2017). To prevent or break this vicious cycle, it is important to develop not only communicative and intercultural competence, but also the resilience necessary to overcome anxiety about failures in intercultural communication. I found that promoting incremental beliefs reduces such language anxiety. Helping migrants become aware of their mindsets and articulate incremental beliefs may encourage them to reappraise their previous experiences of L2 use and to view intercultural interactions as opportunities to improve the L2, and thereby increase their willingness to communicate and reduce their intergroup anxiety, and eventually lead to a more positive and effective intergroup and adjustment experience. Previous studies showed that praising learners' efforts instead of their ability and helping students focus on the learning process rather than social comparisons can facilitate students' adoption of incremental beliefs (Yeager & Dweck, 2012). Furthermore, interventions and educational workshops that promote growth mindsets have been found to have a long-lasting positive impact

on students' motivation, resilience, and achievement in the general academic domain (Yeager & Dweck, 2012; see also Noels & Lou, 2015 for a discussion). However, in order to evaluate whether or not such interventions are effective and generalizable to migrants' everyday lives, it is important to examine whether people will also apply these acquired beliefs about language learning to their everyday interactions.

Given that acculturation is an interactive process between the newcomers and majority members, how majority members interact with newcomers is also important for understanding such process (Sam & Berry, 2016). I recognize that in some societal contexts, prejudice and discrimination against newcomers may be so pervasive that encouraging a reframing of mindsets might be not only difficult, but also an inappropriate and ineffectual response to an unjust intergroup situation. However, insofar as the context allows, fostering incremental mindsets can improve not only motivation and engagement in the target language, but also greater interaction with and better adaptation to the target language community. At the same time, ensuring that majority members provide a welcoming environment in which migrants feel they belong is important for migrants' language acquisition and adjustment to the target cultural community. Research shows that mindsets also influence majority group members' stereotypes and prejudice towards minority members (Carr et al., 2012). However, more research is needed to examine whether and how complementary programs of language mindsets for members of the majority society reduces their language-based prejudice and discrimination towards newcomers (Lou & Noels, 2017b).

Chapter 3:

Does Growth language-mindsets link to actual communication experience?

Chapter 2 examine the link between mindsets and tendency to anxiously expect rejection. In Chapter 3, I further examine whether language mindsets also predict ESL students' language experience and social interactions. I first discuss migrant ESL students' language use experience as a "vicious cycle," especially for those who are not fluent in English. I then discuss whether language mindsets can break this vicious cycle of language barriers.

Migrant ESL university students and language use experience

Migrant students often experience multiple barriers to their achievement striving and social engagement, and a lack of English proficiency is perhaps the biggest and the most urgent one since language is an essential skill for navigating academic and social life (Brunsting, Zachry, & Takeuchi, 2018; Cheng & Fox, 2008; Suárez-Orozco et al., 2012; Wilton & Constantine, 2003; Wu et al., 2015; Yang, Noels, & Saumure, 2006; Zhang & Mi, 2010). Research shows that migrants' experiences of language-related barriers make a unique contribution to their demotivation and disengagement at school over and beyond the effect of racial minority background (Wang and Goldschmidt, 1999; Wei, Liang, Du, Botello, & Li, 2015). In addition to achievement-related outcomes, ESL migrant students who are less competent in the target language also experience more social difficulties adapting to university life (Brunsting et al., 2018; Cheng & Fox, 2008; Kanno & Cromley, 2013). For example, they may interact infrequently with English-speaking peers at the university (Kibler, Karam, Ehrlich, Bergey, Wang, & Elreda, 2017; Ranta & Meckelborg, 2013). As a result, compared to native-born peers, migrant ESL students display more negative emotion and avoidant behaviors, and feel more

marginalized at the educational institution; these effects are detrimental to not only their academic success but also their peer relationships and mental health (Brunsting et al., 2018; Cheng & Fox, 2008; Wei et al., 2015; Yoo et al., 2009).

I focus on migrant students' interactive experiences with peers because peer interaction is a critical part of youth and university students' academic and social development (Wentzel, Jablansky, & Scalise, 2018). To ESL students, social interactions with English speakers are key to the development of language and communicative competence (Sato & Ballinger, 2016). In fact, being able to successfully communicate with native speakers is often considered an important goal for ESL speakers (Noels, Pelletier, Clément, & Vallerand, 2000; Masgoret & Gardner, 2003). More importantly, positive and negative peer relationship can directly influence migrant students' acculturation, cultural learning, social identity, educational performance, sense of belonging, and emotional well-being (Suarez-Orozco, Pimentel, & Martin, 2009; Rjosk, Richter, Hochweber, Lüdtke, & Stanat, 2015). Therefore, understanding how ESL students interact with peers offers important insights for supporting ESL students' motivation and adaptation at the university.

One key psychological factor that describes the barrier to positive social interaction among language minorities is language anxiety (Sevinç & Backus, 2017). Migrants may have concerns that interlocutors may react negatively to them due to their lack of competence (i.e., language-based rejection sensitivity; Lou & Noels, 2018; Sevinç & Backus, 2017). Accordingly, students who are sensitive to rejection may purposefully distance themselves from using the language and more readily perceive rejection (Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002; Rheinschmidt, & Mendoza-Denton, 2014). This fear of rejection can put migrant students at a greater risk for poor peer relationships, not only because they would avoid using the

target language and lessen their opportunities to establish little meaningful intergroup relationships, but also because their avoidant tendency can make their peers perceive them to be disengaged or lack of social skills (Shelton & Richeson, 2005). As a result of little use of the target language and making few friends who speak the language, students would also make little language improvement over time. Therefore, in a long run, perceptions about rejection can perpetuate a recursive vicious cycle between poor language skill and little use of the language (Sevinç & Backus, 2017).

To break this vicious cycle, improving linguistic competence appears to be an obvious and effective approach, as lack of linguistic competence is considered an immediate cause of anxiety and poor academic performance (Adesope et al., 2011; Brunsting et al., 2018; Noels, Pon, & Clément, 1996; Sevinç & Backus, 2017). Accordingly, language educators and researchers focus on how to remedy ESL students' lack of competence to a sufficient level for academic readiness and social functioning. However, this view, centered around the idea of linguistic deficiency, glosses over the fact that these students possess adaptive motivation and resilience in responses to challenges (Suárez-Orozco et al., 2012) and that language competence and language-use experience is not a unidirectional relationship (Sevinç & Backus, 2017). I argue that improving ESL students' language-use experiences can encourage them to use the target language more often, which would eventually lead to language improvement over time. Therefore, to understand how to break through the language barrier, it is important to recognize and identify protective factors that support low-competence students' motivation and resilience, both of which could improve their experiences and outcomes related to L2 use.

Can growth mindsets break the vicious cycle?

Previous research suggests that mindsets are a key psychological factor that predicts

students' resilience, or the ability to respond positively to social and academic challenges (Yeager & Dweck, 2012; Yeager et al., 2016a; Rattan & Georgeac, 2017). Three decades of research has demonstrated that the growth mindsets can protect students from negative psychological and academic outcomes when faced with difficulties or setbacks (Dweck, 1999; Paunesku et al., 2015). For example, growth mindsets can reduce performance-avoidance goals and buffer the effect of negative stereotypes on underrepresented minority group's motivation and achievement in math – leading to higher confidence, enjoyment, and sense of belonging (Aronson, Fried, & Good, 2002; Backer et al., 2018; Burnette, Russell, Hoyt, Orvidas, & Widman, 2018). This happens because growth mindset direct students to construe the ability associated with failures to be controllable (e.g., "effort determines language ability, and I can work on it") rather than uncontrollable (e.g., "fixed biological constraints determine ability, which I don't have"). In summary, mindsets can distinctly shape the way students make sense of adversities, lead them to believe they are either capable of overcoming the difficulties or not, and influence their responses when navigating challenging situations.

Given the domain-specific nature of mindsets (i.e. people can hold different mindsets in different domains), the framework has been applied to different areas of education, including STEM, music, sport etc. (Burnette et al., 2013; Dweck, Chiu, & Hong, 1995). However, considering the widespread belief that only some people have the "talent" to master new languages has long been worrying language educators, it is surprising that little mindset research has applied to the area of second language development until recently (see Mercer & Ryan, 2012; Lou & Noels, 2016). Supporting the domain-specificity of mindsets, language mindsets, or the belief that language learning ability is relatively fixed or malleable, were found to be related to, but distinct from, mindsets about general intellectual ability and math ability (Lou & Noels,

2017). Research showed that language mindsets predicted foreign language learners' goal orientations and responses to language-related challenges and classroom anxiety; students with a strong growth mindset tend to focus on learning and improving their ability rather than on demonstrating their existing ability, whereas students with a strong fixed mindset have a fear of being judged by others because they are concerned they will be seen as incapable (Lou & Noels, 2016, 2017).

However, these previous studies focused on motivation in foreign language class and measure students' responses to hypothetical learning situations. It is unknown whether mindsets also predict ESL students' motivation and how they feel and act when using English. Therefore, in this research, I extended the literature on mindsets to account for ESL students' social experiences with peers, which is a critical aspect for migrant students' language development and acculturation process outside classroom learning. Specifically, I argued that because learners with a strong fixed mindset are more likely to focus more on their self-image presentation, they more likely to worry about rejection and to avoid appearing incompetent (DeBacker et al., 2018; Dweck, 1999). In addition, their fear of rejection and avoidance orientation can manifest in negative emotion (e.g., fear and anxiety) and behavior (e.g., avoid talking) that are consistent with the premise of the vicious cycle – "I should avoid talking because I am not fluent enough and others may judge me." In contrast, students with strong growth mindsets are more likely to focus on learning and to construe language challenges as learning opportunities, thus responding more positively to difficulties (e.g., more motivated to continue learning; Dweck, 1999; Lou & Noels, 2016). This learning orientation is discordant with and thus can potentially break the vicious cycle – "reaching out to challenges and language use opportunities can help me to improve my competence."

Research on mindsets emphasizes that it is possible to alter students' fundamental beliefs about attributes. Because most students were likely exposed to cultural assumptions relevant to both fixed and growth theories, and thus entertain both theories to some extent, it is possible to induce growth mindset (Yeager & Dweck, 2012). If inducing growth mindsets can reduce ESL migrant students' negative experience in communication, then helping students to endorse growth mindsets may be a key to help them adapt to the English language environment. This approach is supported by experiments and interventions that targeted underrepresented or at-risk students' beliefs by exposing them to different messages (Lin-Siegler, Dweck, & Cohen, 2016; Yeager et al., 2016a). In Study 4, I extended the mindset intervention to a learning context outside the classroom, and examined whether messages about the malleability of language aptitude influence ESL migrant students' motivation and subjective experience in language use.

Overview of Research in Chapter 3

In three studies, I extend the mindset framework to understand ESL migrant students' motivation and responses in social interaction with native English-speaking peers. I conducted our investigation at a university in Western Canada, where English is the dominant language. The participants were comprised of both international students and immigrants who self-identified English as their second language.

There has been no empirical examination of whether ESL students' experiences in peer interaction are related to their mindsets. Thus, Study 3 addresses individual variations in language mindsets and tests whether those migrant students who hold fixed mindsets are less motivated and present more maladaptive responses when interacting with an Anglo-Canadian peer. In an analog of a task in everyday life, ESL students engaged in a difficult Taboo game with a peer who is a native English speaker and self-reported their experiences afterward, and the

experimenter and the peer observed the participants' avoidant tendency and language competence. Because it is of interest to ESL educators to know whether inducing growth mindset can help these students to better adapt in their social life, such as by making friends with English-speaking peers, in Study 4, ESL students engaged in "get-to-know-each-other" task with an English-speaking peer, a procedure that has been widely used to induce "fast intergroup friendship" (Page-Gould, Mendoza-Denton, & Tropp, 2008). I exposed ESL students to an article supporting the idea that language aptitude is malleable, and tested whether students who read the growth-mindset article (vs. the control article) would lead to a more positive interaction experience. Focusing on ESL students' daily social experiences rather than a specific interaction situation, Study 5 (a pre-registered study) aimed to further examine the mechanisms underlying the link between mindsets and language use. Because both negative experience (e.g., rejection) and avoidance orientation (e.g., do not want to look incompetent) in social interaction can contribute to why ESL students avoid using English, I tested whether language mindsets predict the amount of language use through perceived rejection and avoidance orientation in students' daily social experiences.

Throughout these three studies, I examined the interaction between language mindsets and perceived language competence. Although a lack of language competence is a major factor that affects ESL students' language experiences, not everyone with low competence responds negatively in interaction to the same degree. Based on two meta-analyses showing that mindsets predict adaptive outcomes more strongly among at-risk or disadvantaged students (in this case, students who are less competent in English; Burnette et al., 2013; Sisk et al., 2018), I hypothesized that growth mindsets would mitigate the link between poor language skill on interaction experience because those who hold a growth mindset focuses on improvement and

view language challenges as opportunities to improve. However, for those who are relatively competent in English, I predict that language mindsets may be less influential because these students are less likely to view using English as challenges and are more confident the begin with.

Study 3

I examined whether and how migrant students' language mindsets and English competence predict their motivation, emotions, and behaviors in a communication task. Participants engaged in a modified game of Taboo®, which is often used to examine intergroup interactions (Biernat, Vescio, & Billings, 1999). This game requires participants to explain an idea using English (see more detailed description below). I hypothesized that students who endorse growth mindsets (vs. fixed mindsets) can buffer the negative effects of poor English skill on their interaction experience with an Anglo-Canadian peer. Showing avoidant responses are particularly harmful to peer relationships. Thus, in addition to self-report, the experimenter and the peer also reported their observation of the participant's avoidant tendency.

Participants and Procedure. At the beginning of the semester, students filled out a questionnaire during a mass-testing session that included demographic information and a self-report of English proficiency (reading, writing, reading, and comprehension) on a 7-point scale (1 = not at all to 7= completely). Two to four months after the mass questionnaire, I recruited 91 students (69.2% females) who indicated English as their second language to participate in this study. Participants' ages ranged from 17 to 35 years (M = 21.2, SD = 2.66). Participants were foreign born, either international students or immigrants, and had lived in Canada for 5 years on average (SD = 4.04). Participants indicated that their native language is a language other than English, including Chinese (48.4%), Korean (11.0%), Arabic (11.0%),

Tagalog (9.9%), Nepali (3.3%), and others (16.4%; Vietnamese, Urdu, Thai, Spanish, Punjabi, Persian, Pashto, Japanese, Indonesian, Ilonggo, French, Farsi, Dutch, and Bengali). Participants arrived at the lab individually before the arrival of a confederate. The confederate and the experimenter were native English speakers who were born in Canada, the same sex as the participant, and both were Asians or both were Caucasians.[5] Once the participant and the confederate were present, the experimenter led them into the lab and informed them, as a cover story, that the purpose of the study was to examine individuals' personality and communication style. The experimenter asked the participant and the confederate whether English was their native language, and this question served two purposes: to let the participants realize that they would be interacting with a native English speaker and to reaffirm their language background.[6] Participants were then informed that the study consists of three parts, including an interaction task which "the two participants" would be doing together.

Task 1 (pre-interaction questionnaire). After the introduction of the study, the participant and the confederate went into separate computer rooms to fill out the consent form and complete a questionnaire. Consistent with the cover story, participants were told that the questionnaire was about their personality and attitudes, and the randomized measures of language mindset (describe in the material section) were embedded within this questionnaire.

Task 2 (interaction). Once the participant finished the "personality test," the participant was reminded that the purpose of the second part was to assess the interpersonal interaction style

[5] Including these two ethnic-background confederates was to explore whether the correlations between language mindsets on intercultural communication significantly differed between the majority and minority racial background of the peer.

[6] One participant was not included in this study because he/she self-identified as native English speaker, although he/she indicated otherwise in the mass questionnaire due to a careless response.

between two people. The participant read through a set of instructions for the game Taboo® (see instructions in Supplementary Materials) and then joined the confederate who was already in the interaction room. The objective of the game is to describe a word without relying on the use of actions, gestures or spelling. For the purpose of this study, the participant was assigned as the role of the describer and the confederate as the guesser, decided by a manipulated coin-toss by the experimenter. As the describer, the participant was given a set of 8 words (4 easy words: teacher, computer, book, and pen; and then 4 difficult words: hermeneutics, polemical, aphorism, bifurcate).[7] The participant was required to describe the words, with the intent of helping the confederate guess the word. The participant might skip any words and could stop the game at any time. Participants could also ask for hints (i.e., two sample sentences in which the target word was used) if they did not know the word or how to describe the word. The experimenters recorded, with a hidden stopwatch, how much time participant spent on the difficult words as an indication of their persistence.

Task 3 (post-interaction questionnaire). Once the game was over, the participant and the confederate returned to their respective computer rooms. The participant completed a questionnaire regarding their experience in the interaction task (see below Materials section). A suspicion probe was included on the final page of the questionnaire. None of the participants correctly reported the purpose of the study or expressed suspicion about that confederate's role.

After finishing the questionnaire, the experimenter fully debriefed participants about the role of the confederate and the purpose of the study.

Materials. A summary of all the variables, including means (*Ms*), standard deviations

[7] The difficult words were selected based on a pilot study. ESL migrant students ($N = 23$) rated 16 selected words on a 7-point scale ("1 = do not understand this word at all" to "7= completely understand this word"). The four most difficult ones were selected ($M = 1.47$).

(*SD*s), theoretical range, and Cronbach's alphas (α), is presented in Table 1. Participants responded on a 5-point scale from "1 = strongly disagree/ not true at all" to "5 = strongly agree/ completely true" unless otherwise stated.

Language Mindsets Inventory (LMI). Participants reported their beliefs about the fixedness and malleability of language learning ability on a 6 point-scale ("1= strongly disagree" to "6 = strongly agree; Lou & Noels, 2017). The LMI consists of 9 fixed-mindset items (e.g., "It is difficult to change how good you are at learning foreign languages") and 9 growth-mindset items (e.g., "People can always substantially change their language intelligence"). Growth-mindsets items were reversed coded, such that higher mean scores reflect stronger fixed (vs. growth) mindsets.

Performance-avoidance and mastery orientations. I adapted the performance-avoidance orientation and mastery orientations measures (Elliot & Church, 1997) to assess the participants' manner of avoidance and mastery in interacting with the confederate regarding their language ability. Five items reflect performance-avoidance orientation (e.g., "I tried to avoid looking like I can't speak English well.") and five items reflect mastery orientation (e.g., "I viewed the game as an opportunity to practice communication.").

Future interaction avoidance. Participants responded to 5 items regarding their anticipation about potential future interactions with the confederate on a 7-scale (1 = strongly disagree to 7 = strongly agree; Plant & Butz, 2006). This measure includes six items (e.g., "If given the chance, I would not want to interact with my partner again"; "I look forward to interacting with the peer again."). Positively worded items were reversed coded, such that higher scores reflect stronger tendencies to avoid future interaction with the peer.

Language-based rejection sensitivity. Participants imagined themselves interacting with

native speakers based on 10 scenarios of social interaction that migrant students often experience anxiety (Lou & Noels, 2018; see Study 1 in Chapter 2). A higher score of the mean language-RS (averaged all scenarios) indicates a higher sensitivity to rejection by native English speakers.

Positive and Negative Affect Schedule (PANAS). I used the PANAS to gauge participants' positive affect (10 items: enthusiastic, high energy, alert, lethargic, sadness, etc.) and negative affect (10 items: anger, contempt, guilt, fear, etc.; Watson, Clark, Tellegen, 1988). Participants indicated the extent they felt about these emotion "right now" on a five-point scale (1 = not at all to 5 = extremely).

Observed competence and observed avoidant tendency. Right after the interaction, the confederate and the experimenter filled out a questionnaire to rate participants' English competence (3 items; e.g., "How competent is the participant's English level in general?") on a 7-point scale (1 = not at all to 7 = extremely) and avoidant tendency during the interaction (4 items; e.g., "I felt that the participant tried to avoid having this interaction") on a 7-point scale (1 = does not apply at all and 7 = applies very much). The final scores of observed language competence and observed avoidant tendency were calculated by averaging the means of two raters (the experimenter and the confederate reliability were $r = .60$ for competence and $r = .77$ for avoidance). In addition, experimenters also recorded the length of time (in seconds) that participants spent on the difficult words.

Results.

Preliminary Analysis. I found that confederates' ethnic background and gender did not significantly predict participants' responses or moderate the effects of mindsets on outcome variables. Participants' length of residence in Canada was positively correlated with their perceived English competence ($r = .26$, $p = .013$) and observed English competence ($r = .52$, p

< .001); those who lived in Canada longer were more competent in English. However, length of residence was not significantly correlated with other variables when controlling for perceived competence. Therefore, the confederate's ethnic background, participants' sex, and participants' length of living in Canada were not included in the major analyses. The correlation coefficients among variables are reported in Table 5.

Table 5. *Study 3: Bivariate Correlations among Variables (N = 91).*

	1	2	3	4	5	6	7	8	9	10	11
1. Perceived English competence		−.30**	−.10	.16	−.19†	−.30**	.09	−.04	−.28**	.48**	−.27**
2. Fixed (vs. growth) mindsets			.30**	−.30**	.21*	.38**	.11	−.22*	.24*	−.28**	.12
3. Performance-avoidance orientation			--	−.39**	.54**	.44**	−.18†	−.26*	.36**	−.18†	.19†
4. Mastery orientation				--	−.44**	−.24*	.08	.59**	−.28**	.27**	−.25*
5. Future contact avoidance					--	.30**	.10	−.36**	.47**	−.32*	.18†
6. Language-based rejection sensitivity						--	.11	−.01	.42**	−.22*	.06
7. Persistence (Interaction Time)							--	−.01	.05	−.06	−.54**
8. Positive Affect								--	.05	.24*	−.06
9. Negative Affect									--	−.42***	.15
10. Observed competence										--	−.37**
11. Observed avoidance											--
Cronbach's α	.95	.84	.74	.90	.85	.90	NA	.91	.87	.95	.85
Theoretical Range	1−7	1−6	1−5	1−5	1−7	1−36	NA	1−5	1−5	1−7	1−5
M	5.15	2.98	2.45	3.49	2.99	8.28	440.58	2.62	1.94	4.91	2.49
SD	1.10	0.52	0.82	1.03	1.18	5.94	444.91	0.81	0.70	1.30	0.96

Notes. $^{**}p < .01$, $^{*}p < .05$, $^{\dagger}< .10$, two-tailed test.

The role of English competence. As expected, self-assessed English competence and observed English competence were positively correlated ($r = .48$, $p < .001$), and both were negatively correlated with language-based rejection sensitivity, negative affect, observed avoidance, and future interaction avoidance. These findings demonstrated that English competence, both self-assessed and other-assessed, predicted students' language use experience.

The role of language mindsets. I found that language mindsets were correlated with goal orientations of the interaction task; students with stronger fixed (vs. growth) mindsets more strongly endorsed performance-avoidance goals and less strongly endorsed learning goals. Moreover, language mindsets were linked to positive and negative affects, language-based

rejection sensitivity, and future task avoidance. Students with stronger fixed (vs. growth) mindsets felt more negative and less positive after the task, felt more sensitive about being rejected due to language deficiency, and were more likely to avoid the future task.

Major Analyses. I ran multivariate regression analyses to test the hypotheses that language mindsets moderate the link between perceived competence and the outcome variables. The mean-centered scores of language mindsets, perceived English competence, and their interaction were regressed on the dependent variables. The results are presented in Table 6 and Figure 4. I found significant interaction effects of language mindsets and perceived English competence on avoidance orientation (Figure 4a), future contact avoidance (Figure 4b), negative affect (Figure 4c), and observed avoidance (Figure 4d).

Table 6. *Study3: Multiple Regression of Perceived Competence, Language Mindsets, and Their Interaction on Dependent Variables.*

	R^2	*b*	*SE*	*t*	*p*	95% CI
Performance-avoidance orientation	.15					
English competence		–0.01	0.08	–0.13	.895	–0.164, 0.143
Language mindsets		0.41	0.17	2.46	.016	0.078, 0.736
competence × mindsets		–0.34	0.13	–2.53	.013	–0.611, –0.073
Mastery orientation	.10					
English competence		0.71	0.10	0.71	.747	–0.128, 0.270
Language mindsets		–0.56	0.22	–2.61	.010	–0.990, –0.135
competence × mindsets		–0.06	0.18	–0.32	.747	–0.401, 0.290
Future Contact avoidance	.12					
English competence		–0.15	0.11	–1.13	.183	–0.375, 0.073
Language mindsets		0.29	0.24	1.20	.234	–0.191, 0.770
competence × mindsets		–0.50	0.20	–2.51	.014	–0.887, –0.102
Language-based rejection sensitivity	.19					
English competence		–1.15	0.54	–2.11	.038	–2.233, –0.065
Language mindsets		3.37	1.17	2.88	.005	1.043, 5.694
competence × mindsets		–1.11	0.96	–1.17	.247	–3.012, 0.786
	R^2	*b*	*SE*	*t*	*p*	95% CI
Interaction time	.04					
English competence		55.11	44.48	1.24	.219	–33.30, 143.53
Language mindsets		145.13	95.46	1.52	.132	–44.61, 334.87

competence × mindsets		93.88	77.90	1.20	.232	–60.97, 248.72
Positive Affect	.07					
English competence		–0.92	0.08	–1.15	.252	–0.252, 0.067
Language mindsets		–0.42	0.17	–2.45	.016	–0.763, –0.080
competence × mindsets		–0.10	0.14	–0.71	.481	–0.378, 0.179
Negative Affect	.15					
English competence		–0.15	0.07	–2.28	.025	–0.281, –0.019
Language mindsets		0.18	0.14	1.31	.195	–0.096, 0.465
competence × mindsets		–0.25	0.11	–2.19	.031	–0.481, –0.023
Observed Avoidance	.13					
English competence		–0.23	0.09	–2.56	.012	–0.417, –0.053
Language mindsets		0.00	0.20	0.01	.989	–0.388, 0.393
competence × mindsets		–0.38	0.16	–2.39	.018	–0.702, 0.065

I probed the significant interaction effects using simple slope analyses (see Table 7). As expected, for those with stronger fixed mindsets (+1SD), low English competence significantly predicted future contact avoidance, negative affect, observed avoidance, and marginally predicted avoidance orientation (p = .080). However, for those with strong growth mindsets (−1SD), their English competence was not significantly related to these outcomes. This finding suggests that language mindsets buffer the negative effect of low English competence on language use experience.

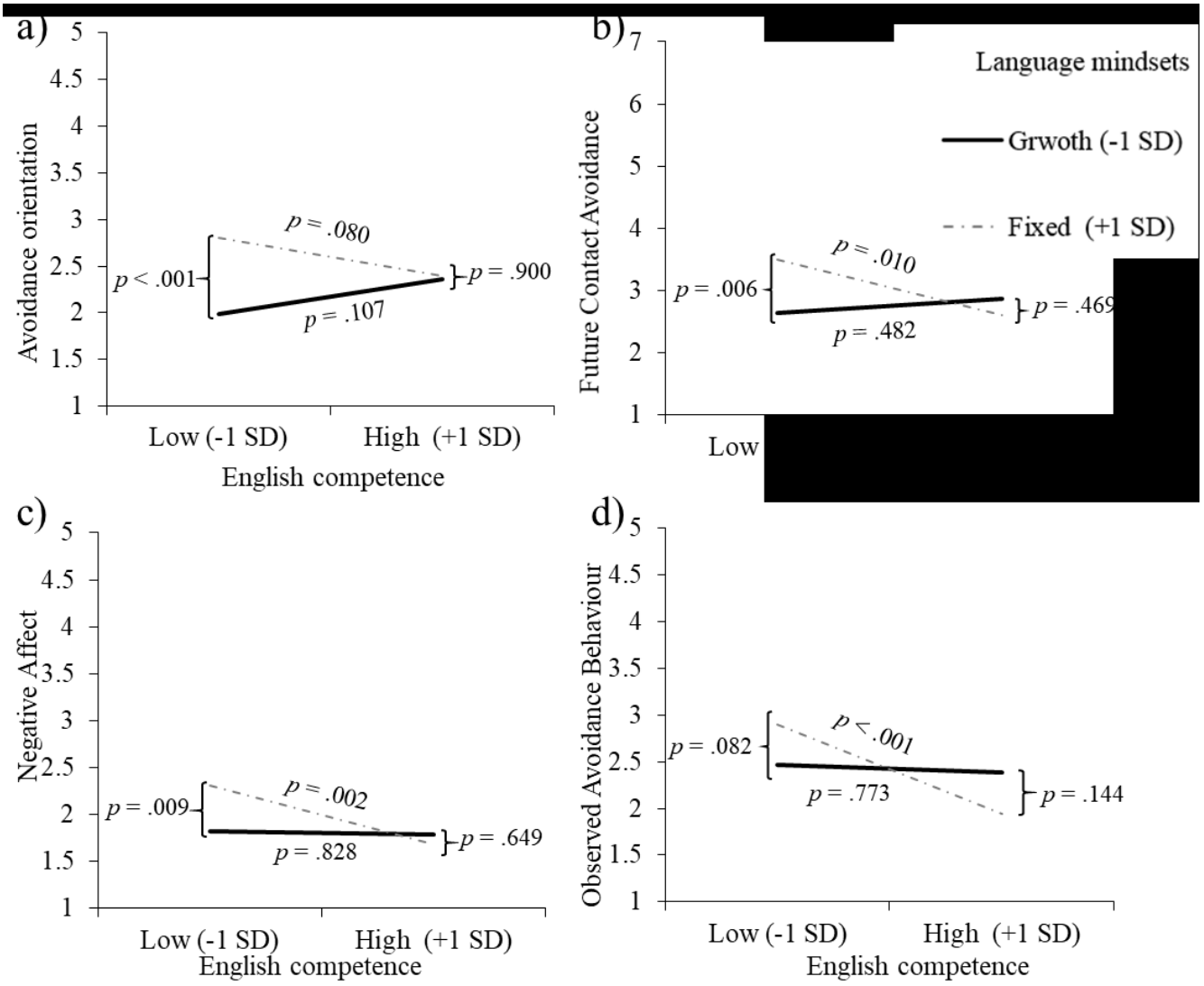

Figure 4. Interaction effect of English competence and language mindsets on a) avoidance orientation, b) future contact avoidance, c) negative affect, and d) observed avoidance behavior. Interactions are plotted at 1 SD above the means of language mindset (i.e. fixed mindsets) and 1 SD below the means of language mindsets (i.e. growth mindsets).

Table 7. *Study3: Simple Slopes Analyses for Predictor on Dependent Variables at ±1SD of the Moderator.*

Predictor	Outcome	Level of moderator	*b*	*SE*	*t*	*p*	95% CI
English competence	Avoidance orientation	Growth mindset (+1SD)	0.17	0.10	1.63	.107	–0.037, 0.372
		Fixed mindset (–1SD)	–0.19	0.11	–1.77	.080	–0.399, 0.023
	Future contact avoidance	Growth mindset (+1SD)	–0.11	0.15	–0.71	.482	–0.192, 0.404
		Fixed mindset (–1SD)	–0.41	0.15	–2.64	.010	–0.716, –0.101
	Negative Affect	Growth mindset (+1SD)	–0.02	0.09	–0.22	.828	–0.193, 0.155
		Fixed mindset (–1SD)	–0.28	0.09	–3.11	.002	–0.461, –0.102
	Observed avoidance	Growth mindset (+1SD)	–0.04	0.12	–0.29	.773	–0.277, 0.207
		Fixed mindset (–1SD)	–0.43	0.13	–3.45	<.001	–0.684, –0.184
Language Mindsets	Avoidance orientation	High competence (+1SD)	0.03	0.24	0.13	.900	–0.477, 0.507
		Low competence (–1SD)	0.78	0.20	3.84	<.001	0.378, 1.189
	Future contact avoidance	High competence (+1SD)	–0.25	0.35	–0.73	.469	–0.951, 0.442
		Low competence (–1SD)	0.83	0.30	2.80	.006	0.243, 1.426
	Negative Affect	High competence (+1SD)	–0.09	0.20	–0.46	.649	–0.500, 0.313
		Low competence (–1SD)	0.46	0.17	2.66	.009	0.117, 0.807
	Observed avoidance	High competence (+1SD)	–0.42	0.28	–1.48	.144	–0.986, 0.146
		Low competence (–1SD)	0.43	0.24	1.76	.082	–0.055, 0.906

I also probed the interaction effect with language mindsets as the predictor and perceived competence as the moderator. I found that for those who have low competence (−1SD), endorsing growth (vs. fixed) mindsets was negatively and significantly linked to avoidance orientation, contact avoidance, negative affect, and nearly significantly linked to observed avoidance (p = .082). However, for those who have high competence (+1SD), mindsets were not related to these outcomes. These findings suggest that the effect of language mindsets manifested among those with low English competence.

There were no significant interaction effects on mastery orientation, language-based rejection sensitivity, and positive affect (see Table 6). Instead, I found that language mindsets were linked to these variables regardless of English competence. That is, those who endorsed a growth (vs. fixed) mindset are more likely to endorse a learning orientation for the interaction task, felt less sensitive about being rejected, and felt more positive. However, regarding the interaction time, I found that mindsets, English competence, or interaction did not predict how long people persist in the difficult task.

In summary, first, as shown in Figure 4, part of the negative experiences (avoidance orientation, contact avoidance, negative affect, and observed avoidance) are driven by the combination of low English competence and fixed mindsets. Although low competence was linked to participants' self-reported negative outcomes and observed avoidance, holding strong growth mindset mitigated these negative effects. Second, the extent to which migrant students are sensitive about being rejected is predicted by both mindsets and English competence, but not their interaction. Third, positive interactions (i.e., mastery orientation and positive affect) are driven by growth mindsets, not perceived competence. Lastly and unexpectedly, persistence in the difficult task, measured by the time people spent on the task, was not predicted by mindsets, English competence, or their interaction.

Study 4

Study 4 further examines the causal question of whether growth mindsets can buffer the negative effects of poor English skills on anxiety and avoidance, and thus improve their interaction quality with peers. I used an experimental procedure to induce participants' incremental beliefs, with a double-blind randomized design. To engage participants in an interaction, instead of using a performance-based task (in Study3), I adopted a conversation-based interaction task (i.e., get-to-know-your-peer; Page-Gould et al., 2008), in which participants tried to get to know the native-speaker confederate, and reported the extent to which they felt rejected by the confederate (i.e., perceived rejection). As Study 3 showed a significant interaction effect of mindsets and competence only on the self-reported performance-avoidance goal, negative emotion, and future contact avoidance, I focused on these dependent variables in Study 4. Study 3 also showed that those with stronger fixed mindsets, regardless of their competence, feel more sensitive about rejection. Given that sensitivity to

rejection often leads one to more readily experience and react to rejection (Mendoza-Denton et al., 2002; Rheinschmidt et al., 2014), I examined whether those who have fixed mindsets perceived more rejection experience in a peer interaction.

Participants and Procedure. University students filled out a questionnaire regarding their demographic information, at the beginning of a semester during a mass-testing session. Two to four months later, I recruited 72 students (54.2% females) who indicated English as their second language to participate in this experiment. Participants' age ranged from 17 to 34 years (M = 19.83, SD = 2.41). They were either international students or immigrants, and had lived in Canada for 5.08 years on average (SD = 3.29). Participants indicated their native language is a language other than English, including Chinese (51.4%), Korean (11.1%), Tagalog (11.1%), Nepali (2.8%), Persian (2.8%), Sinhalese (2.8%), Urdu (2.8%), and others (15.2%; Bengali, Farsi, French, Gujarati, Portuguese, Punjabi, Russian, Sindhi, Spanish, Telugu, and Tigrigna).

Similar to Study 3, participants arrived at the lab before the arrival of a same-sex confederate. Once the participant and the confederate were present, the experimenter first asked some "background check" questions, including whether English is their first language, to let the participants realize that they would be interacting with a native English speaker. The experimenter then gave them an overview of the current study, which was to "examine individuals' reading style and communication style" as a cover story. They were then informed that the study consisted of three parts:

Task 1 (mindset manipulation). Before the reading task, participants self-reported their English proficiency (reading, writing, reading, and comprehension) on a 10-point scale (1 = not at all to 10 = completely). In the reading task, participants were randomly assigned to read about incremental theories of language ability (i.e., growth mindset condition) or an article about green

energy (control condition; see Supplementary Materials). Both the experimenter and the confederate were blind to which condition the participant was in. To be consistent with the cover story, the participants were asked to answer a few questions about their reading style and understanding of the article; all participants are able to summarize the main theme of the article.

Task 2 (interaction task). Once the participant finished the reading task, he or she joined the confederate in the interaction room. The experimenter explained that this task required the participant and confederate to engage in a conversation with the goal of getting to know one another. The conversation was facilitated by a list of 30 questions (e.g., "What is your favorite TV show?" "What did you do last weekend?"; see Supplementary Materials). The experimenter explained that one of the participants would be randomly assigned to receive the list and that person would a) ask the other questions and choose which and how many questions they wanted to ask, b) subsequently provide their own answer for each question after his or her partner finished answering the question, and c) ask for follow-up questions if they wanted. A rigged coin flip was then conducted by the experimenter to ensure that the participant always received the list, and thus was allowed to control the interaction time. The confederates were trained to memorize the answers to each question on the list. The confederates were also required to be consistently pleasant and friendly in their interactions with the participants. Once the participant said the first word, the experimenter recorded the time using a hidden stopwatch until the end of the conversation, which is used as a dependent variable.

Once the participant declared he or she was done asking questions in the communication task, the experimenter notified the participant that he or she needs to set up the computers and then leave the interaction room. During this time, the confederate initiated small talk and then asked the participant for a favor to participate in an interview project that the confederate was

working on[8].

Task 3 (questionnaire). The experimenter returned to the interaction room and instructed the participant to go back into their initial rooms and to complete a questionnaire about their communication experience (see Measures below). At the end of the questionnaire, participants were informed about the role of the confederate (i.e., that their peer was not a "real" participants) and asked about their willingness to help the confederate for his/ her interview in the student newspaper (see the measure of future contact avoidance). Participants were then fully debriefed.

Measures. A summary of all the variables, including means (*Ms*), standard deviations (*SD*s), theoretical range, and Cronbach's alphas (α) are presented in Table 8. Participants responded on a 5-point scale from "1= strongly disagree/ not true at all" to "5 = strongly agree/ completely true" unless otherwise stated.

Perceived rejection. Participants reported their perception about their interaction with the confederate on 4 items ("My partner was impatient"; "I feel rejected in the conversation"; "I feel that my partner did not pay attention when I spoke"; "My partner was not interested in what I said").

Performance-avoidance orientation. As described in Study1, participants reported how avoidant they were, because of their language ability, during the interaction with the confederate (5-items; e.g., "I tried to avoid looking like I can't speak English well"; Elliot & Church, 1997).

Intergroup anxiety. I measured participants' intergroup anxiety (rather than general

[8] The confederate would said, "I started working on the student newspaper, Gateway. Have you heard of it? ..... I'm currently working on a project about students' life and I want to interview as many students around campus as I can to get different voices. I was wondering if you might be interested; it would take about 10 min and it will ask about things like tuition and student resources. Do you think this is something that you want to do right after this experiment? If you are busy right after, I can set up a time to meet."

positive and negative affect) because it was reported more pertinent in intergroup interaction (Plant & Butz, 2006). Participants rated their feelings in the interaction on eight items (anxious, uneasy, tense, uncertain, concerned, nervous, worried, and uncomfortable). A higher score corresponds to stronger anxiety.

Future contact avoidance. The participants responded to four items about their thoughts and feelings regarding the potential future interactions (i.e., helping out an interview with the confederate after the experiment). The four items are: "How willing were you to be part of the interview for the student newspaper? [reversed]"; "I tried to avoid being part of the interview"; "I wanted to be part of the interview [reversed]"; "I was worried that if I don't know how to answer the interview questions in English, s/he might think I am not competent."

Observed competence and avoidance. Right after the interaction task, the experimenter and confederate completed a questionnaire indicating their observation of the participants' English competence and avoidance (see Study 3 description). The interrater reliability satisfactory (r = .43 for English competence and r = .56 for avoidance orientation). The experimenter also recorded how many questions the participants asked and the length of the conversation. Four participants' record of time and number of questions were missing due to experimenter errors.

Language mindsets (manipulation check). A manipulation check was included by using the Language Mindset Inventory (LMI; see Study 1), with the assumption that participants in the growth-mindset condition would score lower on this index than participants in the controlled condition.

Results.

Preliminary analysis. I did not find significant gender differences in participants'

responses. Length of residence was correlated with perceived English competence (r = .21, p = .076) and observed competence (r = .37, p < .001), but length of residence did not predict any other outcome when controlling for perceived competence. Therefore, participants' sex and length of time living in Canada were not included in the major analyses. The correlation coefficients among variables are reported in Table 8.

Table 8. *Study 4: Bivariate Correlations among Variables (N = 72).*

	1	2	3	4	5	6	7	8	9	10
1. Perceived English competence		−.01	−.13	−.33***	−.45***	−.04	−.04	−.48***	.42***	−.24*
2. Experimental condition[a]		--	.08	.08	−.13	−.27*	−.18	.13	−.11	.08
3. Perceived rejection			--	.25*	.38***	.05	.06	.30*	−.62	.20†
4. Avoidance orientation				--	.49***	−.15	−.07	.38***	−.06	.18
5. Anxiety					--	−.01	.05	.46***	−.15	.21†
6. number of questions asked						--	.74**	−.18	.03	−.19
7. Persistence (interaction time)							--	−.24*	−.15	−.43***
8. Future contact avoidance								--	−.31**	.39***
9. Observed competence									--	−.23*
10. Observed avoidance										--
α	.89	NA	.71	.79	.86	NA	NA	.73	.95	.78
Theoretical Range	1−10	−1/1	1−5	1−5	1−5	0−20	NA	1−6	1−5	1−5
M	6.83	NA	1.16	2.42	2.01	11.97	329.00	2.30	5.44	1.83
SD	1.38	NA	0.35	0.90	0.73	6.44	184.03	1.12	1.07	0.67

Notes. $^{**}p < .01$, $^{*}p \leq .05$, $^{\dagger}p < .10$, two-tailed; [a] experimental condition was coded as −1 = growth mindset and 1 = control

The role of English competence. Self-assessed English competence was positively correlated with the observed English competence (r = .42, p < .001), both of which are positively correlated with future contact avoidance and observed avoidance. However, only perceived competence, but not observed competence, was significantly related to avoidance and anxiety.

Manipulation check. I found that students in the growth-mindset condition endorsed fixed beliefs about language learning ability (M = 2.47, SD = .54) less strongly compared to students in the control condition (M = 2.99, SD = .57), F (1, 70) = 15.24, p < .001, η_p^2 = .18. In other words, the growth-mindset manipulation led students to believe more strongly in growth

(vs. fixed) mindsets.

Main effect of experimental condition. I found there was a main effect of experimental condition on the number of questions students asked in the interaction task, F (1, 66) = 5.09, p = .027, η_p^2 = .07. Students in the growth mindset condition asked more questions (M = 13.58, SD = 7.45) than those in the control condition (M = 10.15, SD = 4.52). Although the number of questions asked and interaction time were strongly correlated (r = .74, p < .001), I found no significant effect of the manipulation on interaction time, F [1, 66] = 2.18, p = .144, η_p^2 = .03. I also found no significant differences on other dependent variables: perceived rejection (F [1, 70] = 0.22, p = .638, η_p^2 = .003); avoidance orientation (F [1, 70] = 0.40, p = .529, η_p^2 = .006); Anxiety (F [1, 70] = 1.13, p = .292, η_p^2 = .016); future contact avoidance (F [1, 70] = 1.12, p = .294, η_p^2 = .016); and observed avoidance (F [1, 70] = 0.46, p = .500, η_p^2 = .007).

Major analyses. I ran regression analyses to test the hypotheses that inducing growth mindsets can mitigate the link between perceived competence and the outcome variables. I entered the mean-centered scores of experimental conditions, perceived English competence, and their interaction on each dependent variable. The results are presented in Table 9. I found significant interaction effects of language mindsets and perceived English competence on perceived rejection (Figure 5a) and future contact avoidance (Figure 5b).

Table 9. *Study 4: Multiple Regression of Perceived Competence, Experimental Conditions, and Their Interaction on Dependent Variables.*

	R^2	b	SE	t	p	95% CI
Perceived Rejection	.10					
Perceived English competence		–0.06	0.03	–1.94	.057	–0.123, 0.002
Language mindset conditions		0.02	0.04	0.66	.512	–0.053, 0.106
competence × conditions		–0.07	0.03	–2.38	.020	–0.137, –0.012
Avoidance orientation	.12					
Perceived English competence		–0.23	0.08	–2.86	.006	–0.389, –0.069
Language mindset conditions		0.13	0.21	0.64	.524	–0.278, 0.541
competence × conditions		–0.09	0.16	–0.53	.592	–0.408, 0.235

	R^2	*b*	*SE*	*t*	*p*	95% CI
Anxiety	.18					
Perceived English competence		–0.23	0.06	–3.71	<.001	0.358, 1.363
Language mindset conditions		–0.09	0.08	–1.20	.233	–0.275, 0.046
competence × conditions		0.03	0.06	0.46	.646	–0.623, 0.397
Number of questions asked	.09					
Perceived English competence		0.10	0.60	0.17	.869	–1.100, 1.300
Language mindset conditions		–3.43	1.52	–2.25	.028	–6.482, –0.384
competence × conditions		1.38	1.23	1.12	.267	–1.081, 3.836
Persistence (Interaction time)	.08					
Perceived English competence		7.45	17.29	0.43	.668	–27.09, 41.98
Language mindset conditions		–65.87	43.96	–1.50	.139	–153.68, 21.95
competence × conditions		61.78	35.44	1.74	.086	–9.02, 132.57
Future contact avoidance	.31					
Perceived English competence		–0.47	0.09	–5.19	<.001	–0.649, –0.288
Language mindset conditions		0.24	0.23	1.04	.304	–0.220, 0.693
competence × conditions		–0.45	0.18	–2.46	.016	–0.805, –0.084
Observed avoidance	.07					
Perceived English competence		–0.13	0.06	–2.18	.033	–0.255, –0.011
Language mindset conditions		0.10	0.15	0.66	.512	–0.209, 0.415
competence × conditions		–0.08	0.12	–0.67	.503	–0.330, 0.163

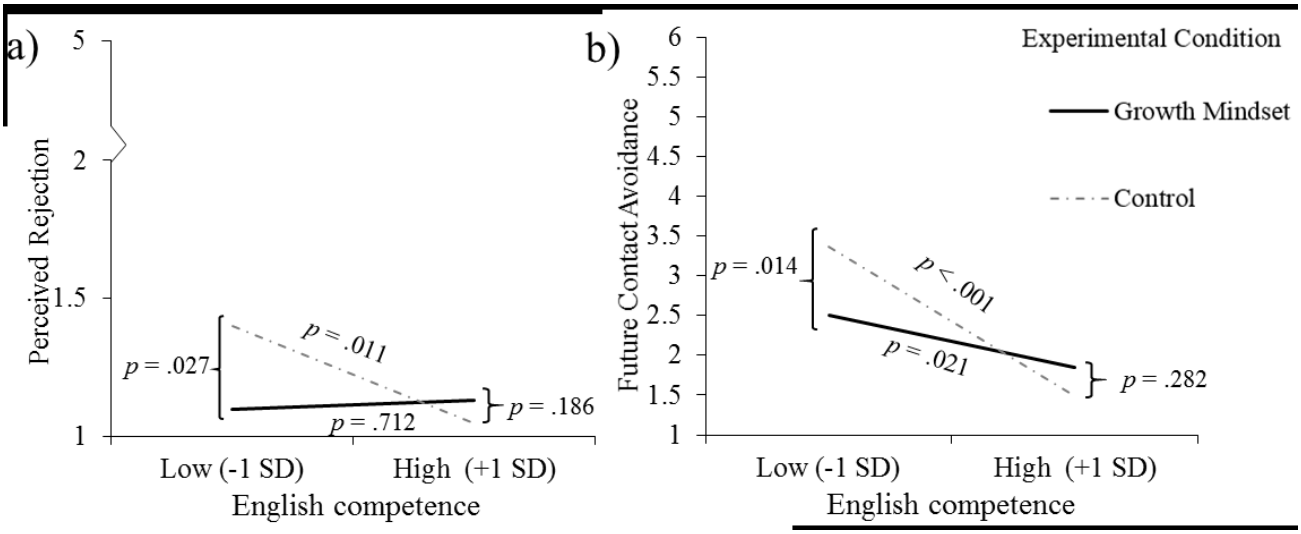

Figure 5. Interaction effect of English competence and language mindsets on a) perceived rejection and b) future contact avoidance.

I probed the two significant interaction effects using simple slopes analyses (see Table 10 and Figure 5). Regarding perceived rejection (Figure 5a), I found that low English competence

predicted perceived rejection only for those in the control condition, but not those in the growth mindsets condition. In addition, for students with low English competence, students who learn about growth mindsets reported a lower sense of rejection compared to those in the control condition. For those with high competence, they felt a low sense of rejection regardless of their conditions. Regarding contact avoidance (Figure 5b), although low English competence predicted future contact avoidance in both conditions, the link was less strong in the growth mindset condition compared to the control condition. As shown in Figures 5b, for students with low English competence, inducing a growth mindset reduced their future contact avoidance. For those with high competence, they reported that they were less likely to avoid future contact regardless of their conditions. That is, the growth-mindset induction was effective (i.e., significantly different from the control condition) on perceived rejection and future contact avoidance only among those with low competence, but not those with high competence.

Table 10. *Study 4: Simple Slopes Analyses for Predictors on Dependent Variables at ±1SD of The Moderator.*

predictor	outcome	level of moderator	*b*	*SE*	*t*	*p*	95% CI
Perceived competence	Perceived rejection	Control condition	–0.14	0.05	–2.61	.011	–0.239, –0.032
		Growth mindset condition	0.01	0.03	0.37	.712	–0.057, 0.083
	future contact avoidance	Control condition	–0.69	0.15	–4.68	<.001	–0.986, –0.394
		Growth mindset condition	–0.25	0.10	–2.37	.021	–0.454, –0.038
Experimental conditions	Perceived rejection	High competence (+1SD)	–0.08	0.06	–1.30	.198	–0.195, 0.041
		Low competence (–1SD)	0.13	0.06	2.20	.031	0.012, 0.247
	future contact avoidance	High competence (+1SD)	–0.18	0.17	–1.08	.282	–0.519, 0.153
		Low competence (–1SD)	0.42	0.17	2.52	.014	0.088, 0.751

However, inconsistent with our hypotheses, I found no interaction effects on intergroup anxiety, performance-avoidance orientation, numbers of questions asked, and observed avoidant tendency. Instead, I found that students with low English competence reported stronger anxiety,

performance-avoidance orientation, and observed avoidant tendency; these outcomes were not moderated by the experimental conditions. At last, I found that interaction time was not predicted by mindsets, English competence, or their interaction.

In summary, the results of Study 4 partially support our hypotheses, such that growth mindset reduced perceived rejection and future contact avoidance among those with lower English competence (but not those with higher competence). In other words, although low competence was linked to perceived rejection and future contact avoidance, inducing growth mindset mitigated, at least temporarily, these negative effects. However, inconsistent with our hypotheses, I found that inducing growth mindsets did not reduce intergroup anxiety, performance-avoidance orientation, and observed avoidant tendency; instead, these variables were predicted by participants' low level of English competence. Lastly, mindsets did not influence persistence in the task; although unexpectedly, it is consistent with Study 3.

Study 5

Studies 1 and 2 were set up in a controlled lab setting to examine the link between mindsets and ESL students' motivation to use English with peers in a real-time interaction. Study 5 extends these findings by investigating ESL students' daily experience with English-speaking peers. I examined whether mindsets also predict how much ESL students use English (vs. other languages) in general, and whether perceived rejection in daily social experiences and avoidance orientations mediate this link. This study and its hypotheses were preregistered (https://osf.io/4tmdz/?view_only=a7b270f2ed0144ef9d9bc654b541531c) and I predicted that, for those with lower English competence, growth (vs. fixed) mindset would be negatively associated with perceived rejection and performance-avoidance orientation, which in turn lead to more English use. I also hypothesized that for those with high competence, their mindsets would

not be significantly associated with perceived rejection, performance-avoidance, or language use.

Participants and Procedure. I surveyed introductory psychology students at the same university and selected those who indicated that they are foreign-born and that English is their second language (N = 418, 58.9% females). Participants spoke diverse languages as their native language, including Chinese (35.9%), Korean (8.4%), Tagalog (8.1%), Urdu (4.3%), Gujarati (4.1%), Hindi (3.6%), Spanish (3.6%), Arabic (3.1%), Russian (2.2%), Malayalam (1.9%), Punjabi (1.9%), Bengali (1.7%), Vietnamese (1.7%), Bangla (1.4%), French (1.4%), Farsi (1.2%), Swedish (1.2%), Telugu (1.2%), and others (13.1; Bulgarian, Ilocano, Japanese, Sinhalese, Turkish, Tamil, Amharic, Bisaya, German, Nepali, Portuguese, Serbian, Shona, Tigrinya, Yoruba, Afrikaans, Armenian, Assamese, Dutch, Icelandic, Kapampangan, Kinyarwanda, Kutchi, Ndebele, Polish, Romanian, and Ukrainian). Participants' age ranged from 17 to 26 (M = 19.08, SD = 1.57). Participants were either international students or immigrants and had lived in Canada for 6.74 years on average (SD = 4.99). Participants filled out a large mass testing survey, including the below measures.

Measures. A summary of all the variables, including means (*Ms*), standard deviations (*SD*s), theoretical range, and Cronbach's alphas (α) are presented in Table 11.

Language mindsets. Participants' language mindsets were assessed with 18-item LMI (see the description from Study 1).

Perceived English competence. Participants self-evaluated their English proficiency in reading, writing, speaking, and listening comprehension on a 7-point scale (1= not fluent at all to 7 = native/ native like).

Perceived language-based rejection. Participants reported their perception of rejection by native speakers in daily interaction on four items adapted from Study 4 ("When I speak

English, I feel that native speakers are impatient."; "I feel rejected in conversations."; "I feel that native speakers do not pay attention;" "native speakers seem not interested in my responses"). Higher scores indicate stronger perceptions that native speakers reject them.

Avoidance orientation. To measure their tendency to avoid using English, participants indicated their agreement with the following five items adapted from the performance-avoidance measure used in Studies 1 and 2: "When speaking English, I keep my responses short in order to avoid making mistakes;" "I am afraid of making mistakes when speaking English;" "The worst thing about making mistakes in English is that other people may notice;" "I avoid talking to others because there is a chance that I will appear rather incompetent;" "I try hard to avoid looking like I can't speak English well."

English use. Participants reported the percentage of time (1 – 100%) they use English (instead of other languages) when they are (a) with friends and (b) at the university. Higher scores mean that the person was more likely to use English to interact with friends and peers at the university. I combined these two as an indicator of English use ($r = .73$, $p < .001$)

Results.

Preliminary analyses. The correlation coefficients among variables are reported in Table 11. As expected, self-assessed English competence was negatively correlated with language-based rejection ($r = -.57$, $p < .001$), avoidance tendencies ($r = -.55$, $p < .001$), and language use ($r = .45$, $p < .001$). I also found that language mindsets were correlated with language-based rejection ($r = .29$, $p < .001$), avoidance tendencies ($r = .22$, $p < .001$), and language use ($r = -.28$, $p < .001$); students with stronger fixed (vs. growth) mindsets were more likely to perceive rejection due to their language skills, were more avoidant of conversation, and were less likely to use English.

Table 11. *Study 5: Bivariate Correlations among Variables (N = 418).*

	1	2	3	4	5
1. Perceived English competence		−.25***	−.57***	−.55***	.45***
2. Fixed (vs. growth)Language mindsets		--	.29***	.22***	−.28***
3. Perceived language-based rejection			--	.78***	.45***
4. Avoidance orientation				--	.41***
5. English use					--
α	.93	.93	.92	.89	.86
Theoretical Range	1−7	1−6	1−6	1−6	0−100
M	5.70	2.70	2.14	2.77	80.89
SD	1.14	0.80	1.22	1.41	23.69

Notes. ***$p < .001$; two-tailed.

Moderation analyses. I entered the mean-centered scores of language language mindsets and perceived competence, as well as their interaction on each outcome variable (i.e., perceived rejection, avoidance orientation, and English use). The results are presented in Table 12. I found significant interaction effects of language mindsets and perceived English competence on language use (Figure 6a), a nearly significant interaction effect on perceived rejection, but no significant interaction effect on avoidance tendencies (Figure 6b).

Table 12. *Study5: Multiple Regression of Perceived Competence, Language Mindsets, and Their Interaction on Dependent Variables.*

	R^2	*b*	*SE*	*t*	*p*	95% CI
Perceived rejection	.34					
English competence		–0.54	0.05	–11.28	<.001	–0.637, –0.448
Language mindsets		0.23	0.07	3.46	<.001	0.100, 0.364
competence × mindsets		–0.11	0.06	–1.89	.060	–0.233, 0.005
Avoidant tendency	.31					
English competence		–0.66	0.05	–11.67	<.001	–0.773, –0.550
Language mindsets		0.11	0.08	1.42	.156	–0.043, 0.268
competence × mindsets		0.03	0.07	0.48	.634	–0.106, 0.174
English use	.45					
English competence		11.84	0.84	14.17	<.001	10.200, 13.486
Language mindsets		–4.95	1.18	–4.20	<.001	–7.270, –2.636
competence × mindsets		3.75	1.08	3.46	<.001	1.616, 5.876

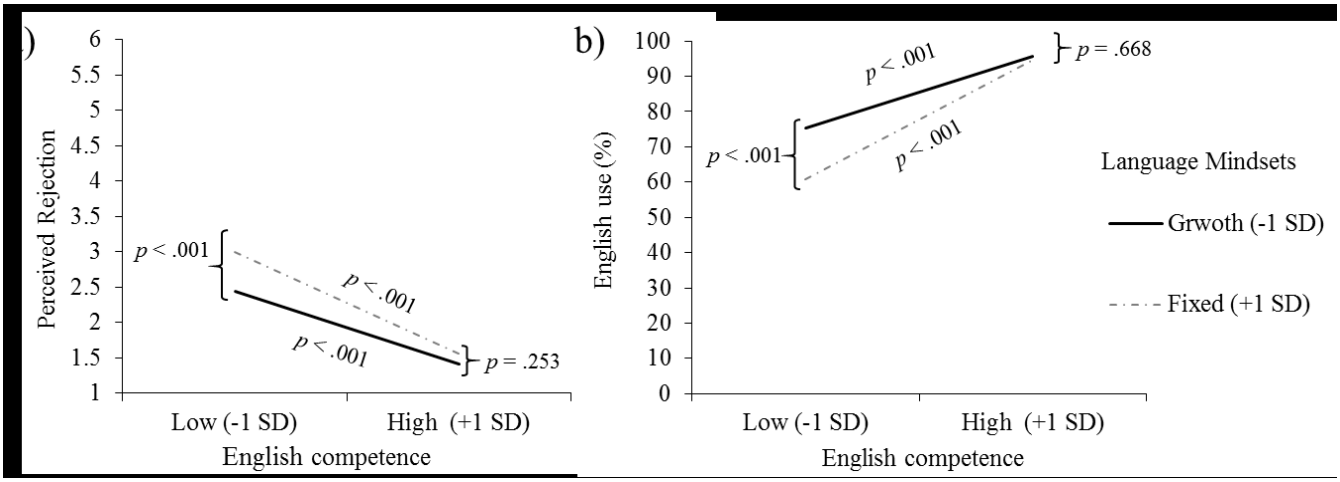

Figure 6. Interaction effect of English competence and language mindsets on a) perceived rejection and b) language use. Interactions are plotted at 1 SD above the means of language mindset (i.e. fixed mindsets) and 1 SD below the means of language mindsets (i.e. growth mindsets).

Next, I probed the interaction effects using simple slope analyses (see Table 13 and Figure 6). As expected, for those with low competence (−1SD), fixed (vs. growth) language mindsets significantly predicted perceived rejection and English use (*p*s < .001). However, for those who were highly competent (+1SD), language mindsets were not significantly related to these outcomes. This finding suggests that the effect of growth mindsets on reduced perceived rejection and increased English use happens among those who are less competent in English.

I also probed the interaction effect with perceived competence as the predictor and language mindsets as the moderator. I found that perceived competence negatively predicted perceived rejection and positively predicted language use more strongly among those with stronger fixed mindsets (+ 1SD) compared to those with stronger growth mindsets (−1SD). This finding suggests that although students with low competence perceived more rejection and use less English, growth mindsets buffer these negative effects.

Table 13. *Study 5: Simple Slopes Analyses for Predictors on Dependent Variables at ±1SD of The Moderator.*

Predictor	Outcome	Level of moderator	*b*	*SE*	*t*	*p*	95% CI
Language Mindsets	Perceived rejection	Low competence (–1SD)	0.36	0.10	3.47	<.001	0.158, 0.570
		High competence (+1SD)	0.10	0.09	1.15	.253	–0.072, 0.274
	Language use	Low competence (–1SD)	–9.23	1.84	–5.03	<.001	–12.839, –5.623
		High competence (+1SD)	–0.67	1.57	–0.43	.668	–3.766, 2.416
Perceived competence	Perceived rejection	Growth mindset (–1SD)	–0.45	0.07	–5.86	<.001	–0.601, –0.299
		Fixed mindsets (+1SD)	–0.63	0.06	–10.68	<.001	–0.751, –0.518
	Language use	Growth mindset (–1SD)	8.89	1.35	6.60	<.001	6.240, 11.537
		Fixed mindsets (+1SD)	14.80	1.02	14.50	<.001	12.791, 16.803

Moderated mediation. I used PROCESS macro (Hayes, 2013) to the hypothesized moderated mediation model; such that the interaction between mindsets and perceived competence predicts perceived rejection and avoidance orientation, and these, in turn, predict language use. Because the interaction between mindsets and perceived competence did not predict avoidance orientation, avoidance orientation was not included in the tested model. Accordingly, I regressed mindsets, language competence, and their interaction on perceived rejection, and all factors were regressed on language use (Model 8 in PROCESS; Hayes, 2013).

To test the hypothesized indirect effects, I applied a 5,000 bootstrapping resample method (Hayes, 2013). The results showed that the interaction significantly predicts language use through perceived rejection (β = 0.27, *SE* = 0.19, 95% CI = [.012, .829]). To probe the moderated mediation effect, I tested the conditional indirect effects. The results indicated that the "mindsets→ perceived rejection→ language use" indirect effect was significant only when participants' competence is low (–1SD; β = –0.82, *SE* = 0.47, 95% CI = [–2.186, –0.184]) but not when competence is high (+1SD; β = –0.23, *SE* = 0.21, 95% CI = [–0.837, 0.033]). This finding suggested that among students with low competence (but not students with high competence), growth mindsets are linked to more English use via weaker perceptions of

language-based rejection[9].

Discussion

The results from three studies reveal insights into the question of how ESL migrants, despite challenges due to low English competence, can experience more adaptive language experiences by endorsing growth mindsets. Study 3 demonstrated that for students with low-English competence, those with strong growth mindset reported less avoidance (both self-reported and observed), less negative affect, and were more motivated for future interactions with a peer who is a native English speaker, after participating a difficult language-related game with the peer. Study 4 showed that inducing low-competence students to endorse growth mindsets could help them to perceive less rejection in a conversation with a peer and to feel more motivated interacting again with that peer. Study 5 indicated that low-competence students reported more interaction in English with peers if they hold a growth (vs. fixed) mindset; mediation analyses further suggested that this relation exists because those students perceived less rejection in their daily interactions with native speakers and not because they worried less about appearing incompetent. These results together suggest that the effects of beliefs about the malleability of language ability can motivate ESL students to communicate with peers, especially those who perceived a lack of English competence.

These studies offer a new perspective to the vicious cycle of language barriers and lack of language use. Consistent with the premise that language anxiety is driven by a perceived lack of

[9] Although I did not pre-register the probing of the moderated mediation with language mindsets as the moderator, I explored this relation as well. I found that the "competence → perceived rejection→ language use" indirect effect was stronger among those with fixed mindsets (+1SD*;* β = 1.49, *SE* = 0.69, 95% CI = [0.239, 2.989]) than those with growth mindsets (–1SD; β = 1.06, *SE* = 0.54, 95% CI = [0.181, 2.326]). This finding suggested that lower English competence predicts greater perceived rejection, which in turn predicts less language use, and that this effect was stronger among those with fixed mindsets than those with growth mindset.

competence, I found that low perceived English competence indeed predicted learners' negative affect and anxiety in social interaction across three studies. However, I identified that whether low-competence students want to engage in future interaction also depends on their language mindsets. Language mindsets can act to shape ESL students' language use experience, such that growth (vs. fixed) mindsets can lead them to feel less rejected when using English. As a result, growth mindsets can break the vicious cycle created by language barriers. The current findings contribute to a growing body of research examining the resilience of migrant students, suggesting that looking beyond their language ability to their adaptive beliefs may yield important insights to their experience (e.g., Rattan & Georgeac, 2017; Yeager & Dweck, 2012).

Another contribution of this research is to address the growing research focusing on the boundary conditions of growth mindsets (Yeager et al., 2016a; Sisk et al., 2018). Consistent with the findings in other educational domains that mindsets have stronger effects on motivation among minority and underrepresented students, our findings demonstrated that endorsing growth mindsets are particularly helpful in reducing maladaptive outcomes (perceived rejection in Studies 4 and 5) among those who are not yet fluent in English. Therefore, the level of English fluency is a key condition to observe the effect of growth mindsets. These findings do not imply that growth mindsets are not at all important for those who are more fluent in English. I found that growth mindsets were linked to adaptive outcomes regardless of language competence (positive affect and mastery goals in Study 3, and avoidant tendencies in Study 5). However, more research is needed to examine the nuances of the impact of mindsets, not only under what conditions but also on what outcomes (cf. Dweck, 2018).

From an intergroup perspective, research has found that a pathway to improving minority students' academic and social engagement at university is through increased intercultural contact

(e.g., Page Gould et al., 2008). Our findings indicate that fixed beliefs about ability, by heightening ESL students' anxiety, may deter people from having those contacts or may undermine their experience when they do occur (Rattan & Georgeac, 2017). Thus, interventions designed to encourage ESL students to make contact may not be maximally effective if they do not address their fundamental beliefs about the malleability of language learning ability. Study 4 suggests that a growth mindset message reduces low-competence students' perceived rejection and increases their motivation for future interaction. Moreover, although fixed mindsets generally predicted ESL students' increased sensitivity to rejection (i.e., worry that others would reject them; Study 3) over and beyond perceived English competence, for those with lower competence, a fixed mindset was also linked to perceived rejection and avoidance of future contact (Studies 4 and 5). It would seem that people's concern about rejection does not lead them to more readily experience rejection if they feel competent enough or endorse growth mindsets that help them to reappraise the situation (see Rheinschmidt & Mendoza-Denton, 2014).

The current research suggests that we should consider mindset interventions to change the higher education experience for linguistic minority students. The existing social psychological intervention research has been based almost exclusively on the STEM field and targeted at racial minority and female students (see Lin-Siegler et al., 2016), but ethnolinguistic minority students are a rapidly growing population who could also benefit from interventions that ensure a positive university experience. Given that growth mindsets may be more important to students who perceive themselves as having low English competence, universities can remind these migrant students about the importance of growth mindsets. Moreover, early intervention among disadvantaged students have a long-term impact on preventing maladaptation (Yeager & Walton, 2011; Walton & Wilson, 2018), first-year intervention (e.g., during orientation) on

language mindsets may help migrant students better adapt to the English-use environment at the university. Part of the reason is that concerns about rejection are often attributable to early social experiences with the target group.

In the long run, educators and stakeholders (e.g., student services, higher education leaders) should go beyond one-shot interventions and build an inclusive environment that supports migrant students' growth and social engagement (Murray, 2013). In particular, educators' communicative approaches can influence students' mindsets (Park, Gunderson, Tsukayama, Levine, & Beilock, 2016). For this reason, it would be interesting to test whether incorporating growth-oriented messages about language learning (focusing on the learning process and improvement) into settlement programs for ESL students can sustain growth mindsets and improve their university experience. However, the current mindset intervention research focuses mainly on racial and gender minority and low-SES students' academic achievement (Rattan, Savani, Chugh, & Dweck, 2015). Future large-scale studies should extend to L2 learning and to migrant students' language experience and growth. Given the proportion of migrant students in the university, this examination is particularly important. I also hope that the findings of this research can pave the way for future "wise intervention" studies to improve language minorities' academic and social experiences (cf. Lin-Siegler et al., 2016; Wilson & Buttrick, 2016; Yeager & Walton, 2011).

Limitations. Although this research advances understanding about ethnolinguistic minority students' interpersonal experiences and provides insights for practice, it has a few limitations that should be addressed in future research. First, I did not investigate the impact of mindsets on the actual improvement of competence as assessed through a standardized test or course grades (but see Burnette et al., 2013; Dweck, 1999). Nevertheless, I measured

participants' English competence through self-ratings and experimenter observation and found that mindsets were significantly linked to these ratings. I also measured the interaction time and numbers of interaction but found that mindsets were not significantly linked to these performance measures. One explanation is that interaction time may not reflect aspects of communicative competence that are most impacted by mindsets. Another possibility is that although mindsets predict task motivation, they have weaker effects on task performance (Burnette et al., 2013; Sisk, et al., 2018); such that the impact of mindsets would be indirect and mediated by motivation. To further understand the effect of mindsets on competence and social experience, future research should consider other tasks and/or holistic assessments of communicative competence, such as vocabulary size, oral performance, conversation contribution, and grammar assessment (van Batenburg et al., 2018). This question is particularly important in addressing the effectiveness of mindsets on improving academic and task performance (Sisk, et al., 2018; see Dweck, 2018 for a response).

Relatedly, this research takes a cross-sectional and experimental approach to understand whether mindsets can "break" the link between a lack of English competence and dissatisfactory communication experiences. To fully understand whether growth mindsets can, in turn, create a "virtuous" cycle of language growth through language experience, longitudinal research is necessary to track how the effects of mindsets on language use and language improvement change and endure over time. Social interaction is necessary for ESL students to practice their English, but to many low-competence students, failures in communication are inevitable and thus their success in intercultural competence is built on the basis of constant appraisal and learning from challenges across different language-use experiences. Therefore, I predict that the influences of growth mindsets on adaptive intercultural behaviors and the frequency of

interactions with people can eventually lead to long-term language improvement (Kibler et al., 2017; Noels et al., 1996).

Another important area for future research is to consider the influences of different contexts of language use and intercultural learning when examining the effect of mindsets (Yeager et al., 2016; Walton & Wilson, 2018). The two lab experiments focused on two types of social interactions (playing a game and getting to know each other) through which participants were guided to interact with the peer as they normally would in a relatively controlled environment. However, the situation of being watched by an experimenter may be more anxiety-provoking for some students. Moreover, the effect of mindsets may differ depending on natural social contexts, in which mindsets and social experiences can be affected by other factors occurring in a natural environment, such as teachers and peers (e.g., Park et al., 2016). Although growth mindsets are argued to be particularly important in challenging situations (Dweck 1999), some adverse social circumstances are less open to different interpretations and thus mindsets may have little to do with the experiences. For example, some uncontrollable situations (e.g., communication failures due to racial discrimination) are difficult to construe as opportunities to learn. Future studies should examine the effects of mindsets in different intercultural contexts varying in the type of challenges and the level of learning opportunities. Moreover, extending the current research to naturally occurring situations could help researchers and educators identify a low-cost and efficient intervention that can be utilized by university diversity committees and international student centers.

I rooted the current research in mindsets because of the demonstrated importance of mindset intervention work for disadvantaged students, including those at the universities (e.g., Yeager et al., 2016). However, growth mindsets are likely not the only belief system that can

break the vicious cycle. By exploring other learning beliefs, future research can help elaborate on the theoretical underpinnings of the findings (e.g., Walton & Wilson, 2018). For example, beliefs that challenges are important may guide people to interpret their effort in social interaction as meaningful, whereas beliefs that difficult social situations as impossible may lead students to understand their effort is pointless (Oyserman, Elmore, Novin, Fisher, & Smith, 2018). These beliefs are independent of mindsets and influences motivation and learning behaviors (Fisher & Oyserman, 2017). Incorporating different beliefs that are associated with competence development, but which originate from other motivation theories, might provide additional insights that help break the vicious cycle, and provide further implications for effective interventions (Chao, Visaria, Mukhopadhyay, & Dehejia, 2017).

Chapter 4. Conclusion and Future Directions

Language mindsets have been argued to play an important role in learners' motivation and resilience in language learning classrooms (Lou & Noels, 2016, 2017; Mercer & Ryan, 2010). My findings demonstrated that incremental (vs. entity) beliefs may lead to more adaptive outcomes not only in the classroom but also in social interactions across domains of everyday life, and that language-based rejection sensitivity is detrimental to intergroup relations and cultural adjustment among migrants. These findings suggest the importance of promoting growth beliefs and creating an environment that supports migrants' language improvement and ensure that migrants do not feel rejected when using their L2. This research extends the field of language learning psychology (Mercer, Ryan, & Williams, 2012; Noels, Chaffee, Lou, & Dincer, 2016) by providing theoretical insights regarding the beliefs and expectations relevant to language learning and communication anxiety, as well as their influence on intercultural relations and acculturation. I hope that this research inspires future investigators to continue to bridge the psychology of language learning, intergroup communication, and cultural psychology.

Ethnolinguistic minority students with migration backgrounds will likely continue to be an important part of the student population in higher education in many countries around the world. Recent initiatives to improve their university experiences focus on identifying their risk and resilient factors (Glass, 2012; Kanno & Cromley, 2012). In line with recent calls for educational psychologists to study academic and social success in across a greater diversity of marginalized students (Causadias & Umaña-Taylor, 2018), this research provides a novel perspective to understand ESL students at the university by considering their social psychological experiences with language use. Importantly, how minority students make sense of their negative experience can be changed and they are not passive victims of language-based

rejection (Causadias & Umaña-Taylor, 2018; Walton & Wilson, 2018). This research highlighted that ESL students are motivated to overcome their difficulties and engage in the target community especially when they hold a growth mindset. Because growth mindsets are an important resource for supporting positive subjective experience in language use, I argued that ESL education and integration programs should consider extending beyond linguistic competence to include the support of growth mindsets that promote successful academic and social life. This research lays a groundwork for future inquiries into the implications of mindsets for language education and social equity. I hope that the findings of this study can pave the way for future large-scale social psychological intervention research, and further the endeavor of improving linguistic minority's social experience in their new language.

Research Agenda

As research on language-related mindsets is still in its early stage, more research is needed to understand the content and construct of language mindsets, its influences, and the dynamic processes of the language mindsets meaning system (LMMS). Below, I highlight four research areas that I believe are imperative to furthering understanding of how and why language mindsets affect language development.

Testing the LMMS model more holistically. The constructs that I argue are predicated on mindsets (i.e., effort beliefs, attribution, achievement goals, failure mindsets, self-regulatory tendency, and competence-based emotional tendency) have also been found to be linked to educational achievement and language success independently of mindsets (Lamb; 2017; Mercer, Ryan, & Williams, 2012). As shown in this research, mindsets predicted motivational and affective factors in language learning. However, instead of viewing the impacts of these different

constructs on language development separately, the LMMS suggests that integrating them into a system can better describe learners' motivation.

To explain one way of how these motivational aspects can link together, I hypothesized a specific causal sequence for the interrelations between mindsets, goal orientations, self-regulatory tendencies, and emotional responses (termed "Mindset-Goal-Response Model"; Lou & Noels, 2017), and tested it using path analysis. The results showed that mindsets directly predict effort beliefs and goal orientation, and, through goal orientation, indirectly predict emotional and behavioural responses to failure. Namely, learners who believe their language ability is fixed despite their efforts will explain failures as a reflection of lack of ability, approach or avoid performance, feel helpless and anxious, and avoid trying the next time. This model is only one possible representation of how the LLMS components are interrelated, and understanding other complex connections can broaden understanding of the motivational processes more holistically. In addition to understanding how different variables in LLMS are connected, more experimental and longitudinal methods should be implemented to test the dynamic of LMMS.

So far, my research has mostly described language mindsets and its related concepts as relatively stable beliefs (i.e., a relatively enduring, trait-like individual factor). However, language mindsets, like other motivational constructs, are also situated in particular social contexts. The eco-dynamic systems perspective considers that motivation exists not only within the individual, but also as an interaction with socio-cultural contexts. Similarly, meaning making is a contextualized and dynamic process rather than a decontextualized and stable trait (Oyserman et al., 2015; Oyserman & Yan, in press). The fact that mindsets can be activated by different experimental procedures underscores the dynamic of language mindset-based

meaning-making systems (Wilson & English, 2017). Rather than holding only one mindset consistently across all contexts, learners shift their beliefs and goals to *adapt* to different social situations. For example, in situations where performance goals are promoted, learners need to out-perform others to get a good grade), and so they may more likely to endorse fixed mindsets (Leith et al., 2014). On the other hand, helping learners to interpret their challenges as opportunities to learn can foster the adoption of growth mindsets (Haimovitz & Dweck, 2016). In turn, activating one mindset can increase the accessibility of other related concepts or schemas (e.g., effort beliefs and affective response) that guide them in how to think, feel, and act in those situations. In summary, the LMMS conceives language motivation as a dynamic and contextualized meaning-making system that changes depending on the situation.

Nuances and different aspects of language mindsets. Although I have proposed three aspects of language mindsets (i.e., general-language-intelligence, L2-aptitude, and age-sensitivity beliefs), little research has attempted to differentiate them with regard to their predictive power on different outcomes. For example, it is conceivable that adult learners' age-related beliefs are more fixed than younger learners. Such beliefs may be influenced by a range of socio-cultural factors (e.g., cultural stereotypes about older learners) and have a stronger influence on older adults' motivation. Understanding how the three aspects of language mindsets predict different motivational outcomes in different populations may provide insight into the nuances of why and for whom language mindset matters. Furthermore, we can revise the current understanding of language mindsets from at least two perspectives: the construct of mindsets and the domain-specificity of language learning.

Regarding the construct of mindsets, elsewhere I and my colleagues recently argued that mindsets include not only entity and incremental dimensions, but also a decremental dimension

(i.e., beliefs about negative change, such that ability can be decreased; Lou et al., 2017). In the general intelligence domain, decremental beliefs are found to be independent of entity and incremental beliefs, and have a unique contribution in predicting prevention-oriented motivation (Lou et al., 2017). In terms of language learning, many people acquire the beliefs through their informal and implicit observation that people's ability to learn a language decline with age and that "if you don't use it, you'll lose it." Accordingly, learners who endorse decremental mindsets might feel motivated to prevent the potential loss of their language ability. Although malleable, these beliefs reflect more closely "decremental" rather than "incremental" beliefs. Thus, incorporating decremental beliefs into the construct of language mindsets can enrich our understanding of the language-mindset meaning system and language motivation.

Regarding domain-specificity, it is important to examine the extent to which people hold different mindsets about different aspects of linguistic skills (e.g., writing, communication, pronunciation, and grammar). For example, some learners may hold growth mindsets about learning grammar, but fixed mindsets about pronunciation (Mercer & Ryan, 2010). Unpacking these nuances can contribute to the understanding of the domain-specificity of language mindsets as well as motivational processes across different language abilities. If researchers are interested in a specific outcome (e.g., writing), it is best to assess learners' mindsets in the same domain (e.g., mindsets about writing) rather than on a more general level (c.f. Wallter & Papi, 2017). Although mindsets in different domains can operate relatively independently of each other, little is known about how much overlap there is among different aspects of language learning. Future research should pay more attention to less well-studied aspects of L2 mindsets (e.g., pronunciation and grammar learning) to understand the uniqueness of different language-skill mindsets and their connections with general language intelligence beliefs.

Links and integrations with other L2 motivational components. I acknowledge that additional motivational constructs can potentially enrich this mindset-based meaning system. Given that ideal selves reflect growth beliefs about one's future L2 abilities, it is not difficult to see the link between mindsets and the construct of ideal selves (Dörnyei, 2009; Yashima et al., 2017; Oyserman et al., 2015). According to the L2 Motivational Self System (L2MSS), L2 motivation can be generated by a positive image of ideal L2 self (i.e., who you want to become; Dörnyei, 2009). I argue that learners with fixed mindsets, especially those who think they don't have the aptitude to learn, may not be able to envision themselves becoming effective in using the target language. Conversely, growth mindsets can facilitate envisioning a more positive ideal self (Dörnyei, 2009). Because learners with growth mindsets strive to improve their L2 ability, they are more likely to see a clear image of their ideal self and take action to approach their ideal L2 self. More importantly, envisioning how they can overcome obstacles and gradually improve to reach their ideal self can better sustain learners' motivation along the journey of L2 development, compared to simply envisioning an ideal self (cf. Oyserman & Lewis, 2017).

Another important motivational framework that can be linked to the mindset-meaning system is self-determination theory (SDT; Deci & Ryan, 1990), which emphasizes the importance of personal autonomy, effectance, and interpersonal connectedness for sustaining intrinsic interest and/or self-determined motivation (Noels, Chaffee, Lou, & Dincer, 2016). I propose that holding growth mindsets and mastery goals can facilitate internalization of regulation into the self by fostering positive perceptions of challenging learning tasks and lessening the anxiety that arises when dealing with those tasks. In contrast, fixed mindsets and performance goals hinder the internalization processes by engendering external pressure, and creating performance anxiety (Deci & Ryan, 1990).

Both L2MSS and SDT are frameworks that promote growth values and orientations. Understanding their connections with language mindsets can potentially further integrate different theoretical perspectives on language development. Therefore, more research is needed to understand how these processes together influence language motivation.

Effects on Improvement and Competence. Although cross-sectional data supports the view that mindsets are linked to learners' grades in the foreign language course through the connection of effort beliefs and goal setting, no study has examined the causal link of mindsets on long-term language success in and outside of the classroom (Chaffee et al., 2018). Research on mindsets can inspire pedagogical strategies for cultivating growth mindsets in general educational contexts (e.g., Yeager & Dweck, 2012).

Outside of the language class, many language learners hold a goal of intercultural contact with target communities (Gardner & Lambert, 1959). However, many intercultural interactions can result in negative outcomes (Stephan & Stephan, 1985). Learners also rely on their meaning-making systems to make sense of their experience in L2 communication. Endorsing growth mindsets might help a person to perceive L2 communication in a more optimistic way, such that even awkward, negative encounters can be simultaneously construed as an opportunity for learning and growth that develop their confidence, willingness to communicate, and eventually competence (Lou & Noels, in press).

Because learners use their meaning-systems to understand their language experience, changes in their contact experience and competence are likely to revise the way they understand language learning. For example, seeing their own improvement in language learning compared to the past may change learners' ideas that language learning ability is malleable (Lou & Noels, 2018). Longitudinal and idiodynamic approaches (MacIntyre & Legatto, 2010) are needed to

understand how mindset-system changes follow from different learning and communication experiences.

Socio-cultural influences on LMMS. Learners internalize different cultural meaning systems about language learning through social learning within the socio-cultural environment (see Lou and Noels, 2017 for a discussion of mindsets in different levels of ecological systems). For example, research has shown that growth mindsets and external attributions are more prevalent in collectivistic cultures (e.g., Asian countries) than individualistic cultures (e.g., Western European and North American countries; Stevenson & Stigler, 1992; Lou & Li, 2017). Similarly, research reported that Japanese show more growth language mindsets whereas Austrians demonstrate more fixed mindsets (Ryan & Mercer, 2012). This difference could be due to differences in cultural values: Confucian-influenced societies emphasize effort and persistent, as well as maintaining social harmony with authority and external social environment, whereas Western cultures encourage internal ability and autonomy in learning (Stevenson & Stigler, 1992; Noels, Chaffee, Michalyk, & Sugita McEown, 2014). Accordingly, research shows that in challenging situations, East Asian students show more self-improvement strategies that prioritize persistence, while North American students show more self-enhancing/protecting tendencies that emphasize individual self-esteem (Heine et al., 2001).

Although research demonstrates that intelligence mindsets predict Asian students' motivation in a similar way as the results found in North America (e.g., Hong et al., 1999), little is known about whether the results of language mindsets studies are generalizable outside of Western countries. In addition to comparing the mean levels of language mindsets and their functional relations with other variables across different socio-educational contexts, future cross-cultural research should also systematically examine, likely through qualitative methods

initially, the construct of language mindset itself, as the lay understanding of the conceptual aspects (e.g., the three aspects) and their combination as a general construct might also be influenced by the socio-cultural contexts.

Final Remarks

This chapter shows promising future directions for research on language mindsets, not only within language learning classrooms but also social and interpersonal processes in intercultural interactions outside the classroom. In line with Chapter 1, I argue that research on language mindsets should further understand the complex systems of meaning-making processes and to language learning and use experiences. The five studies in this dissertation address that the link between language mindsets and ESL students' language experience is more complex, as it depends on students' competence. The results generally showed that growth mindsets have a stronger influence on reducing perceived rejection and improving motivation among low-competence students compared with high-competence students. The findings highlight that growth mindsets are an important protective factor for language minority students during their university experience, especially for those with low English competence.

Research on language mindsets offers insights for language pedagogy, particularly regarding how to support language learners' motivation to strive for developing competence and to persist in language learning. Many large-scale mindset-related interventions and workshops have been implemented across the world (e.g., Yeager & Dweck, 2012). However, before considering such interventions in language classrooms, more evidence-based research is needed to identify what intervention strategies work best, under what circumstances the interventions are effective, and who benefits more from interventions (Sisk et al., 2018). Simply endorsing growth mindsets is not enough to lead to positive learning outcomes for all students; integrating

important elements in the LMMS is likely to be necessary (e.g., encouraging learners to make mistakes and helping them to correct mistakes). Importantly, growth mindsets also need to pair with a nurturing learning environment that allows them to take root. Thus, more research is needed to empower language teachers to undertake actions to facilitate learners' development of growth orientations (cf. Horowitz, Sorensen, Yoder, & Oyserman, 2018).

As an interdisciplinary subject with clear applied interests, language motivation often draws upon theories and methods from social and educational psychology to understand language learners' beliefs, emotions, and learning behaviours, as well as how learners develop the tendency to think, feel, and behave in specific ways (e.g., Dörnyei & Ryan, 2015; Williams, Mercer, & Ryan, 2016; Noels et al., 2016). In regarding research on language mindsets, there is still limited research in the field, and thus the ongoing replication, validation, and extension are necessary. This process requires a collective effort from researchers with a wide range of theoretical or methodological perspectives. In turn, this collaborative process can provide valuable theoretical contributions to the psychology of language learning and pedagogical implications for language education.

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