

The Immigrant Sibling:
An Exploration of Acculturation and Enculturation Profiles
by
Cindy Quan
Bachelor of Science (Honours), University of Toronto, 2016
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Supervisory Committee

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Abstract

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Acculturation and enculturation processes and sibling relationship quality are important constructs for understanding the psychosocial wellbeing of immigrant adolescents. In this thesis, I used a mixed-method approach to (a) understand how similar or different siblings' cultural orientations are, (b) the role siblings may play in shaping one another's cultural orientation, and (c) how changes in cultural orientation are related to sibling relationship quality. Quantitative data were collected from 31 adolescent sibling dyads at two time points, and qualitative data were collected from individual interviews with 16 young adults. Participants in both samples identified as having a Chinese cultural background and immigrated to Canada with their family before the age of 14. The results of the qualitative interviews suggested that siblings often perceived themselves as culturally similar, although the quantitative data were not congruent with that view. There was ample evidence that siblings influence one another's cultural profiles. For example, in the quantitative data, higher cultural involvement by one sibling, especially in the Canadian dimension, predicted decreases in the other sibling's involvement in that same domain 18 months later. These patterns were corroborated with themes derived through the interviews. The thematic analyses identified five factors that fostered similarities and differences in the cultural profiles of immigrant siblings, as well as four themes describing the perceived effects of being similar or different. The qualitative findings suggested that there are few cultural conflicts among siblings. Instead, siblings act as cultural mediators in parent-child conflicts, and they are in a unique position to understand and support each other. This study provided

preliminary insight into how similar or different Chinese immigrant siblings are in a Canadian metropolitan context. Overall, the findings illustrate ways in which siblings play an important role in the family by supporting one another in adjusting to life in Canada.

Keywords: siblings, immigration, acculturation, enculturation, sibling relationships, mixed-method approach

Table of Contents

Supervisory Committee	ii
Abstract	iii
Table of Contents	v
List of Tables	vi
List of Figures	viii
Acknowledgments.....	ix
Dedication	x
Introduction	1
The Process of Acculturation	3
Acculturation as Orthogonal and Multidimensional.....	3
The Role of Ecology for Cultural Profiles and Adjustment.....	6
Siblings and Immigration	8
Immigrant Siblings in Adolescence	8
Siblings with a Chinese Heritage Culture.....	10
Within-Family Compatibility in Acculturation and Enculturation	11
Parent-Child Discrepancies in Acculturation and Enculturation.....	11
Comparing Sibling Acculturation and Enculturation Profiles.....	13
Variables Contributing to Sibling Similarities and Differences.....	15
Models Explaining Sibling Similarities and Differences.....	17
Siblings as Socializing Agents in Adolescence	20
Sibling Effects on Acculturation and Enculturation.....	21
Sibling Hierarchy in Adolescence.....	24
Research Objectives and Hypotheses.....	27
Quantitative Data.....	28
Objective 1: Examining similarities and differences in siblings' cultural profiles.....	
Objective 2: Examining sibling influences in cultural orientations.....	28
Qualitative Data.....	31
Methods	33
Participants.....	33
Adolescent sibling sample from the IFS.....	33
Undergraduate sample.....	34
Procedure	35
Measures	37
Demographic Information	37
Chinese and Canadian behaviours.....	37
Chinese and Canadian values	38
Chinese and Canadian identity.....	39
Plan of Analysis.....	40
Quantitative analysis.....	40
Qualitative analysis.....	42
Results	45
Quantitative Results.....	45
Preliminary Analyses.....	45
Analyses of normality.....	46
Intercorrelations among predictor and outcome variables.....	46

Non-independence.....	47
Demographic variables.....	48
Objective 1: Comparing the Acculturation and Enculturation Profiles of Immigrant Siblings.....	49
How similar or different are siblings in their cultural profiles?	45
Gender constellation predicting similarity and differences.....	50
Do siblings become more similar or different over time?	50
Objective 2: Exploring Sibling Effects on Acculturation and Enculturation.....	51
Sibling effects in full sibling sample.....	52
Chinese Dimension.....	52
Canadian Dimension.....	53
Role of gender constellation for sibling effects.....	55
Qualitative Results.....	55
Factors fostering or related to similarities and differences.....	56
(I) Personality and motivational differences.....	56
(II) Moving away from home and maturing.....	57
(III) Birth order and age of arrival in Canada.....	59
(IV) Shared experiences and age gaps.....	60
(V) Gender constellation.....	61
Effects of sibling similarities and differences.....	63
(I) Bidirectional influence in sibling's cultural involvement.....	64
(II) Few cultural conflicts among siblings.....	67
(III) Siblings as cultural mediators in parent-child conflicts.....	68
(IV) Unique position to understand and support	70
Discussion	73
Similarities and Differences in Cultural Profiles.....	73
Sibling Effects on Cultural Involvement.....	78
Cultural Similarities and Differences on Sibling Relationship Quality and Adjustment.....	83
Studying Sibling Acculturation and Enculturation Within Families.....	85
Reflection on Using Mixed-methods.....	86
Limitations and Implications.....	88
References	109
Appendix A: Demographic Questionnaire	132
Appendix B: Interview Questions.....	137
Appendix C: Visual Representation of Sibling Responses to Acculturation and Enculturation Domains.....	140

List of Tables

Table 1. Demographics summary of quantitative and qualitative sample.....	93
Table 2. Power analyses for Actor-Partner Interdependence Models.....	94
Table 3. Descriptive statistics of acculturation and enculturation measures.....	95
Table 4. Stability of Ratings on Chinese and Canadian Dimensions.....	96
Table 5. Correlations among Main Study Variables Within W1 and W2.....	97
Table 6. Zero Order Correlations between Demographic Variables and Main Study Variables....	98
Table 7. Dyadic Indices for Similarity and Dissimilarity.....	99
Table 8. Dyadic Indices for Similarity and Dissimilarity by Gender Composition	100

List of Figures

Figure 1. Conceptual model for sibling effects for acculturation and enculturation domains from W1 to W2.	101
Figure 2. Actor-Partner Interdependence Model for Chinese Behavior with the Full Sample.....	102
Figure 3. Actor-Partner Interdependence Model for Asian Values with the Full Sample.....	103
Figure 4. Actor-Partner Interdependence Model for Ethnic Identity with the Full Sample.	104
Figure 5. Actor-Partner Interdependence Model for Canadian Behavior with the Full Sample.....	105
Figure 6. Actor-Partner Interdependence Model for Independence Values with the Full Sample.....	106
Figure 7. Actor-Partner Interdependence Model for Canadian Identity with the Full Sample.....	107
Figure 8. Themes associated with sibling cultural similarities and differences.....	108

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Dedication

To Ken, Jenny, and William, truly wonderful and loving siblings; and to my adoring role model, my mother, for her continuous support and encouragement in all my pursuits.

Introduction

The sibling relationship is unique. Sibling ties are the longest-lasting relationships, as siblings often grow up in the same household and outlive their parents (Noller, 2005). In addition to spending countless hours together, immigrant siblings share a unique experience that no one else can fully appreciate – they alone know their unique family immigration history and what it is like for them to navigate two different cultures within their family structure. In 2011, Canada had a foreign-born population of 6,775,800 people, representing 20.6% of the total population (Statistics Canada, 2011). A Statistics Canada study estimates that nearly half of the population will be immigrants or children of immigrants by 2036 if current immigration levels continue. This makes the role of siblings an important factor to understand in immigrant family adjustment processes. The daily companionship of siblings in childhood and adolescence give them innumerable chances to learn from each other and support one another (McHale, Updegraff, & Whiteman, 2012). It is clear from research on parent-child cultural discrepancies that cultural differences may sometimes increase conflict between parents and children. Sibling cultural discrepancies may similarly increase the risk of arguments. Despite this possibility, there is almost no research on how the acculturation trajectories of siblings compare after moving to Canada. Even less is known about the role a sibling plays in shaping another's cultural orientation or how their cultural orientations are related to the development of strong sibling bonds.

Acculturation refers to the change in knowledge, beliefs, values, behaviours, and self-concept because of contact with culturally dissimilar groups, people, or social influences (Gibson, 2001). A large body of research examines the connection between acculturation and psychological and sociocultural adjustment, such as life satisfaction, self-efficacy, and academic

success (Sedikides, Wildschut, Routledge, Arndt, & Zhou, 2009). Most of the scholarly attention has focused on acculturation as an individual phenomena and relatively little is known about the family processes that shape the acculturation profiles of adolescent immigrants. The role of siblings, in particular, in the study of acculturation processes is largely absent. A clearer understanding of how siblings function as agents of socialization will help answer critical societal questions, such as why some children identify with their culture of origin and the culture of the new nation, whereas others feel as if they belong to neither. The sibling relationship is distinct from other close relationships in the lives of immigrant youth. For immigrant youth, whose early friendships may be thwarted by migration, a sibling may be one of few consistent and accessible sources of support; the sibling relationship may be an enduring source of companionship as siblings learn to adjust to a new place of living together.

In adolescence, siblings play a formative role in socializing one another in areas such as socio-emotional development, substance use, and gender roles (Caspi, 2011; McHale, Updegraff, Helms-Erikson, & Crouter, 2001). Although research with non-immigrant populations shows that siblings are influential socializing agents, the role siblings play in one another's acculturation has not been explored. In this study, I compared siblings' acculturation and evaluated the premise that adolescent siblings influence one another's acculturation. I begin with a review of the current conceptualizations of acculturation and of the significant role immigrant siblings may play in one another's development during adolescence. Next, I review evidence of within-family similarity and compatibility in acculturation. Then, I summarize evidence of siblings as socializing agents and describe my research objectives and hypotheses.

The Process of Acculturation

Acculturation is often studied in migrant populations (Berry, 2006). Rates of international migration have reached unprecedented levels throughout the world. The twenty-first century has been called “the age of migration” (Castles & Miller, 2009), as there were about 232 million international migrants in 2013 - more than ever before (United Nations, 2013). The number is expected to increase in the future, with demographic factors, environmental changes, and economic disparities continuing to be main drivers of migration. Hofstede’s (1984) seminal research, aimed at detecting differences in cultural values across 67 countries, found that there are four underlying value dimensions in which nations tend to differ: individualism versus collectivism, large versus small power distance, strong versus weak uncertainty avoidance, and masculinity versus femininity. International migrants are settling primarily in regions where individualism is emphasized more than collectivism - North America, Western Europe, and Oceania (Oyserman, Coon & Kemmelmeier, 2002). According to the 2011 National Household Survey, Asia is the main continent of origin of the recent immigrant population in Canada (Statistics Canada, 2011). Oyserman and colleagues’ (2002) comprehensive meta-analysis that sought to evaluate the assumptions underlying the distinction between individualism and collectivism, revealed that the greatest cross-national differences between individualism in America and collectivism are with those from Hong Kong, Taiwan, and the People’s Republic of China. There is potential for great variation in how individuals from these cultures navigate the acculturation process due to this large distance in the valuing independence versus collectivism.

Acculturation as Orthogonal and Multidimensional

Originally, the process of acculturation was conceptualized as unidirectional. Migrants were thought to move from identifying with their heritage culture to identifying with the new

culture (Gordon, 1964). Beginning in the 1970s, Berry and Annis (1974) proposed that there are two independent dimensions underlying the process of acculturation: individuals' links to their heritage culture and to their society of settlement. In recent decades, the unidimensional model of change has been critiqued as migrants often prefer options other than complete assimilation, either by developing a bicultural identity or by retaining the original culture without much adjustment to the society of settlement. For example, in the United States, many young immigrants are bicultural, highly endorsing both U.S. culture and their cultures of origin (Nguyen & Benet-Martinez, 2013). In line with these observations, the bidimensional model has replaced the unidimensional models of acculturation (Van de Vijver & Phalet, 2004). Researchers of acculturation agree that acculturation is best conceptualized as orthogonal, meaning that orientation towards the new culture and the heritage culture should be assessed as independent continuous variables (Berry 2005; Costigan & Su, 2004; Ryder, Alden, & Paulhus, 2000).

Berry (2006) has provided descriptive labels that are often used to refer to various combinations of adopting new values and retaining the values from one's heritage culture. Integration refers to those who both adopt the new culture and retain their culture of origin. Marginalization refers to cases where individuals deny interests both in the new culture and their heritage culture. Assimilation refers to individuals who adopt the new culture but do not retain their culture of origin. Finally, separation is the opposite pattern of assimilation; individuals reject the new culture and retain their heritage culture.

Although Berry (2006) described the dual cultural change under the term of acculturation, others (Dalla, 2009; Gonzales, Knight, Morgan-Lopez, Saenz, & Sirolli, 2002) describe this dual cultural adaptation as occurring through the processes of acculturation and

enculturation. For these researchers, *acculturation* refers to the process of an individual's adaptation to the dominant culture, whereas *enculturation* refers to the process of an individual's retention to the ethnic culture. For the rest of the paper, I use the terms *acculturation* and *enculturation* to differentiate the forces promoting mainstream adoption from those forces promoting ethnic retention.

Culture is a complex and multifaceted construct that can differ on many dimensions (Hofstede, 1984). In recognition that culture is multifaceted, researchers who examine acculturation and enculturation (e.g., Costigan, 2010; Telzer, 2010) underscore the importance of assessing these processes in multiple domains (Costigan & Dokis 2006, Tsai, Chentsova-Dutton, & Wong, 2002). Domains measured often include a combination of three factors: behavioural practices, cultural values, and identity. Practices refer to behaviours such as language use, culinary, and media preferences. Cultural values refer to shared abstract ideas about what is good, right, and desirable in a society (Schwartz, 1999). For example, in some cultural groups, individual ambition and success are highly valued, whereas in other cultural groups group well-being and harmony are prized. Finally, identification refers to the degree one feels attached to one's heritage group and/or Canada. Each of the three domains can be applied to the dominant culture and the heritage culture independently.

Within each culture, behavioural practices, cultural values, and identifications are correlated with, but also somewhat independent from, one another. For example, individuals who highly identify with their ethnic group are often somewhat fluent in their heritage language. However, there are also many examples of Asian immigrant adolescents who do not retain (or never developed) proficiency in their native language but who still strongly identify with their ethnic heritage (Portes & Rumbaut, 2006). Therefore, it is necessary to use bidimensional,

domain-specific assessments instead of a global index to capture acculturation and enculturation processes. Knowing whether someone is bicultural in one domain does not provide information about that person's functioning in other domains.

The Role of Ecology for Cultural Profiles and Adjustment

Although many environmental systems influence how an individual navigates the acculturation process (Bronfenbrenner, 1994), researchers have often focused on the macrosystem such as the effects of national policies regarding diversity or the ethnic density of the community that immigrants relocate to (Berry, 2006; Jurcik, Yakobov, Solopieieva-Jurcikova, Ahmed, Sunohara, & Ryder, 2015; Titzmann, & Fuligni, 2015). Berry (2006) has made the point that although ethnic-minority immigrants have some choice in how they acculturate and enculturate, that choice is influenced by the attitude of the members of the new culture. For example, he argues that in nations with immigration policies that value diversity, such as in Canada, the integration strategy is often favoured by immigrants, whereas in nations that advocate for a melting-pot mentality, the immigration strategy pursued is often assimilation.

Despite the knowledge that there are multiple ecological systems (i.e., macrosystem, exosystem, mesosystem, and microsystem) that influence human development (Bronfenbrenner, 2005; Rothery, 2008) the role of the whole family system in shaping acculturation and enculturation has received scant attention. The focus has largely been on the parent-child relationships; other family relationships, such as sibling relationships or the relationship of the grandparents with other family members, are often overlooked in studies of immigrant families. Family systems theory highlights the interdependence of relationships within a family (Cox & Paley, 1997). From this perspective, the acculturation of every family member is best understood in the context of the complete family. Immigrant adolescents are embedded in their respective

family network and their acculturation and enculturation are best understood in relation to other family members.

Siblings and Immigration

The sibling relationship, often the most enduring relationship in life, is characterized by both warmth and conflict as well as closeness and rivalry (Caspi, 2010). During the last decade, there has been a growing interest in research on siblings as an important context in which to study individual adjustment (Buist, Deković, & Prinzie, 2013). However, the literature is currently skewed toward families from Western cultures (Noller, 2005). As such, much of the information about siblings gathered thus far must be understood within this context. Although the importance of positive sibling ties is established, there is a gap in understanding how the context of immigration might disrupt or facilitate the continuation of positive sibling bonds following migration.

Immigrant Siblings in Adolescence

For non-immigrant adolescents, parents are often role models for formal behavior, for example, how to act in public, whereas siblings may be better role models for informal behaviors, such as how to act with friends (Kramer & Conger, 2009). However, for adolescent immigrants, siblings may be better role models than parents for learning formal behaviours in addition to informal behaviours. For example, in cases where parents are unfamiliar with the new educational system or do not speak the language of the dominant culture, an older sibling may be the one to assist with course selections and explain school protocols. As such, immigrant siblings may hold considerable influence over one another's development. Brothers and sisters may encourage acculturation and enculturation practices through numerous processes, such as teaching, observing, and modeling (McHale, Updegraff, & Whiteman, 2012). They can also introduce one another to their heritage or Canadian practices and customs, such as language, clothing, food, and political ideas. Siblings may converge on acculturative paths which might

strengthen sibling bonds, but there is also the potential for acculturation paths to diverge, potentially leading to increased conflict within the family and maladjustment (Pyke, 2005). Thus, the acculturation and enculturation profiles of siblings in immigrant families and the influence they have on one another's acculturation and adjustment are important topics of study.

It is clear from research in the last decade that having a positive sibling relationship, characterized by more sibling warmth and fewer sibling conflicts during adolescence, is related to better outcomes for teenagers, including fewer internalizing and externalizing problems (Buist et al., 2013; East, & Khoo, 2005; Kim, McHale, Crouter, & Osgood, 2007). Studies also show that children who have a positive relationship with a sibling when they are young are more likely to continue on a positive note over time (Feinberg, Solmeyer, & McHale, 2012; Richmond, Stocker, & Rienks, 2005). The sibling relationship serves an important function in adolescence and remains influential across the lifespan (Cicirelli, 1994).

At present, little is known about immigrant sibling relationships in adolescence and their role in each other's acculturation processes. It is especially crucial to examine the acculturation processes of adolescent siblings who are from collectivistic cultures. First, because of the culture of interdependence in these immigrant families, which promotes family embeddedness and collaboration, siblings are likely to play an important role throughout adolescence and in adulthood. Although strong cultural values tend to weaken over generations, families receive reinforcement from the extended ethnic network in their efforts to maintain family cohesion (Kwak, 2003). Second, Asian immigrant adolescents are at a critical juncture in their lives where they must negotiate between the collectivistic values of their families and the individualistic values of dominant society. Siblings may be facing the same acculturative challenges and impact the acculturative paths of their sisters and brothers in multiple ways, such as by modeling how to

respond to cultural conflicts at home or by providing advice on how to satisfy their heritage and Canadian norms when choosing a career.

Siblings with a Chinese Heritage Culture

Chinese cultures share a relatively homogenous cultural heritage of Confucianism (Huang, & Gove, 2012). Cultures based on Confucianism follow ethical and moral principles that dictate how a person relates to others. These principles include respect, obedience, loyalty, filial piety, and harmony. Together, these codes of conduct guide interactions among family members. There is a distinct hierarchy within many Chinese families that is based on age and gender, with elder members holding a higher status than younger members and with male members holding a higher status than female members (Park, & Chesla, 2007; Pyke, 2005; Uba, 1994). This hierarchy extends into the sibling relationship where younger siblings are expected to respect and obey older siblings. In return, older siblings are expected to be role models for their younger siblings, teach them about the heritage culture, and provide care and discipline. Older siblings are also expected to assist their younger siblings in making important decisions about dating, education, career choices, and in providing financial support (Weisner, 1993). This high degree of involvement continues even when siblings marry or leave the home for school or work (Tingvold, Middelthon, Allen, & Hauff, 2012). The roles that siblings are expected to play within families is likely to persist following migration. The high degree of involvement among siblings in Chinese families means that they will likely have powerful influences on one another's developmental and acculturative processes. Older siblings, in particular, will hold considerable influence over younger siblings. Thus, it is necessary to attend to the acculturation and enculturation of Chinese adolescent siblings to understand the impact of immigration on adjustment outcomes.

Within-Family Compatibility in Acculturation and Enculturation

Most attention to acculturation and enculturation at the dyadic level has focused on the parent-child relationship and the conflicts that acculturative differences create between generations (Telzer, 2010), but the compatibility and similarity among siblings may be equally or more important for adjustment. Not all acculturation gaps between parents and children pose a risk for conflict and poor adjustment. It is often the non-normative gaps, such as when children are less oriented toward the dominant culture than the parents or when children are more oriented toward their heritage culture than parents, that are related to poor psychological and sociocultural adjustment (Costigan, 2010; Telzer, 2010). Similarly, not all discrepancies between siblings may be problematic. It is even possible that differences can be complementary and may foster better adjustment than similarities. Siblings who are more connected with Canadian culture may socialize less acculturated siblings in how to succeed at school and among Canadian peers, whereas siblings who are more connected to their heritage culture may serve as culture brokers at home.

Overall, the assumptions that children more quickly acculturate to the new society than their parents and that acculturation and enculturation profiles are more similar within a generation (i.e., among siblings) than between generations (i.e., between children and parents) has not been evaluated. There may be a large variation in acculturation and enculturation between siblings, on par with the variation between parents and children. Furthermore, it is not known if sibling differences are disruptive, even if they are experienced as non-normative (Pyke, 2005), or if differences are complementary and facilitate adjustment.

Parent-Child Discrepancies in Acculturation and Enculturation

Although there is a paucity of research comparing sibling acculturative levels, a larger body of research has examined parent-child acculturative discrepancies. Reviewing the parent-child acculturation literature may inform expectancies about how similar or different siblings may be across acculturation and enculturation domains. The acculturation gap-distress model proposes that immigrant children acculturate to their new culture at a quicker pace than their parents, leading to family conflict and youth maladjustment; this model is not consistently supported by evidence (Telzer, 2010). Telzer (2010) reviewed 23 studies that examined the acculturation gap-distress model. However, her review was limited because only six out of the 23 studies had employed methodology allowing for examination of the unique effects different types of acculturation gaps might play in immigrant families' lives. As the acculturation-distress model suggested, children were sometimes more acculturated than their parents. But parents and children did not always follow that pattern. For example, children were sometimes less acculturated than the parents and sometimes more enculturated than parents. Parent-child differences in acculturation and enculturation were related to family functioning in unique ways and not always in the direction that the acculturation-gap distress model predicted.

When youth were more acculturated than their parents, family conflict and youth maladjustment did not consistently arise. However, when parents were more acculturated than their children or when children were more enculturated than their parents, family conflict and youth maladjustment often emerged (Atzaba-Poria & Pike, 2007; Birman, 2006; Costigan & Dokis, 2006; Lau et al., 2005; Lim Yeh, Liang, Lau, & McCabe, 2009). Sometimes it was also maladaptive when youth were less enculturated than their parents (Costigan & Dokis, 2006; Ho & Birman, 2010; Juang, Syed, & Takagi, 2007; Liu et al., 2009). The attention paid to how children and parents compare in their acculturation has advanced the understanding of mental

health and adjustment of immigrant youth by illustrating when differences may matter. Overall, smaller differences often allow parents and children to maintain strong ties of support and connection whereas large differences, especially non-normative differences, in acculturation and enculturation appears to be maladaptive. Accordingly, it may also be that some types of discrepancies may undermine the development of strong sibling ties more than others.

Comparing Sibling Acculturation and Enculturation Profiles

As with parent-child differences, some differences in acculturation and enculturation profiles among adolescent siblings may also pose a risk for poor adjustment by limiting sibling support. Although quantitative and qualitative study designs assessing and comparing sibling acculturative levels rarely measured culture as a multidimensional construct, the existing knowledge about sibling acculturative levels suggests that discrepancies in acculturation and enculturation profiles may be important for sibling bonds. For example, in a qualitative study by Pyke (2005), more acculturated siblings often expressed bitterness toward more enculturated siblings for crossing generational lines and aligning with parents. That is, sibling differences were perceived as unexpected and interfered with the development of supportive sibling ties. The participants experienced the acculturation and enculturation gaps between parents and children as predictable and less disruptive than the sibling gaps, which were experienced as developmentally non-normative. Similarities and differences between brothers and sisters can be as consequential as those between parents and children.

Overall, the nature and extent of sibling similarities and differences in acculturation and enculturation are not well understood because little attention has been paid to siblings. As mentioned, when researchers have compared siblings, acculturation and enculturation were not measured as a multidimensional construct. Quantitative study designs used to examine

acculturative levels of siblings studied acculturation in a single domain and used publicly available data (Böhlmark, 2008; Stevens & Ishizawa, 2007). For example, Stevens and Ishizawa (2007) used archival data from the Current Population Survey in the United States to examine use of minority languages among children of foreign-born parents in the United States. As such, they were only able to compare siblings on their usage of a parents' minority language – one dimension of acculturation. They found that the eldest child is more likely to speak a minority language than later-born children partly because they are more likely to have spent a smaller proportion of their lives in the United States or to be non-native-born. The authors conclude that the inability of some family members to use a minority language in the household when others continue to do so has implications for patterns of intrafamilial communication. However, an interest in the heritage language, a value measure, might be more important than language usage itself, a behavioural measure. The use of proxies for learning about siblings' acculturation and enculturation levels has limited our understanding of how similar or different siblings are across different domains. Several studies have used standardized questionnaires to measure acculturative levels of siblings when collecting information about parent-child acculturation discrepancies, but they did not compare sibling responses (e.g., Birman, 2006; Padilla et al. 2016). Those studies only compared parent and child responses. An important step in understanding acculturation in families is to move beyond the focus on parent-child to examine sibling acculturation and enculturation.

The use of qualitative study designs to capture immigrant sibling experiences after resettlement has generated a couple of themes about sibling acculturation and enculturation levels. Several studies (Lee & Pacini-Ketchabav, 2011; Mummert, 2009; Phoenix & Bauer 2012; Pyke, 2005) have described and interpreted the narrative of immigrant siblings, but only a subset

of studies (Phoenix & Bauer, 2012; Pyke, 2005) conducted thematic analyses to identify patterns in a systematic way. A couple of themes emerged from these early studies. First, older siblings from immigrant families were often more oriented toward their heritage culture compared to their younger sibling whereas younger siblings were more oriented toward the host culture than their older siblings. Second, although siblings sometimes recognized benefits of sibling acculturative differences, differences were more often a topic of contention. For example, a couple of siblings described how acculturative difference lead to feelings of resentment when older siblings pressured younger siblings to comply with ethnic practices by telling them to “act more Korean” or attend family gatherings that they did not enjoy (pg. 507, Pyke, 2005). In a few cases, younger siblings who were less enculturated reported benefits of sibling acculturation gaps, including being freed from having to assume family responsibilities, such as translation and household tasks, as older more traditionally oriented siblings performed the tasks.

Overall, the qualitative studies to date have provided some interesting patterns but also have several limitations. Pyke (2005), for example, only invited participants who reported having a sibling who was either more enculturated or more acculturated than themselves. The choice to only include participants who experienced differences between them and their siblings limits our understanding of how similar siblings generally may be. In other studies (Mummert, 2009; Phoenix & Bauer, 2012), younger siblings had moved to the new nation of settlement early during their development with the parents or were born in the new nation, whereas older siblings waited several years to be reunited with the family. As a result, the older sibling arrived at a later age and later developmental stage and had a shorter length of residence in the nation of resettlement.

Variables Contributing to Sibling Similarity and Differences

Researchers have found that acculturation and enculturation processes vary as a function of generational status (e.g., Ouarasse & Van de Vijver, 2005; Farver, Bhadha, & Narang, 2002; Miller, 2010). Generational status refers to the age at which an individual immigrates to a new country, such as Canada. The feature used to distinguish between first and second generation immigrations is typically their birth place (e.g., Kunst & Sam, 2014), with first generation referring to people who are born outside the country of resettlement and second generation referring to individuals who are born in the country of resettlement and who have a parent that have been born outside the country of resettlement. Some researchers also distinguish between those who fall in between first-and-second-generation immigrants; this generation is termed the 1.5 generation (Porters & Rumbaut, 2006). These individuals spent their early developmental years in their native society and then migrated. There is no agreement for the specific age cut-off for defining a 1.5-generation immigrant. Whereas some studies consider those who immigrated to a new nation between ages 2-12 to be part of the 1.5 generation (Min and Kim, 2000), others include individuals aged 6-13 (Zhou, 1997). Compared to researchers who include children from the age of 2, researchers who favour the age range 6-12 for the 1.5 immigrant categorization argue that this range better captures unique difference of children who learn the fundamental skills of their cultures and at this stage are beginning to develop increased social and cognitive abilities to recognize the differences in people (Dacey & Travers, 2002; Newman & Newman, 2017). These arguments point to greater acculturation and enculturation differences between siblings of different generational statuses compared to those with the same generational status.

Besides generational status, researchers have examined differences in multiple domains of acculturation and enculturation based the on age of arrival and the length of residence in the nation of resettlement. Similar to generational status, these two variables also capture some of

the variability in the acculturation process that may vary as a function of the developmental stage of immigrants (Fuligni, 2001; Telzer, 2010). For example, the age of arrival and duration of exposure to Canadian culture matters for identification with the heritage and host culture (Cheung, Chudek, & Heine, 2011). In a sample ranging from 18 to 60 years, a longer duration of exposure was found to be associated with greater identification with Canadian culture only at younger ages of immigration but not at later ages of immigration. Identification with Chinese culture was unaffected by either age of immigration or length of exposure to Canadian culture. These findings provide evidence for a sensitive period for acculturation. When siblings are all exposed to a new culture at a young age, they will likely develop identification with the dominant culture with increasing exposure to it. If the age discrepancies are large and there are large differences between siblings' length of residence, it may become difficult to detangle differences between developmental differences in acculturation and enculturation versus the cultural change or lack of change that occurs after resettlement.

Overall, the empirical evidence has corroborated that generational status, the age at arrival, and length of stay to relate to acculturation among youth (Brown, Schale, & Nilsson, 2010; Kuo & Roysircar, 2004; Tsai, Ying, & Lee, 2000). In other words, these personal variables may contribute to shaping how similar or different siblings are in their acculturation and enculturation profiles. Taken together, the findings suggest that when siblings are different in generational status, age of arrival, and length of residence, they might be more different than siblings who are more similar in migration history.

Models Explaining Sibling Similarities and Differences

Shared sibling experiences may lead to similarities in acculturation and enculturation whereas non-shared experiences may lead to individual differences in acculturation. Growing up

in the same family can facilitate a sense of solidarity that is difficult to achieve in other relationships. This shared experience may contribute to similarities in acculturation and enculturation. As previously mentioned, in many immigrant families, and in Chinese cultures, older children may be regularly expected to care for younger siblings (Zukow-Goldring, 2002). With greater knowledge and maturity, older siblings may help younger siblings clarify their understanding of immigration stress and explain culturally appropriate behaviour. However, negative life events and conditions may also create barriers to siblings' provision of support. Evidence suggests that challenging life experiences may disrupt social processes between siblings; for example, when support from a sibling is not available during a time of stress, outcomes for individual children may be less favourable (Conger, Stocker & McGuire, 2009). A unique experience of discrimination by one sibling may lead that sibling to reject the dominant culture, but their sisters and brothers might not similarly reject the dominant culture.

There is also evidence that siblings show greater differentiation from one another when environmental adversity is high (Jenkins, Simpson, Dunn, Rasbash, & O'Connor 2005). Thus, more stressful environments seem to spread siblings out on behavioural indices. In part, the greater differentiation of siblings, as a result of environmental stress, can be explained by individual factors that make children differentially vulnerable to shared environmental adversity. These factors include achievement levels, physiological reactivity, and interpretations of environmental events (Kramer & Conger, 2009). Many immigrant families report experiencing one or more stressors associated with resettlement such as perceived discrimination, loss of social support networks, and poverty (Beiser, Hou, Hyman, & Tousignant, 2002; Jasinskaja-Lahti, Liebkind, Jaakkola, & Reuter, 2006). It may be that in these families where adolescent siblings experience acculturative stressors, the children in the family bring unique resources and

vulnerabilities affecting their ability to cope. As a result, they may become more varied in their acculturation and enculturation indices than families that make a smoother transition to Canadian society.

Siblings as Socializing Agents in Adolescence

Siblings are expected to be an important influence on one another's acculturation and enculturation, especially in adolescence. Whereas in non-immigrant contexts, parents may be excellent teachers of expected behaviours, in a new culture, siblings may be the best authority for learning how to succeed outside the home, such as in school and with peers. This is especially true for children whose parents did not grow up in Canada and may, therefore, be unfamiliar with their children's social spheres during adolescence. Who better than a sibling to teach how to get mandatory high school volunteer experience, make friends, "act cool" in school, or navigate intergenerational cultural conflicts? In addition to being knowledgeable, siblings are also a consistent presence. That is, whereas the amount of support parents provides decreases with development (Scholte, van Lieshout, & van Aken, 2001; Tsai, Telzer & Fuligni, 2013), siblings appear to be stable sources of support, even though they spend less time together as they get older (Scholte et al., 2001). Not only do they provide emotional support, they also supply information and guide their siblings on how to complete tasks (Scholte et al., 2001).

Sibling Effects on Acculturation and Enculturation

Sibling effects, that is, the way one sibling impacts the other, receives scant attention in the acculturation and enculturation literature. A few studies have examined the role siblings play in value transmission, language retention, and identity formation in isolation (Özdikmenli-Demir, & Şahin-Kütük, 2012; Stevens & Ishizawa, 2007; Wong, Branje, VanderValk, Hawk, & Meeus, 2010; Watzlawik & Clodius, 2011; Umaña-Taylor, Zeiders, & Updegraff, 2013). However, to my knowledge, the possibility of siblings influencing one another's across multiple domains of acculturation and enculturation has not been unexplored. Yet, a large body of literature exists on sibling socialization among non-immigrant populations, and this literature

shows that siblings are important figures in many domains of development (e.g., Conger, Stocker, & McGuire, 2009; Gutierrez, Goodwin, Kirkinis, & Mattis, 2014; Rende, Slomkowski, Lloyd-Richardson, & Niaura, 2005). As such, siblings may also play critical roles in facilitating acculturation and enculturation.

The growing body of research on sibling relationships suggests several direct and indirect processes by which sibling socialization likely occurs. Most research on direct sibling influence relevant for acculturation is grounded in developmental or social learning models. These models include observational learning and de-identification in response to perceived sibling characteristics (Kramer & Conger, 2009). Both models suggest that through everyday involvement, siblings promote positive as well as negative changes in behaviour, attitudes, values, and identities.

Older siblings are often theorized to influence younger siblings through modelling. Even without direct instruction, younger siblings take notice of and emulate their elder siblings' behaviours. Through modelling, younger siblings may learn undesirable as well as desirable behaviours. Findings that rates of teen pregnancy and high-risk sexual behaviors are higher in families where an older teenage daughter has had a child (East, 1998) support this socialization mechanism. Likewise, sibling congruence in substance use (Rende, Slomkowski, Lloyd-Richardson, & Niaura, 2005), smoking (Forrester, Biglan, Severson, & Smolkowski, 2007), and antisocial behaviors (Williams, Conger, & Blozis, 2007) also supports a modelling mechanism of sibling influence. The modelling theory has also been tested using a genetically informed design that controlled for the genetic relatedness of siblings (Rende et al., 2005). After accounting for shared genetics, Rende and colleagues (2005) still found that sibling contact was a source of social contagion for smoking and drinking. In the acculturation process, a sibling may imitate

other siblings' interactions with parents by, for example, speaking English with parents instead of Chinese or joining another sibling in watching Chinese language television. Besides siblings influencing one another's behaviour, they may also alter one another's attitudes. For example, Pomery and colleagues (2005) found that substance use among African American adolescents was significantly predicted by elder siblings' earlier reports of their behavioural willingness to use substances, even when controlling for parental substance use, socioeconomic status, and neighbourhood variables. In summary, siblings observe and learn behaviours and attitudes from their sisters and brothers.

Along with a desire to model and learn from one's sibling, research on deidentification suggests that individuals are also motivated to carve out unique identities, which may be shaped by their perception of their siblings' qualities (Whiteman, McHale, & Crouter, 2007). Whiteman, Becerra and Killoren (2009) proposed de-identification as a central process in sibling dissimilarity. The basic premise is that to diminish competition between siblings for critical resources, a process of differentiation occurs. Several investigators have shown that siblings who are closer to one another in age, birth order, or who are the same gender, show greater differentiation from one another (Feinberg & Hetherington, 2000).

Some research (Pyke, 2005; Stevens & Ishizawa, 2007) has shown that older siblings tend to be more enculturated than their younger siblings. These findings were often explained as being due to older siblings having spent a greater proportion of their life compared to younger siblings in their heritage culture or because older siblings' higher status and obligations bind them more closely to their ethnicity than their younger siblings. However, these results could also be interpreted using the de-identification framework; younger siblings may attempt to differentiate themselves from older siblings by becoming more proficient in areas unrelated to

their heritage culture, such as becoming excellent in hockey or better at English. To date, the research offers few clues as to the circumstances that lead sisters and brothers toward emulation instead of competition (Whiteman et al., 2007). Our knowledge about the modelling and deidentification influence processes is limited because the processes have never been studied directly. Instead, inferences of these processes were made based on patterns of association with positive associations being attributed to modeling and negative associations being attributed to deidentification.

Most research on sibling effects has focused on the direct influences of siblings. Less attention has been paid to the ways siblings influence one another indirectly via their roles in the larger family network. One line of research suggests that children can influence parents' expectations, knowledge, and parenting behaviour in ways that have implications for their siblings. For example, parents who had experienced an earlier-born child's transition to adolescence were less likely to expect later-born children to display emotional and behavioral problems during this transition (Whiteman & Buchanan, 2002). Parenting also changes with practice. When comparing parent-child relationships within the same family, parents exhibit more effective parenting behaviours, including higher levels of warmth and lower levels of conflicts, with second-born than with first-born adolescents (Shanahan, McHale, Osgood, & Crouter, 2007; Whiteman, McHale, & Crouter, 2007). A learning-from-experience model suggests that parents may be more effective at managing parenting challenges of later born children. This model contrasts with the resource dilution model, which holds that each successive child results in lowered family investments, leading to negative implications for later-born children (McHale et al., 2012). As in other lines of research on sibling effects, processes are rarely measured directly, and the study design does not allow for causal inferences to be made.

Moreover, there is a paucity of both quantitative and qualitative methodologies employed to study sibling effects. To date, no inferential tests of sibling influences have been conducted to test whether siblings influence on one another across multiple acculturation and enculturation domains. Out of the previously reviewed studies, the effect of siblings on one another's acculturation and enculturation was only modelled in one domain (e.g., Özdikmenli-Demir, & Şahin-Kütük, 2012; Stevens & Ishizawa, 2007; Wong et al., 2010). To gain a comprehensive picture of potential sibling effects, it is necessary to examine acculturation and enculturation as a multidimensional construct.

Sibling Hierarchy in Adolescence

Adolescence is an exciting period to study the role of siblings in acculturation and enculturation as there is evidence that the sibling hierarchy changes from more vertical to horizontal during this period. Whereas cultural transmission is often studied vertically with cultural features transmitted from parent to child, Cavalli-Sforza and Feldman (1981), who introduced the concept of cultural transmission, also highlighted the role of horizontal cultural transmission. This form of learning occurs from peers and siblings. In childhood, sibling influences tend to be more vertical, but with the changes in sibling hierarchy in adolescence, sibling effects may become more horizontal (Lindell, & Campione-Barr, 2017). In other words, both siblings may influence one another in the domains of behaviour, values, and identity through covert and overt forms of teachings.

There is a normative hierarchy among siblings that appears to be most pronounced before adolescence. The hierarchy that exists among siblings in childhood has been attributed to older siblings' greater physical strength as well as greater cognitive and social maturity compared to their younger siblings (Perlman, Siddiqui, Ram, & Ross, 2000). These qualities make it relatively

easy for older siblings to assert their power nonverbally and to verbally control their younger siblings. Finally, traditional cultural norms typically grant older siblings a higher rank within the family hierarchy with greater responsibilities and authority. As previously mentioned, this is even more prominent in families with a Chinese culture, which emphasizes solidarity, hierarchal relations, instrumental support, and filial piety (Park & Chesla, 2007; Pyke, 2005; Uba, 1994). The hierarchy guides interactions among family members, with younger members being expected to display respect and obedience to elders, including elder siblings. Unlike for European American families, the population within which sibling hierarchies are often studied, in families with a Confucian heritage that emphasizes respect for older family members, a strong sibling hierarchy might persist through adolescence (Tingvold, Middelthon, Allen, & Hauff, 2012).

A growing body of literature, conducted with mostly European Americans, on the dynamic changes that occur in the power structure of sibling relationships during adolescence reports declines in siblings' relative power across adolescence, with older siblings relinquishing the most power over time (Campione-Barr, 2017; Lindell & Campione-Barr, 2017; Perlman et al., 2000). Most research on sibling influences has tested only vertical models of socialization, with influences flowing from older to younger siblings. This orientation is logical given the hierarchical nature of sibling relationships in childhood (Tucker & Updegraff, 2010), but with the emerging research showing sibling relationships become more egalitarian in adolescence (Campione-Barr, 2017), both older and younger siblings may serve as socializing agents. For this reason, instead of expecting only vertical or top-down transmission of culture, horizontal or bi-directional transmission might be expected starting in adolescence. For example, Tucker and colleagues (2001) found both older and younger siblings played equally supportive roles in

family matters, such as giving one another advice regarding the relationships with parents.

Siblings had equal expertise in the family domain compared to extra-familial topics. In extra-familial topics, such as around dating norms, older siblings served as expert sources of advice. In the study, sibling dyads were relatively young with the oldest sibling being in grade 8, 9 or 10, it is unclear if older siblings' opinions continue to have greater weight in extra-familial matters later in adolescence or if younger and older siblings' opinions become more reciprocal. Overall, the research suggests a potential for sibling effects on acculturation and enculturation in adolescence.

Research Objectives and Hypotheses

The objective of the present study was to expand upon the current understanding of within-family differences in acculturation and enculturation by examining (1) sibling profile similarities and differences as well as (2) sibling influences. A mixed-method design was used. The hypotheses were evaluated with quantitative data and the qualitative data was used to aid in the interpretation of the quantitative results (Hanson, Creswell, Clark, Petska, & Creswell, 2005). The use of quantitative data allows for quantifying cultural similarities and differences as well as for inferentially testing if siblings influence one another's acculturation and enculturation. However, such methods do not explain how adolescents construe and negotiate their cultural worlds. At this early stage in understanding siblings' acculturative experiences, the use of in-depth interviews will facilitate a rich understanding of what it is like to grow up with a culturally similar or dissimilar sibling. For example, it may be tempting to assume that younger siblings who are less like their older siblings are attempting to differentiate themselves - that interpretation would be consistent with the de-identification literature (Whiteman, et al., 2007). However, an interview could produce other theoretically plausible explanations; it may be that some siblings serve as bridges or gatekeepers for acculturation and enculturation experiences by actively promoting or discouraging specific behaviours, values, and attitudes. Qualitative methodology is particularly suited to this type of research, because it allows for the exploration of how immigrating with a sibling is experienced by the individual adolescent.

My first objective was to examine sibling profile similarities and differences by providing descriptive information about how siblings compare across cultural domains using different dyadic indices. My second objective was to explore whether siblings influenced one another's acculturation and enculturation. As such, I examined if siblings' acculturation and enculturation

scores in Wave 1 predicted their sibling's acculturation and enculturation scores at Wave 2. In line with the current conceptualization of acculturation as orthogonal and multidimensional (e.g., Costigan, 2010; Telzer, 2010), I tested for sibling effects in the domains of behaviour, values, and identity for both the Chinese and Canadian dimensions. The models of sibling effects are discussed below. Finally, to gain insight into immigrant youth's perception of their siblings' role in their acculturation and enculturation processes, semi-structured interviews were conducted with an undergraduate sample of Chinese immigrant youth who moved to Canada with a sibling before adolescence.

Immigrant youth from Hong Kong, Taiwan, and China were selected for study because in recent years, they have been among the largest of immigrant groups to arrive in Canada, the site for this research (Statistics Canada, 2011). As previously mentioned, this group also experiences large cross-national differences in individualism and collectivism (Oyserman et al., 2002), and the cultural dissonance may make resettlement more challenging than for migrants whose heritage culture is more like the Canadian culture. Thus, they provide a strategic choice for studying sibling acculturation dynamics and for understanding how these immigrant youth juggle heritage and mainstream cultural worlds.

Quantitative Data. Using longitudinal data, I compared the acculturation and enculturation profiles of immigrant siblings across all three domains of behaviour, values, and identity for both the Chinese and Canadian dimensions. However, I only made predictions for the domains which appeared plausible based on prior research or theories:

Objective 1: Examining similarities and differences in siblings' cultural profiles

- **Research Question 1:** How similar or different are siblings in their cultural profiles? To provide a comprehensive picture of sibling similarities and differences, I explored the

pattern of responses among siblings across the Chinese and Canadian dimensions. Given the lack of previous research to guide directional hypotheses, I made no predictions in the domains of values or identity. I only predicted that siblings would be more similar in their Canadian behaviour than in Chinese behaviour (hypothesis 1a) since mainstream cultural involvement is necessary to navigate outside of home, such as in school and in extracurricular activities. Siblings may vary more in their Chinese behaviour as there may be less consistent pressure to practice these.

- **Hypothesis 1b:** Gender constellation predicting similarities and differences.

Given research on sibling gender composition showing same-gender siblings to generally be more similar (Kramer & Conger, 2009), I predicted that same-gender sibling dyads would be more similar overall (i.e., similar in more domains) than mixed-gender dyads. I examined the role of gender constellation quantitatively to the extent that the sample size allowed.

- **Research Question 1b:** Do siblings become more similar or different over time? There is little knowledge about how siblings' acculturation and enculturation change in relation to one another. Therefore, I explored if siblings' endorsement of cultural behaviours, values, and identity became more similar or different over the 18-month period.

Objective 2: Examining sibling influences in cultural orientations

Drawing from research showing that siblings alter one another's behaviour, values, and attitudes in different domains of life (e.g., Forrester et al., 2007; Kramer & Conger, 2009; Williams et al., 2007), I predicted that immigrant siblings would influence one another's acculturation and enculturation. This expectation is supported by several qualitative studies where participants reported siblings to be socializing agents for the mainstream or heritage culture (Lee & Pacini-

Ketchabav, 2011; Pyke, 2005; Tingvold et al., 2012), and a quantitative study that found sibling effects in heritage language retention (Stevens & Ishizawa, 2007). Since acculturation among siblings has not been studied as a multidimensional construct, there is a lack of knowledge about the role siblings play in each other's development of values and identity. Since it is likely that siblings also play an influential role in these acculturation and enculturation domains, I hypothesized the following:

- **Hypothesis 2a:** I predicted that siblings would influence one another's acculturation and enculturation. The literature reviewed suggests that siblings may model one another as well as attempt to differentiate themselves from their sibling (Lee & Pacini-Ketchabav 2011; Pyke, 2005; Tingvold et al., 2012). The broader literature on siblings reveals little about the circumstances that lead sisters and brothers toward emulation versus competition (Whiteman et al., 2007). As such, instead of looking for evidence of only modelling or sibling de-identification - which assumes the processes are independent - I assessed for the pattern of sibling influence. It may be that siblings try to be like their sister or brother in one area, whereas they exert themselves to be different in another. Thus, I assessed sibling influence for both the Chinese and Canadian dimensions across the three domains: behaviour, values, and identity. Within the same domain, each sibling's acculturation or enculturation score in Wave 2 was predicted by his or her own acculturation or enculturation score in Wave 1 (actor effect) and his or her sibling's score in that domain at Wave 1 (partner effect). There were a total of six models of estimating sibling influences, one for each domain: Chinese behaviour, Canadian behaviour, Chinese values, Canadian values, Chinese identification, and Canadian identification.

- **Research Questions 2b.** Does gender constellation matter for sibling influence? The nature of sibling influence may depend on sibling gender similarity (Buist, Deković, Meeus, & van Aken, Marcel, 2002; McHale et al., 2012). Older siblings, especially males, inherit positions of authority and responsibility toward younger siblings in Chinese culture. Thus, older male siblings may have a stronger modeling effect or elicit a stronger de-identification effect on younger children than the other way around, regardless of gender. I predicted that sibling effects would be stronger when the older sibling was a male than when the older sibling was a female. Moreover, in a non-immigrant sample, some variance in sibling relationships can be attributed to the gender composition of dyads, with same-sex siblings feeling closer than opposite-sex siblings (Buist et al., 2002). Thus, it is possible that sibling effects are stronger in same-sex than in mixed-sex sibling dyads. Therefore, I predicted that sibling effects would be stronger in same-gender versus mixed opposite gender dyads. I explored for gender-based patterns to the extent that the sample allowed.

Qualitative Data. The qualitative component of the present study was intended to allow me to examine issues not easily amenable to survey research (Frechtling, 2002). The quantitative data provide a general picture of immigrant siblings' acculturation and enculturation levels but lack depth and context. Conducting semi-structured interviews with young Chinese immigrants who migrated to Canada with a sibling prior to adolescence provides an opportunity to understand the personal experience and the significance of migrating to Canada with siblings. The responses offer additional meaning to the numerical data, including follow-up of interesting comments. The addition of qualitative data allows for a richer understanding of sibling processes and can identify important variables for further research. Moreover, qualitative data allowed for

the evaluation of proposed mechanisms for sibling influence and the discovery of additional ways that siblings may influence one another in the immigration process.

Method

Participants

In the current study, I used two sets of data. For quantitative comparisons of the acculturation and enculturation profiles of siblings and exploration of sibling effects, I used data that was collected as part of the Intercultural Family Study (IFS) conducted by Dr. Catherine Costigan. The semi-structured interviews were conducted with Chinese Canadian undergraduate students at a mid-sized Canadian university. Young adulthood is a prime time to ask participants to reflect on their experience throughout adolescence, as individuals at this age have the cognitive abilities and the temporal distance to reflect and report on their siblings' roles in their prior developmental period. As a young adult, the participants also have lived through early, middle, and the late adolescent periods, thereby providing the opportunity to learn about the potential changes that occur throughout adolescence with changes in the sibling hierarchy.

Adolescent sibling sample from the IFS. Of the 181 families who participated in Wave 1 of the IFS, there were thirty-one pairs of siblings. They participated with their parents and were recruited from one metropolitan and one mid-sized city in British Columbia, Canada. To be eligible to participate, both parents had to be born outside of Canada, immigrated at age 18 or older, and have at least one adolescent child. Families originated from Taiwan, People's Republic of China, and Hong Kong. All families identified as ethnically Chinese. In Wave 1, on average, the oldest siblings were 16.0 years ($SD = 0.96$), and younger siblings was 13.24 years ($SD = 1.59$). Older siblings had on average resided in Canada for 10.8 years whereas younger sibling had resided in Canada for 9.72 years. Among the older siblings, 35.48% were Canadian-born whereas 48.38 % of younger siblings were born in Canada. All sibling pairs immigrated to Canada at the same time. The gender composition of dyads was: 4 dyads with an older brother

and a younger brother, 6 dyads with an older brother and a younger sister, 13 dyads with an older sister and a younger brother, and 8 dyads with an older sister and a younger sister. In terms of birth order, 25 of the oldest siblings were first born and 6 were a middle child. Among the younger siblings 5 were a middle child, and 26 were the youngest born. There was, on average, 18 months between the first and the second assessment. Of the Wave 1 sample, 23 sibling dyads (74%) participated in the follow-up assessment. Of the 23 sibling dyads at Wave 2, only in three cases did just one of the two siblings who completed Wave 1 participate in Wave 2. In Wave 2, the average age of the older siblings was 16.8 years ($SD = 1.02$) and for younger siblings 14.4 years ($SD = 1.14$). Table 1 provides sibling demographics for the quantitative and qualitative sample.

In terms of educational achievement, 25.8% of the fathers completed elementary, junior or senior high school (33.3% for mothers), 19.4% completed vocational school or college (38.7% for mothers), 9.7% completed a 4-year university degree (25.8% for mothers), and 19.4% completed graduate or professional school (0% for mothers). With respect to socioeconomic status, 22.6 % of families reported a household annual income of less than \$25,000 per year, 29.0% reported between \$25,000 and \$40,000 yearly, 19.4% reported between \$40,000 - \$50,000 range, 19.4% reported between \$50,000 and \$75,000, and 9.7% reported an annual income of greater than \$75,000.

Undergraduate sample. Interviews were conducted with 16 participants (11 females) between the age of 18 to 24 years, that identify with having a Chinese heritage culture. The mean age of participants was 20.37 ($SD = 1.71$). To constrain variability between the qualitative sample and the quantitative sample, all the participants in the qualitative sample also had parents that were born outside of Canada and that had immigrated at age 18 or older. The participants

themselves had to have lived in Canada with at least one biological sibling beginning in late childhood. All the participants also had at least one sibling within five years of their age.

In terms of birth order, five qualitative participants were first born, 5 were a middle child, and 6 were the youngest. In terms of educational achievement, 37.6% of the fathers completed elementary, junior or senior high school (31.3% for mothers), 25% completed vocational school or college (25% for mothers), 6.3% completed a 4-year university degree (31.3% for mothers), and 31.3% completed graduate or professional school (0% for mothers). With respect to socioeconomic status, 12.6% of young adults reported their household annual income when growing up to be less than \$30,000 per year, 6.3% reported between \$30,000 and \$40,000 yearly, 18.9% reported between \$40,000 and \$50,000, 18.9% reported between \$50,000 and \$80,000, 12.5% reported an annual income of greater than \$100,000, and 37.5% reported not knowing. Participants were recruited from a mid-sized Canadian university and receive extra credits for participation.

Procedures

The IFS received approval from the University of Victoria Human Research Ethics Committee. Most participants were recruited randomly using a research centre to identify and contact individuals with Chinese last names in the telephone directories. The remaining participants were referred by families who had participated. All families opted to have researchers visit their home to complete the questionnaires rather than go to the university. There were two research assistants at each session. At least one of the research assistants spoke Chinese. At the home visit, the research assistants explained the purpose of the study, obtained informed consent, and answered any questions during the assessment. All families were given a token of appreciation for their time and effort (\$50 in Wave 1 and \$60 in Wave 2). Parents and

children completed the consent forms together and then independently completed the paper-and-pencil questionnaire packages. Family members did not share their responses with each other.

All adolescents completed the questionnaires in English.

The interviews with undergraduate participants, was approved by the University of Victoria Human Research Ethics Board. The study was posted on the Psychology Research Participation System and participants who were interested and met the screening criteria were scheduled for a 60-minute interview with the researcher. Participants were interviewed using a semi-structured protocol by the researcher (see Appendix A). I explained the purpose of the study, obtained informed consent, and answered questions the participant had about the process before proceeding to the interview. To signal a nonjudgmental environment, I emphasized that there were no right or wrong answers to any of the questions, and that the aim was to understand their individual experiences of growing up with an sibling in a family with a Chinese heritage in Canada. I also repeated that participants never had to provide a reason if they wanted to skip any questions. First, the participants completed a demographic questionnaire about themselves and their siblings. Then, they were interviewed using the interview protocol which covered the following topics about acculturation and enculturation: sibling similarity and differences, the impact of said similarity or differences on sibling relationship quality, the role of their siblings in their development, the role they played in their siblings' development, the relations between sibling influences and sibling relationship quality, the role of age spacing and gender constellation on sibling similarities, and changes in cultural orientation from early adolescence to young adulthood. For example, participants were asked, "Describe ways your sibling is like you or different from you in terms of your affiliation and identification with Canadian culture" and

“How have similarities or differences between you and your sibling in your involvement with Chinese culture impacted your relationship with each other?”.

Although both interviews and focus groups could have been used for the present purposes, the interview approach was selected because previous research suggests that sibling differences in acculturation and enculturation can sometimes lead to sibling conflicts or feelings that may be difficult to talk about openly, such as anger, resentment, or jealousy (Lee & Pacini-Ketchabav 2011; Phoenix & Bauer, 2012). Interviews provide a safer environment for participants to share both positive and negative experience that may be deeply personal; a focus group may inhibit sharing (Frechtling, 2002). For participants with a Chinese cultural background, sharing about family conflict can be perceived as a failure of family functioning and lead to feelings of losing “face” (Hwang, 2006; Ow, & Katz, 1999), making them less willing to share in a group setting. The group dynamic may hinder rather than facilitate knowledge sharing and insights. Moreover, a semi-structured interview allowed for coverage of a larger number of issues and for greater depth of responses by respondents than time permits in a group setting.

Measures

Demographic Information. Adolescents and parents answered questions about demographic variables such as age, birth place, the length of residence in Canada, highest education level, and annual family income. A complete list of items is included in Appendix B.

Chinese and Canadian behavioural acculturation. Canadian and Chinese acculturation and enculturation were measured using an adapted 30-items version of the Acculturation Rating Scale for Mexican Americans–II (ARSMA-II) which was designed as a bi-dimensional measure (Cuéllar, Maldonado, & Arnold, 1995). The 15-items subscale measuring Canadian cultural endorsements asks participants how much they agree with behavioral statements such as, “I

enjoy reading in English” and “My friends are now of White/Canadian origins.” The other 15-item subscale measures Chinese cultural endorsements, such as “I enjoy reading in Chinese” and “My friends now are of Chinese origins.” Responses to items on both subscales range from 1 “*not at all*” to 5 “*extremely often or almost always*.” Bi-dimensional scores can be derived by reporting Canadian and Chinese cultural averages separately. Higher scores indicate a higher endorsement of acculturative and enculturate behaviours. Bauman (2005) reported excellent internal consistency and validity of the brief ARSMA-II. The Chinese subscale had good internal consistency for older and younger siblings at both waves (Wave 1: older sibling $\alpha = .88$, younger siblings $\alpha = .89$; Wave 2: older siblings $\alpha = .90$, younger siblings $\alpha = .87$). The Canadian subscale had adequate internal consistency for both siblings (Wave 1: older sibling $\alpha = .79$, younger siblings $\alpha = .84$; Wave 2: older siblings $\alpha = .65$, younger siblings $\alpha = .81$)

Chinese and Canadian values. Adolescents completed a shortened version of the Asian Values Scale (Kim, Atkinson & Young, 1999) to assess their Chinese values. The 11-items measuring Asian cultural values using a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Sample questions include, “occupational failure brings shame to the family”, “people should be humble and modest,” and “when people receive a gift, they should reciprocate with a gift of equal or greater value.” Kim and colleagues (1999) reported adequate internal consistency ($\alpha = .87$). The scale has adequate internal consistency in the sibling sample at both time points (Wave 1: older siblings $\alpha = .76$, younger siblings, $\alpha = .80$; Wave 2: older siblings $\alpha = .86$, younger siblings $\alpha = .81$)

To assess Canadian values, an 8-item measure was used to assess beliefs regarding the amount of independence adolescents should be allowed (Rosenthal, Ranieri, & Klimidis, 1996). The measure assesses beliefs about the rights of boys and girls to make independent decisions.

Higher scores indicate a stronger valuation of adolescent independence and freedom of choice. European Canadians have been shown to endorse higher degrees of adolescent independence values than Asian Canadian (Kwak & Berry, 2001). Using a 4-point scale (1 = *strongly disagree* to 4 = *strongly agree*) adolescents indicated their agreement with statement such as, “it is all right for girls over the age of 18 to decide when to marry and whom to marry” and “it is right for boys to choose their own career”. The scale has good internal consistency in the sibling sample at both time points (Wave 1: older siblings $\alpha = .82$, younger siblings $\alpha = .86$; Wave 2: older siblings $\alpha = .81$, younger siblings $\alpha = .87$)

Chinese and Canadian identity. Ethnic Identity was assessed using a revised version of the Multigroup Ethnic Identity Measure (MEIM; Roberts, Phinney, Masse, Chen, Roberts, & Romero, 1999). Out of the 18-item from the MEIM, the 12 items assessing ethnic identity was used in the current study. These 12-items make up the two relevant subscales for the current study: ethnic identity affirmation/belonging and exploration. The two factors appear to be distinct but related aspects of ethnic identity (Roberts, et al., 1999). According to Robert and colleagues the MEIM can be used as a global composite index of ethnic identity or the subscales can be used independently. Using a 4-point scale (1= *strongly disagree* to 4 = *strongly agree*) adolescents indicate their agreement with statement such as, “I have a clear sense of my ethnic background and what it means for me,” and “I have a lot of pride in my ethnic group.” The MEIM is a widely-used measure of ethnic identity and has been shown to be related to psychological well-being across diverse samples (e.g., Phinney, Cantu, & Kurtz, 1997). The scale had adequate internal consistency in the sibling sample at both time points (Wave 1: older siblings $\alpha = .81$, younger siblings $\alpha = .88$; Wave 2: older siblings $\alpha = .84$, younger sibling $\alpha = .80$)

The measure of Canadian Identity was created by Dr. Costigan and the IFS team and is a modification of the MEIM (Roberts et al., 1992). Instead of referring to the ethnic group in each item, each item refers to the Canadian group. The Canadian Identity scale consists of 12-items and assesses Canadian identity through two subscales of Canadian identity affirmation/belonging and Canadian identity exploration. A similar adaptation of the MEIM has been created by Schwartz and colleagues (2012) to assess American identity. The Canadian Identity scale uses a 4-point scale (1 = *strongly disagree* to 4 = *strongly agree*) to assess how adolescents feel about statements such as “I have spent time trying to find out more about Canada, such as its history, traditions, and customs” and “I have a strong sense of belonging to the Canadian group.” The scale had adequate internal consistency in the sibling sample at both time points (Wave 1: older siblings $\alpha = .75$, younger siblings $\alpha = .85$; Wave 2: older siblings $\alpha = .85$, younger siblings $\alpha = .78$).

Plan of Analysis

Quantitative analysis. To compare the enculturation and acculturation profiles of sibling dyads, idiographic analyses were employed. Dyadic indices were used to assess similarity and dissimilarity across the different domains of acculturation and enculturation. To measure similarity, I calculated Pearson’s correlation coefficient and to measure dissimilarity I calculated the intra-class correlation coefficients (ICC) for distinguishable dyads (Kenny, Kashy, & Cook, 2006). Pearson’s correlation coefficient captures similarity in the shape of sibling’s responses between the item scores whereas ICC also accounts for the differences in *levels* of responses and differences in the *spread* of scores. As such, ICC provides a representation of the proportion of variance explained by being in the dyad compared to the overall variance in the sample. There

are several different ways of calculating the intraclass correlation coefficient with the most common formula being:

$$\rho = \frac{MSB - MSW}{MSB + (k-1)MSW}$$

I used this formula adapted to account for dyad members being distinguishable (Griffin & Gonzalez 1995). In this formula, the deviations of the individual scores from the group mean (i.e., MSW) does not include the between person variability. As with other calculations of the intraclass correlation, a negative ICC occurs whenever the variability within groups exceeds the variability across groups.

The hypotheses regarding sibling influence on one another's acculturation and enculturation were tested using an actor-partner interdependence model (APIM) for distinguishable dyads since siblings are discernable by their birth order (hypothesis 2a and 2b). Each domain of acculturation and enculturation was assessed separately resulting in six different models. In the actor-partner interdependence model, an actor effect represents the influence of an individual's predictor variable on the same person's outcome score, whereas a partner effect represents the influence of a person's score on the predictor variable on their partner's score on an outcome variable. The predictors were each person's own score and their sibling's score on the measure of acculturation and enculturation in Wave 1 and the dependent variables were their own and their siblings' scores in the same domain at Wave 2 (see Figure 1). We used AMOS version 24 for estimating the APIM models.

Given the sample size constraint for the quantitative analyses ($n = 31$ at Wave 1 and $n = 23$ at Wave 2), power analyses were conducted to estimate the minimum effect size that would be detectable. For the dyadic indices, sensitivity analyses were conducted with the program

G*Power (Erdfelder, Faul, & Buchner, 1996) to estimate the minimally detectable effects with power set at 0.80 and $\alpha = .05$, two-tailed for correlational analyses. The results showed that the smallest real effect size which could be detected would be $r = .30$ and $ICC = .34$ at Wave 1 and $r = .35$ and $ICC = .39$ at Wave 2. The power for the APIM models was estimated using the power app APIMPowerR (Ackerman & Kenny, 2016) with $\alpha = .05$, two-tailed. The power to detect actor and partner effects for each of the six models based on the estimated actor effects, partner effects, and the sample size ($n = 23$) is summarized in Table 2. Power analyses indicated a greater than 99% chance of detecting estimated actor and partner effects that were large or medium-sized (defined by Cohen, 1992 as .8 and .5) but only a 35% chance of detecting a small actor effect (defined as .2 or less by Cohen, 1992).

Qualitative analysis. All interviews were conducted in English and were audio recorded. To ensure accuracy, all interviews were transcribed by research assistants and checked by the researcher for the accuracy of the transcription. Transcripts were uploaded and coded using the qualitative data analysis program MAXQDA version 2018.

Given the dearth of research exploring the role immigrant siblings play in facilitating or inhibiting cultural engagement, I followed an inductive qualitative design to explore the different cultural influences of siblings as well as the effects of growing up with a culturally similar or dissimilar sibling. These efforts were directed at advancing theory of immigrant sibling cultural profiles and sibling relationships. Specifically, I analyzed the data using thematic analysis (Hanson, Creswell, Plano Clark, Petska, & Creswell, 2005), a method for identifying, analyzing and reporting patterns within data (Braun & Clarke, 2006). Thematic analysis was used to provide a rich description of the full data set. Following Braun and Clarke's (2006) guide for thematic analysis my data analytic plan consisted of six steps (1) familiarization with the data;

(2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes; and (6) producing the report.

In step (1) familiarization with the data, I listened to the audio recording of the interviews, noting down initial ideas within two days of conducting each interview. I also re-read each interview before coding. In step (2) generating initial codes, I coded features of the data related to the research questions in a systematic fashion across each interview. Coding followed an inductive approach allowing the scope of the research question to evolve through the coding process (Fereday, & Muir-Cochrane, 2006). Coding was conducted to be as comprehensive as possible and to include the context of the response. Codes that were inconsistent with the dominant story were also noted. In step (3) searching for themes, I collated the codes into potential themes. At this stage, I discussed the initial themes with other researchers that have conducted qualitative assessments to confirm themes and integrate feedback. In step (4) reviewing themes, I reviewed the themes in relation to the coded data and the full data set to establish internal homogeneity within the themes and external heterogeneity between themes (Patton, 1990). This included reading all the collated codes for each theme to ensure they formed a coherent pattern. Each theme was reworked with attention to codes that did not fit well within the theme. In cases where there were codes that did not fit well, the theme was reworked to be more inclusive, a new theme was created, or those codes were moved to another theme that adequately captured the nuances of the codes that were inconsistent with the first theme. Then, I considered the validity of each theme across the data set and the extent that it reflected the meanings across the entire dataset. In step (5) defining and naming themes, I created names to capture the essence of each theme. For each theme, I then wrote an analysis of how the theme

relates to the research question. Finally, in step (6) producing the report, I wrote up the qualitative analysis for this paper using data extracts to demonstrate the prevalence of themes.

Researcher's perspective. I am a Chinese Canadian female in my early twenties whose parents are Chinese. I grew up in a household that spoke Chinese and Danish and moved to Canada during my early teenage years where I learned English. I grew up spending much time with my brother and sister. Throughout the process I attempted to be open to all participant's perspectives including those dissimilar to my own preconceptions.

Results

The quantitative results are presented first followed by the qualitative results.

Quantitative Results

Preliminary Analysis. Before conducting the analyses, the main study variables of acculturation and enculturation were examined as part of the data cleaning process. The original data were proofread against the digital data file. The few inaccurate entries were corrected. There were 31 sibling dyads at Wave 1 and over 95% of both siblings answered all items. Means of measures were calculated for participants who had answered at least 90% of the items on a subscale, otherwise the subscale was left missing. At the second-time point, 23 of the families participated (74%). In all families the same children participated at both times except for in one family where only one of the children participated at the follow-up. At Wave 2, over 90% of dyads answered all the items. The only exception was on the Ethnic Identity Scale and Canadian Identity Scale where 87% of dyads answered all items. Missing data were not estimated in calculation of dyadic indices but were estimated in the actor partner interdependence models by method of full information maximum likelihood (Allison, 2003). The responses of younger and older siblings in each of the six domains for both waves are visually represented in Appendix C Figures 1 to 6.

A one-way between-subjects ANOVA was conducted to compare the eight families that participated only at Wave 1 versus the 23 families that participated in both waves on demographic variables. Families that participated during both waves were not significantly different from those that participated only in the first wave based on children's gender, length of residence, family income, and parental education (both father's and mother's). The only difference was that the older siblings that participated at both times were younger ($M = 15.63$,

$SD = .89$) compared to those who only participated at wave 1, $M = 16.6$, $SD = .74$, $F(1, 29) = 9.64$, $p = .004$. There was no difference in the age of the younger siblings that participated at both waves compared to those that only participated in Wave 1. In short, the families that participated in both waves versus those that participated only at Wave 1 were similar demographically. The only difference between the two groups was that older siblings in the families that participated at both times tended to be slightly younger than older siblings in families that only participated at Wave 1.

Analyses of normality. Skewness and kurtosis on all acculturation and enculturation measures were evaluated for the main study variables. Descriptive statistics are presented in Table 3. Given the small size of the sample, Shapiro-Wilk tests were used to evaluate the significance of the skewness and kurtosis against zero at the .001 significance level. There was no evidence of deviations from normality for responses of older or younger siblings. As such, no transformation of data was necessary. In terms of univariate outliers, all cases had z scores smaller than 3.29 ($p < .001$, two-tailed test) put forth by Tabachnick and Fidell (2014) as the limit for acceptable values. There were no multivariate outliers with Mahalanobis distance at $p < .001$ for older or younger siblings at either time point.

Intercorrelations among predictor and outcome variables. Theoretically the acculturation and enculturation domains of behaviors, values, and identity are distinct yet correlated. The inter-correlations among main study variables are summarized in Table 5. Although some variables were moderately correlated, no correlations were above .90, indicating no concern over co-linearity (Tabachnick & Fidell, 2014). More importantly, most of the analyses examine each domain of acculturation and enculturation independently, obviating the concern of multicollinearity.

In terms of stability, as shown in Table 4, for older siblings there were positive correlations between Wave 1 and Wave 2 in all domains except for Canadian identity, which failed to reach statistical significance but exhibited the same magnitude of correlation as other variables (e.g., Canadian behaviors). For younger siblings, stability was evident in behavioral and identity domains, but not in terms of values (Chinese or Canadian).

Table 5 presents the inter-correlations among the main study variables within each wave. Within the Chinese dimension, across older and younger siblings, the behavioral, value, and identity domains were positively correlated, and almost always at a level that reached statistical significance. This was true at Wave 1 and Wave 2. In contrast, within the Canadian dimension, the three domains of behavior, values, and identity showed less consistent inter-relations. The domains of behavior and identity were most consistently positive and significantly related for both younger and older siblings at both waves, whereas values were generally unrelated to behaviors and identity.

Chinese and Canadian variables within each domain were generally uncorrelated for both siblings. Within the same wave, Chinese and Canadian behaviours were unrelated, except for at Wave 1 for older sibling where there was a positive correlation. Asian values and Canadian values were unrelated except at Wave 1 for older siblings, when they were significantly negatively correlated. Chinese and Canadian identity were positively correlated at both waves for younger siblings and at Wave 2 only for older siblings.

Non-independence. Dyadic researchers (e.g., Kenny, et al., 2006) have underscored the importance of evaluating nonindependence across dyad members. Assuming independence when there is non-independence results in biased variances, tests of significance, and their associated values p values. To avoid bias, it is necessary to evaluate for non-independence. However, there

is relatively little power in detecting nonindependence in small samples when the nonindependence is small (Kenny et al., 2006). Kenny and colleagues (2006) estimate that in a sample of 20 dyads, the power to test nonindependence would be .07 for a small correlation, 0.25 for a medium correlation, and 0.64 for a large correlation. The sample size at Wave 2 is 23 dyads and a test of non-independence would therefore be severely underpowered. In the situation of having fewer than 25 dyads, they recommend assuming nonindependence even if the test of non-independence is not statistically significant. As such, I have used main statistical analyses that accounts for non-independence.

Demographic variables. Prior to analyzing the correlations among the main study variables, age, age of arrival in Canada, and socioeconomic status were examined to determine if I should control for any of these demographic variables in the main analyses. A body of research has found that age is related to changes in cultural behaviours and identity development (e.g., Pyke, 2005; Stevens & Ishizawa, 2007). In addition, age of arrival captures some of the variability in the acculturation process that may vary as a function of the developmental stage of immigrants (Fuligni, 2001; Telzer, 2010). For example, at a later age of arrival, the magnitude of the relation between duration of exposure and identification with the new culture decreases (Cheung, Chudek, & Heine, 2011). Finally, mother's education was also examined to tease apart any role socioeconomic status may play in cultural involvement. Gender also has been identified as influential for differential identity development (Way, Hernández, Rogers & Hughes 2013). In this study, gender is examined as part of each research objective and will therefore be studied as a contributor to variance among variables instead of being statistically controlled for (Beckerat, Atinc, Breugh, Carlson, Edwards, & Spector, 2016). Variables that were significantly associated with both an independent variable (i.e., acculturation and enculturation measures at

W1) and a dependent variable (i.e., acculturation and enculturation measures at W2) were identified as potential control variables for subsequent analyses. The correlations among main study variables and demographic variables are summarized in Table 6.

For older siblings, no statistically significant correlations were found based on adolescent age or mothers' level of education for any acculturation or enculturation domains in W1 and W2. For older siblings, older age of arrival was significantly related to more Chinese behaviours at W1 and W2. Given that age of arrival was related to Chinese behaviour at both time points for older siblings, it was considered as a potential control variable. Analyses to examine if siblings were more similar in Chinese versus Canadian behaviours were conducted with and without controlling for older siblings age of arrival. The results did not differ. As such, only reports without the control variable is reported. For tests of sibling effects, the small sample size made it unfeasible to include a control variable in the analyses and the results reported therefore does not include age of arrival as a control variable.

For younger siblings, age was significantly related to endorsement of independence values at W2. In addition, higher levels of education for mothers was significantly related to younger siblings reporting lower levels of Chinese behaviours at W2. Finally, older age of arrival was related to lower levels of Canadian behaviours, Canadian identity, and unexpectedly also Asian values at W1. For younger siblings, no demographic variable was related to both an independent and a dependent variable. Therefore, no demographic control variables were identified for younger siblings.

Objective 1: Comparing the Acculturation and Enculturation Profiles of Immigrant Siblings

My first objective was to provide exploratory information about how siblings compare across Chinese and Canadian cultural domains using Pearson's correlations and intra-class correlations coefficients. I made two hypotheses: siblings would be more similar in their Canadian behaviour than in Chinese behaviour, and same-gender sibling dyads would be more similar overall (i.e., in more domains) than mixed-gender dyads.

How similar or different are siblings in their cultural profiles? In the full sample, there were few similarities in siblings' responses at Wave 1. Table 7 presents the Pearson correlation coefficients and intra-class correlation coefficients for each domain at both time points. The only domains in which siblings was more similar than chance was Chinese behaviours ($r = .46, p < .01, ICC_{\text{Chinese}} = 0.45, p < 0.01$) and there was a trend for independence values ($r = .34, p = .06, ICC_{\text{Chinese}} = 0.32, p < 0.05$). Siblings were not more similar than chance in their reports of Asian values, Chinese identity, Canadian behaviours, or Canadian identity. In Wave 2, siblings were not more like one another than chance in any of the acculturation or enculturation domains. These findings were not consistent with my hypothesis that siblings would be more similar in their Canadian behaviour than in their Chinese behaviour since both children are likely to experience pressure outside of home to demonstrate Canadian behaviours. At Wave 1, the opposite was found: there was no similarity in Canadian behaviors, whereas Chinese behaviors were significantly positively correlated. At Wave 2, there was no evidence of above-chance similarity in either cultural dimension.

Gender constellation predicting similarities and differences. To explore the evidence for my hypothesis that same-gender sibling dyads are more similar than mixed-gender sibling dyads (hypothesis 1b), I grouped mixed-gender sibling dyads and same-gender sibling dyads and then compared the groups using Pearson's correlation and the ICC. Table 8 presents the Pearson

correlations and the ICCs for mixed-gender sibling dyads and same-gender sibling dyads. At Wave 1, same-gender sibling dyads were more similar in their responses than chance in their reports of Chinese behaviours ($r = .71, p < .01, ICC = .70, p < .001$) and independence values ($r = .65, p < .05, ICC = .65, p < .001$). There was also evidence of similarity between same-gender siblings in their reports of Canadian identity ($r = .55, p = .06, ICC = .55, p < .05$), and Chinese identity ($r = .47, p = .12, ICC = .47, p = .05$) at Wave 1. Mixed-gender sibling dyads were not more similar than chance in any of the acculturation or enculturation domains at Wave 1. At Wave 2, neither siblings in same-gender dyads or mixed-gender dyads were more similar to their siblings in their reports of behaviours, values, or identities than chance. It is useful to remember that the sample at Wave 2 consisted of 23 dyads whereas there were 31 dyads at Wave 1. Given the small sample size and low power, it is not possible to state with confidence whether there is a trend of siblings becoming less similar. In the planned analyses, I intended to evaluate the significance of the difference between the two groups by z-transforming the ICC and conducting a t-test. However, with the small and uneven sample size the test would be biased and underpowered. Therefore, the mixed-gender dyads were not statistically compared to the same-gender dyads.

Do siblings become more similar or different over time? Given the lack of previous research on sibling acculturation and enculturation, I did not make any directional predictions about how similar or different siblings profiles became over time. Instead, I explored the patterns of siblings' responses on two dyadic indices at Wave 1 and compared them to their responses at Wave 2. Recall that in the full sample, siblings were only more similar than chance in the domains of Chinese behaviours and independence values (see Table 8). In Wave 2, siblings were not more like one another than chance in any of the acculturation or enculturation domains. In

other words, siblings were no more similar to one another across domains than randomly selected adolescents. Therefore, dyadic indices between Wave 1 and Wave 2 were not converted to z-scores and tested for group differences. Sibling dyads showed a few similarities at Wave 1 but no similarity at Wave 2. In other words, the siblings in the dyads appeared to become more different over the 18 months period. Again, it is necessary to exercise caution in interpretation of the results given the small sample size.

Overall, the dyadic indices suggested that siblings share few cultural similarities when compared using self-report surveys; same-gender dyads were more culturally similar than mixed-gender dyads; and, sibling dyads may become more different over time in their cultural profiles. All these findings must be interpreted with caution given the small sample size.

Objective 2: Exploring Sibling Effects on Acculturation and Enculturation

My second objective was to explore whether siblings influenced one another's acculturation and enculturation using the actor-partner interdependence model. I predicted that there would be partner effects, that an older male sibling would be more influential than an older female sibling, and that same gender sibling would be more influential than opposite gender siblings. The responses of younger and older siblings in each of the six domains are visually represented in Figures 2 to 7.

Sibling effects in full sibling sample

Chinese dimension. I first examined changes in Chinese behaviours from W1 to W2 (see Figure 2). Both older and younger siblings showed large, positive, and statistically significant actor effects for Chinese behaviours, indicating that there is reliable stability in the degree to which they endorse these behaviours over time. As seen in Figure 2, the actor effect of the older sibling is larger than the actor effect of the younger sibling. A chi-square difference test was used

to compare the two actor effects for predicting Chinese behaviour. Since the basic APIM is a saturated model with zero degrees of freedom, the chi-square for goodness of fit for the model is zero. By constraining two paths to be equivalent (in this case both actor effects), we gain a degree of freedom and the chi-square will be non-zero. Obtaining a chi square that is statistically significant would suggest that the covariances are not equal and lead to rejecting of the null hypothesis. This means that the actor effects are not equal (Kenny et al., 2006). For this test, I found $\chi^2 (N = 31, df = 1) = 2.88, p = .09$, indicating that the stability from W1 to W2 is of equivalent magnitude for both siblings. However, there is a strong trend that stability of responses for older siblings is stronger than for younger siblings. Both partner effects for Chinese behaviours were statistically insignificant, indicating that one sibling's engagement of Chinese behaviours at W1 was not predictive of changes in the other sibling's engagement of Chinese behaviour from W1 to W2.

In the domain of Asian values, younger siblings did not show stable ratings from W1 to W2. In the APIM for Asian values, only the older sibling's actor effect was positive and statistically significant. In other words, only the older sibling demonstrated reliable stability in their endorsement of Asian values over the 18-month period. Neither partner effects were statistically significant (see Figure 3).

Finally, ethnic identity was stable for both siblings from W1 to W2. For both older and younger siblings, the actor effects for ethnic identity were large, positive, and statistically significant (see Figure 4). These actor effects were not significantly different from each other, $\chi^2 (N = 31, df = 1) = .251, p = .617$. There were no significant partner effects for the ethnic identity model.

Canadian dimension. Regarding Canadian behaviours for older and younger siblings, actor effects were positive, ranging from medium to large, and statistically significant (see Figure 5). These actor effects were not significantly different from one another, $\chi^2 (N = 31, df = 1) = 2.89, p = .089$. Yet, there is a strong trend suggesting that Canadian behaviours may be more stable for younger siblings than for older siblings. A negative and statistically significant partner effect showed that older siblings' engagement in Canadian behaviour predicted younger siblings' level of Canadian behaviour. Specifically, older sibling's Canadian behaviour at W1 was related to decreases in younger sibling's Canadian behaviour from W1 to W2 ($b = -.32, p < .05$). In contrast, younger siblings' Canadian behaviour at Wave 1 was unrelated to changes in older siblings' behavior over time.

For independence values, only the older sibling's actor effect was positive and statistically significant. There was also a significant unidirectional partner effect. Higher levels of independence values by younger siblings at W1 predicted decreases in these values over time for older siblings ($b = -.27, p < .05$). As seen in Figure 6, the actor effect was moderately larger than the partner effect. The comparison of the predictors (a_o and p_y) on older sibling's report of independence values at W2 shows that, as one would expect, the older sibling's own score at W1 ($b = .66$) was significantly more predictive than their younger sibling's initial report of independence values ($b = -.27$), $\chi^2 (N = 31, df = 1) = 10.71, p = .001$.

In the actor-partner interdependence model for Canadian identity, both siblings demonstrated positive and statistically significant stability in the degree they endorsed a Canadian identity. Again, the actor effects were not statistically different in magnitude, $\chi^2 (N = 31, df = 1) = .073, p = .788$. There was again a unidirectional partner effect. In this case, older siblings' endorsement of Canadian identity at W1 predicted decreases in younger siblings' level

of Canadian identity at W2. As seen in Figure 7 the actor ($b = .48$) and partner ($b = -.41$) effects predicting younger siblings' Canadian identity were of similar magnitude.

The quantitative analyses generally showed stability in ratings of acculturation and enculturation for both older and younger siblings. The only exceptions were that younger siblings demonstrated a lack of stability in their reports of Asian values and independence values. Overall, older siblings showed more stability in Chinese behaviors and both Asian and Canadian values, whereas younger siblings showed greater stability in Canadian behaviors. Partner effects were only found in the Canadian dimension. All three partner effects were in the negative direction, meaning that higher endorsement by one sibling at Wave 1 was associated with decreases in endorsement by the other sibling at Wave 2.

Role of gender constellation for sibling effects

As mentioned previously, the small sample size restricted the analytic options. With 10 dyads with an older brother and 21 dyads with an older sister, there was not enough power to test the hypothesis that older male siblings were more influential than older female siblings on the cultural orientation of younger siblings. Likewise, there was not enough power to test the gender composition of dyads as a between-dyads moderator of sibling influence using APIM.

Qualitative Results

The results of the interviews are organized into two categories: (a) factors fostering or related to similarity and differences; and (b) effects of similarity and differences. Themes were identified based on both frequency of occurrence and the importance participants ascribed to specific experiences. See Figure 8 for an illustration of the themes and subthemes. Any names reported in the quotes are pseudonyms to protect the anonymity of the participants. The

modifiers “some”, “many”, and “most” are used to provide a sense of the number of participants who supported a view.

Factors fostering or related to similarities and differences

Five themes were identified as factors fostering or related to similarities and differences in the cultural profiles of siblings: (I) personality and motivational differences; (II) moving away from home and maturing; (III) birth order and age of arrival; (IV) shared experiences and age gaps; (V) and gender constellation.

(I) Personality and motivational differences

Many young adults expressed that personality differences between siblings in areas that are more congruent with one culture instead of the other contributed to differences in siblings' cultural profiles. Many believed that a sibling with an extraverted personality would be more outspoken, open to new experiences, and to more easily make friends with “Caucasian” or “white” peers. In contrast, an introverted sibling, who is more reserved, would find it more challenging to open up to and develop close friendships with Caucasian peers. Therefore, siblings with different personalities would have friend groups composed mostly of Caucasian versus immigrant backgrounds, reinforcing different levels of engagement with Canadian culture:

My younger sister, her friends are all like Caucasians, like non-Chinese people. I feel like her, her mindset is more Westernized than the Chinese culture because she's more independent. Like, I can see that she has had that like Westernized personality and she also prefers like Caucasians, so she has a Caucasian boyfriend. My older sister, she doesn't really like hang out with Canadian friends or something, like her friends are mostly like immigrants also. She prefers the, like the Chinese zone, like the friends, the friends circle, they're more Chinese, yeah. And then she doesn't really like to go out and explore the city. [female participant]

For some sibling dyads, an important source of difference in cultural trajectories was the motivation of one sibling to “fit in” or to be perceived as Canadian. In these instances, the

individual sibling would make efforts to increase their involvement with Canadian culture and minimize their learning/maintenance of Chinese culture:

When I was younger I was maybe a little bit ashamed of my Chinese culture, but now I am a bit more proud. I'm pretty sure there was a bit of bullying involved I'm not too sure about my sister but ... For myself, I can't really say they bullied me because I was Chinese but like I guess that was maybe one reason ... I thought that if I was White I wouldn't be bullied or something like that or yeah. I know for a fact that she [his sister] didn't hate it as much in the beginning as I did. Maybe she was a bit more proud of it.
[male participant]

Many young adults reported that there were points in their development when they made efforts to become more like a sibling they admired, to become different from a sibling because they disagreed with a sibling's behaviour, or in some cases to create a unique path for themselves. These motivations sometimes changed over time for the same person in one domain. In cases when an older sibling was high achieving or praised by parents, several younger siblings reported trying to emulate older siblings when they were younger. As a result, they would engage in similar activities and become more culturally similar. However, with time, those same siblings sometimes wanted to differentiate themselves from their sibling. These differences could manifest itself in different domains, such as with dating or educational choices. One of the participants describe how she aspired to become more similar to her sister but later craved to be different:

Like growing up, I really wanted to be like my older sister because she was smarter than me and she'd get first place [in Chinese school] while I get second place. I always felt like I wanted to like do what she did but better. But I can't do that, so I'm choosing something different. [female perspective]

(II) Moving away from home and maturing

The young adults consistently reported that moving away from home led to decreases in their Chinese behaviors compared to siblings still living at home. Moving away from home was not reported to be related to changes in the other two domains of values and identity. Before

moving out, parental efforts at home to include heritage practices, such as celebrating holidays or preparing Chinese food provided a seamless way to practice Chinese culture. Several young adults noted that living away from home led them to realize how little they knew about the practices of their heritage culture. Moving out often resulted in older siblings becoming more different from their younger sibling in the extent to which they participated in cultural practices. Yet, with time, younger siblings may also move out, leading siblings to engage in more similar levels of Chinese behaviours once again. A participant described how living away from home resulted in engaging in fewer Chinese practices:

When I was in Vancouver, there's definitely more connection to it [Chinese culture] because my parents are there, and they're always like "Oh there's Chinese New Year, celebrate this" and they're always reminding us of certain moon cake festivals and all that stuff. But in Victoria, my parents aren't here so no one really reminds me and we don't really celebrate so I feel a little disconnected from that. So I do feel a disconnection now, but when I was younger I did feel I was more involved because I was kind of forced to too. My little sister, I feel like, she might be a little more like involved since she's living with them and she get exposed to the traditions, the food, the celebrations than me.
[female perspective]

For most young adults, becoming more mature meant recognizing the importance of family connectedness and maintaining their heritage culture. Compared to earlier in the life span, siblings in late adolescence may become more similar in their orientation towards the heritage culture because both experience an increased desire to learn more. This theme was even relevant for most young adults that reported little involvement with Chinese culture compared to siblings as they grew up. Almost all siblings reported that as they became more mature, they realized that learning about the heritage culture was important for maintaining a strong sense of connectedness to the family. Regardless of their birth order, it seemed that siblings became more self-directed and interested in learning more about their culture as they matured. A participant

described realizing the importance of the heritage connection and trying to become more involved with cultural traditions:

When I was younger, I didn't want to be involved in Chinese culture. But as I grew up, I knew that in my family, it's very very important to hold on to like what was so dear to them. So, I have adapted in such ways, like praying, other one like... like on Lunar New Years. [male participant]

Thus, when siblings all reach late adolescence or young adulthood, they may become more similar in their heritage orientation

(III) Birth order and age of arrival in Canada

Birth order and age of arrival were often reported to be sources of differences leading older siblings to be more involved with Chinese culture than younger siblings. The different parental expectations due to birth order made older siblings more oriented toward Chinese culture than their younger siblings. Parents often made it clear that according to Chinese cultural practices, older children were expected to guide younger siblings. The eldest child, in particular, had a responsibility to guide and be a role model for younger siblings. Parents transmitting these high expectations often served to bind the eldest child more closely to Chinese culture than younger siblings:

I think she [eldest sister] had to because my parents, it's like a very Asian-thing to say, but my mom would always say, "You're the oldest, you were born first for a reason. You're there to guide your younger sisters so you have to do a good job, or else everyone else is going to do bad just like you" [female participant]

The later age of arrival is another factor that made older siblings more likely than younger siblings to be more oriented toward Chinese culture. When siblings were not all born in Canada, some young adults reported that older siblings were more connected to Chinese culture because they had greater exposure to the heritage culture than younger siblings. The younger siblings, on the contrary, would often be more connected to Canadian culture because they were born in Canada or had spent little time in the country of origin. In instances when siblings

immigrate to Canada instead of being born in Canada, older siblings may be even more likely to be more oriented toward the heritage culture than younger siblings because of both the expectations placed on them from their birth order and the greater exposure to the heritage culture:

My older sister actually studied at a like international school in Hong Kong so she speaks fluent English. But her mindset is more like Chinese I think because she came to Canada when she was 20 something. So she spent most of her lifetime in Hong Kong right, so it's natural that she's more adapted to the Chinese culture. My younger sister came to Canada when she was 9 and then she hung out with a bunch of like Caucasian, so I feel like her mindset is more Westernized. Like she works part-time and she pays for her own tuition. [female perspective]

(IV) Shared experiences and age gaps

Having shared experiences and smaller age gaps was often identified as being a main driver of cultural similarities among siblings. Shared experiences, whether positive or negative, such as going to Chinese school together or experiencing discrimination together, fostered cultural similarities and a sense of closeness. When only one sibling experienced a stressor, the cultural profiles of siblings tended to diverge:

Most of the time my older sister strongly identifies as Chinese. I feel like because she was also bullied when she was younger, so she wants to strongly defend that. To show like, "I don't care what you guys say, I'm also Chinese. I've been bullied about it and I stand by it." So I feel like there's a more stronger connection for her compared to me and my little sister. We do identify but I feel like, it's not as strong as what my sister feels for it, yeah. [female perspective]

However, when siblings have a shared experience of discrimination they would respond collectively leading to more similar cultural profiles:

Sometimes we would experience like something racist in Canada, like the both of us are experiencing it together so we would learn to like not to care about it anymore. For example, a time when he [her brother] was driving, and then he took a bite of the hash brown that he got from McDonald's. Then suddenly it was at a red light, the car next to us, a very old Canadian man was driving it, and he told us to roll down our windows and he shouted something like, "Don't eat, this is Canada, you know?". Then among ourselves, we were like, "Wow, okay, we're Canadians too" Maybe it's not a very good

thing but we would laugh at the situation together or laugh at how racist that the man was. Things like that have brought us closer together. [female perspective]

Siblings that were closer in age often also had a greater number of shared experiences, such as going to the same schools, and if they were of the same gender, sharing bedrooms when younger. Still many participants identified smaller age gaps as a unique reason, different from shared experiences, that was related to siblings being more culturally similar:

I'm definitely closer to my younger sister than my older sister. There's like an age gap of like 10 to 12 years difference and I never really lived with her for like a longer period until recently, so there's definitely like separation there, and I'm a lot closer with my younger sister. We talk more, we understand each other more and we have all these inside jokes that my older sister won't get. [female perspective]

Often it was difficult for the young adults to identify if being close lead to being more culturally similar or if the opposite was true, that being culturally similar resulted in greater closeness. In general, participants who reported being very close to their siblings also indicated that they were "very similar" or even "the same" culturally, whereas participants that reported spending less time with their sibling often reported that they were less culturally similar:

When we first came to Canada we were quite close, and when she started to learn about Canadian culture and Canadian values, uh she started to explore those values. So she started to go out with friends, but then, for me I feel like I spent more time with family, right, but, and then high school happened. And then we didn't really talk as much anymore. [male perspective]

(V) Gender constellation

Many young adults believed same-gender sibling dyads to be closer and more culturally similar than mixed-gender dyads because they had more shared experiences and parents would not show gender-based favoritism. Congruent with earlier reports of shared experiences fostering cultural similarity, several participants noted that they were closer and more culturally similar to a same-gender sibling because they could discuss topics such as makeup or fashion trends in

Asia or in North America. Sibling dyads that are of the same-gender may become more similar because they share more common interests:

With a sister, I can always talk about fashion or makeup and stuff, especially if I have an older sister, maybe she can teach me skills or like give me advice. But then, I wouldn't ask my brother's opinion before online shopping and stuff. [female perspective]

The siblings from mixed-gender sibling dyads reported that the preference for males in Chinese culture was sometimes a source of resentment by female siblings. In mixed-gender dyads, siblings may become more different in their cultural values because of parental favoritism. Many female participants noted that they did not believe gender-based favoritism should exist; they were opposed to this bias that was a part of Chinese culture. In general, female participants endorsed Canadian values of gender equality more often than male participants. Some male participants recognized that gender-based favoritism connected them more to their heritage culture, but many males also reported that there should not be gender-based favoritism. Even the males that enjoyed their higher status expressed ambivalence toward the treatment. One of the male participants discussed his experience of being spoiled more than his sister but he also provided alternative explanations for the differential treatment and emphasize that it was not excessive:

For me being a male ... males are a bit more favored in Chinese culture in many ways and that's why maybe I have developed a stronger liking to it. Yeah, definitely. I guess when I was younger they could spoil me a bit more but that could also have been like circumstances because she was born in China and they weren't doing as well but when we moved here it was a bit better so there is that. My dad does talk about it, that in a sense my sister went to a really good school and got really far so I should be able to do more because I am a guy and my parents have spent a lot more effort and money on me. So there is a favoritism in a way ... my sister sometimes says it ... but it's not like too too much. [male perspective]

These sentiments of favoritism were recognized as a cultural problem by female participants even if they did not have a brother. These female participants still reacted against

parental attitudes by endorsing that the genders should be equal. This sentiment suggests that female-sibling dyads would be more similar in their cultural values around gender equality than mixed-gender dyads. Several young adults with female siblings only expected sibling relationships to be less equal if their parents also had had a boy:

So, I feel like if there was a boy, my parents might treat him a little better. Because you know, Chinese culture is the boy's the best. They're strong, they earn more, they're smarter, and stuff like that. But because we're all girls, I feel like they treat us basically the same, but um, with the difference in age, we are told to respect the older one. With all the drama that they watch too, they're always like, "Oh, the boy's the best. It's always the best to have a boy." I'm like, "Oh, there's no difference. [female perspectives]

The picture of similarities and differences among siblings' cultural orientation is created by a complex set of factors. Some of these factors are individual differences whereas others are structural factors, such as birth order and age gaps. Some are shaped by other intra-familial relationships, such as parental praising of a sibling or gender-based favoritism. Furthermore, siblings' cultural similarities and differences undergo changes with development. Developmental transitions, such as moving away from home may change cultural orientation in a specific dimension and in a specific domain. The participants' responses highlighted the need to consider nuances and complexity when comparing siblings' orientation toward their heritage culture and toward the Canadian culture. Siblings may be similar in some domains and not in others. Furthermore, these similarities and differences change over time. Next, I turn to how siblings shape each other's cultural profiles and a consider when similarities and differences seem to affect sibling relationship quality and siblings' well-being.

Effects of sibling similarities and differences

My second research objective was to examine sibling influence in cultural profiles. However, important themes in addition to sibling influences in cultural orientation emerged. Using an inductive approach for coding, themes emerged about effects of cultural similarities

and differences for sibling relationship quality and siblings' adjustment. Since the purpose of the inductive approach is to conduct data-driven analyses, I have included the themes strongly linked to sibling effects. I have not restricted the themes to only include sibling effects on each other's cultural involvement. I identified four themes that stemmed from similarities and differences in sibling's cultural profiles. The first theme spoke to sibling effects on each other's cultural involvement: (I) bidirectional influence in siblings' cultural involvement. The other three themes reflect broader sibling effects about how cultural similarities and differences relate to sibling relationship quality and adjustment: (II) few cultural conflicts among siblings; (III) siblings as cultural mediators in parent-child conflicts; and (IV) siblings being in a unique position to understand and provide support.

(I) Bidirectional influence in siblings' cultural involvement

In general, all young adults reported they and their siblings to appreciate understanding both cultures, and therefore there was an openness to learning from one another regardless of birth order. It was, therefore, common for siblings to try to learn different elements of the Canadian culture or Chinese culture and to introduce one another to them. Especially in the early stages of adapting to Canadian culture, many young adults reported sharing about Canadian norms as siblings learn together:

At first when we came over here we didn't really know like anyone else so if we noticed some thing about Canadian culture, we would tell each other about it so the other person understands what's going on. For example, when you get off the bus, you say thank to the bus driver. Well because bus drivers in Hong Kong aren't really nice there, they purposely drive super fast. There was an accident just before the Lunar New Year because the bus driver was driving pretty recklessly. There were 19 deaths so that was a big thing. So, we won't be extra nice to bus drivers. In Hong Kong we would think that it's only their job to, you know, drive the bus around. But my brother was the one to notice that people say 'thank you' when they get off the bus here. After he knew he went home and told me so that I know it's a Canadian thing to do that. It was pretty helpful. I I don't want to be rude or anything so it was pretty good that he told me. I started noticing people doing that and then I started doing that as well. [female perspective]

Many young adults also reported that there were positive and negative aspects of each culture. Observing siblings that were more involved in one culture could inspire one to want to learn some of the strengths that come with that cultural orientation without adopting what they considered negative aspects of that culture. In the words of one of the young adults:

So, because my younger sister is more adventurous and more confident in a way, it helped me realize I want to practice more Canadian values, whereas my older sister she's more traditional. But then she still has her strengths, I want to become more similar to her as well in that area. And I mean, it depends. Sometimes, like when my younger sister, in high school, she would be more involved with dating and stuff, probably, more than she should. I felt like, "okay, maybe, I shouldn't do that".
[male perspective]

Siblings also played a role in making one another more moderate in their cultural orientations over time. Several young adults reported that siblings ground each other in their cultures so they do not become immersed in one culture only. For many of the participants, siblings helped remind them to be moderately involved with both Chinese and Canadian culture:

If I don't have a sibling I would go right away into Canadian culture. I don't go that deeply because Andy [his brother] is stopping me. [male participant]

Both my sister will look for me, who's like the middle, who has half of Chinese tradition, half of Canadian. So, they would come ask me, "hey, is this too much, and too much as in, should I be more social, or should I be less social?" So, they would come to me like a mediator. Like the person in the middle. [male perspective]

Siblings often recognized cultural differences as an advantage. While cultural differences sometimes caused tensions, they were much more often beneficial. Siblings could teach or keep another sibling connected to both cultures. Often the older siblings would know more about Chinese culture and sometimes also Canadian culture. They would therefore remind younger siblings of culturally appropriate behaviour or teach them elements of Chinese culture, such as reading and writing:

In Chinese school, like when I didn't know how to do an assignment or how to read it, my sister would always help me. But not me with my younger sister because I was always bad at Chinese. But she would teach both of us and so yeah. [female perspective]

Since most of the parents of the young adults did not grow up in Canada, older siblings were also more knowledgeable about Canadian culture, including how to celebrate Canadian holidays and how to navigate post-secondary education. Many younger siblings would ask older siblings about course selection or seek career advice. Older siblings would encourage and provide opportunities for younger siblings to engage in cultural practices that parents did not find important, such as playing sports or going to the beach:

They [older siblings] were the ones to push me into like playing sports, and like being involved in school more than my parents. My parents just focused on school. And then I did do that as well, but then with my sibling's help, I was able to do other stuff outside of school work. Like they would hang out with us and take us to the beach and make us like do things, like expose us to the Canadian culture, like activities Canadians do. [female perspective]

Although older siblings were influential in explicitly teaching about cultural practices, many younger siblings also reported influencing older siblings' cultural behaviours. Unless it was in the early periods following immigration, younger siblings would rarely teach older siblings about Canadian culture. Participants who were younger siblings would often say that the older siblings would know just as much about Canadian and Chinese culture as them. Younger siblings' influence would rarely be explicit teaching; instead, it would take the form of encouraging older siblings to engage in more Canadian practices. One of the participants describe how he encouraged his older sister, who is more oriented towards Chinese culture, to become more comfortable socially and more outgoing:

I would invite her, and she never played badminton before. Well, I mean, in high school, but not all the time. She would come, and she would start to socialize with other people. And, because of badminton, her social skills increased. I think, not to be like arrogant or anything, but I think I played a factor in that too. [male perspective]

(II) Few cultural conflicts among siblings

Young adults often reported that they and their siblings were culturally similar and that they had no (or very few) conflicts based on cultural differences. For most siblings, it was rare that cultural differences negatively impacted sibling relationship quality. The participants often reported that they and their sibling were “very” similar culturally. The perceived cultural similarities appeared to be based on a set of shared core values of demonstrating appropriate respect and valuing family. In the presence of these shared values, any differences in cultural behaviors or identities did not lead to sibling conflicts. Most young adult reported that they were supportive of siblings’ choices in how much they practiced Chinese or Canadian behaviors. Participants believed siblings should be able to choose their own preferences for entertainment, food, and their circle of friends. In the domain of identity, participants often noted that it was difficult to know how similar they were in their levels of identification with being Chinese or Canadian. Yet, the participants often assumed their siblings’ identification with Chinese and Canadian culture to be similar to theirs, if they shared similar core values. Many participants reported that the core set of values were understood by siblings at a deep level:

Talking back is a very like frowned upon thing over there [heritage culture], but my friend here talks back to his mom. I don't know if it just like ... like just him or it's Canadian culture, but like he can just talk back to his mom on everything. I was like holly shit, you're gonna get bitch slapped. I'm sitting over here like fearing for my life when I say the wrong thing. As long as we like follow the basis of like Vietnamese and Chinese culture. Then it's okay, we are... as long as we are not rude or anything, that's fine. We can be our own people. [male perspective]

The few instances when cultural conflicts were present, the conflict was almost always centered on disagreements about how hierarchal sibling relationships should be. Sometimes parents or an older sibling would expect greater hierarchy in the sibship than the younger sibling. In a few instances participants reported they and their siblings to be culturally similar in their

preferences for a more equal sibling relationship, but parents attempted to impose a more hierarchical structure by asking an older sibling to provide more guidance. In these cases, the parental expectations could strain sibling relationships. When cultural conflict among siblings did occur, it usually stemmed from differences in sibling expectations around hierarchy:

You know with Caucasian people, older siblings they don't teach their younger sibling to do something. They will like talk back. They're more like friends. But for me, I feel like, if she [younger sister] does something wrong, I have the responsibility to tell her what's wrong. I think I'm responsible for like her moral values or something. But sometimes when I try to talk about it, she kind of withdraws and she don't really want to talk about it. She's like, "Oh I don't want to talk about it." Like the way she deals with this kind of situation is more like Westernized people and I feel like she's being disrespectful to me. I feel like, "I'm your older sister but then you don't treat me as your older sister." But then she feels like I'm a friend to her. But I don't feel like I'm a friend to her - like "I'm your older sister" to her. [female participant]

Conflict over sibling hierarchy was only reported by a few participants. Many young adults explained that they and their sibling preferred a more equal sibling relationship because it felt more like a friendship. When there was a hierarchy among siblings, older siblings often provided support to younger siblings, which legitimized their higher status and made their role appreciated by younger siblings:

My parents ask me, "Oh, what do you want to do? What are you going to do in university?" I'm like, "I don't know", It really stresses me out, but they do ask me. And my older sister asks me as well, like, she, I would say she's more invested in my future than I am. Like she's always asking me "Oh what are you doing? Are you sure? You're just like playing all day, you're not going to school, and you're not whatever", and stuff like that. She's kind of a mother figure to me as well, just because growing up my mom was working all the time so she would babysit me and my younger sister. So yeah, and when she first got her job, she would buy me a lot of things and just like spend her paycheck on me, which I'm grateful for. Yeah, so I think that built our good relationship as well. [female perspective]

(III) Siblings as cultural mediators in parent-child conflicts

Siblings almost always perceived themselves and their siblings to be "pretty" or "very" culturally similar compared to their parents. As a result, a third theme was that they rarely

reported cultural conflict with siblings. Instead, siblings served an important role in mediating conflicts in parent and child cultural conflicts. The more culturally moderate sibling would often mediate between parents who were more oriented toward Chinese culture and a sibling that was more oriented toward Canadian culture. Since the youngest child was often the one most oriented toward Canadian culture, a more culturally moderate sibling tended to be the oldest or a middle sibling. The mediating sibling would often try to deescalate conflicts. These instances seem to be examples of positive effects that sibling cultural differences can have on another sibling's life:

You know, we never really fight about culture stuff, you know, between me and my sisters. Um...Like my sister always try to get me out of trouble in a sense, cause sometimes I will actually clash back with my mom. She [his mother] will talk about like little beliefs and whatnot. And I will say, "Oh that's irrational or like illogical". And I will like go on and on and on telling her that. My sister will just be like, "just shut up" and I will be like, "okay, fine", you know. So like she [his sister] knows where I'm coming from and where my mom's coming from. So she will be like, "You know it's not really worth it". Cause, you know, she has the understand of like the Chinese culture and Canadian culture or more like the western culture.

[male perspective]

To prevent conflicts, a mediating sibling will often try to encourage the sibling that experiences parental conflicts to try to understand the parents' perspective. Siblings that mediate are often more enculturated than the sibling that experience the conflict with the parents. In these instances, the more enculturated siblings will explain the parents' perspective and the cultural significance of a practice that the less enculturated sibling can appreciate. Understanding parents' perspective often results in the less enculturated sibling being willing to avoid confrontation. The ability of the more culturally moderate sibling to perspective take is perceived by many young adults as an asset and a skill that they want to develop when interacting with their parents:

Um okay so like my parents they want me and my brother to move back to Vancouver, where they live, they want us live together again once we graduate from university. But then my idea is opposite now because I wanna go travelling or go somewhere else. But in

front of my parent he [his brother] would say “Yeah, sure, why not?” but when he talked to me he would say “We can figure this out, we can work this out later, when we graduate from university. Just don’t say no right away to our parents”. So he would think about my parents more than me but he would also discuss the idea with me. I try to learn from him because, how do I say this, if I am with my parents, I try to switch to the Taiwanese culture because I don’t want to argue with them anymore yeah, because there’s no point in arguing. [male participant]

(IV) Unique position to understand and support

The young adults emphasized that their shared cultural experiences create an unique ability for siblings to understand one another’s perspectives and to be supportive. This ability to understand was attributed to both siblings having grown up with a similar cultural experience of having to negotiate both Chinese and Canadian cultures. The cultural similarity of siblings appears to be a positive factor influencing sibling relationship quality and sibling adjustment. Regardless of how similar or different participants and their sibling were culturally, having a shared experience of growing up with their heritage culture and Canadian culture made them understand each other more deeply. Participants reported that siblings were better positioned than even parents to best understand each other. Siblings shared cultural experiences which created a bond for each to feel understood:

Having someone to talk about it, I think is the most important. Communication is key, cause I guess part of the reason I struggled in sort of my culture identity is not having anyone who understands....Who *I think* understood. Like it wasn't something you can casually bring up to your school friends or anything like on a regular day, because it is quite deeply rooted, it's quite heavy. But I think having a sibling who sort of went through the same things really helps. [female perspective]

Siblings’ shared cultural background allow them to support one another by providing another perspective when they experienced social encounters that could be interpreted differently based on Chinese or Canadian viewpoints. Participants reported that it was useful to get additional perspectives from siblings. Sometimes it did not matter if siblings were similar culturally – it was helpful to get feedback about social interactions regardless of their siblings’

cultural orientations. Several young adults reported that they sought a sibling's opinions when they were not sure how to interpret other people's behaviors:

I'm in church, and some of the people they are born here, so their ways of thinking or like doing things are like westernized. This might be like biased or like stereotype but they may not consider like ... the age or care about how you feel and things like that. So, they might be like very straightforward and just tell you whatever they think. And like with people that has a Chinese background, they may find that offensive and think, like, "Oh, do you not like me or something ... do we have beef or something?". So, he [my brother] would ask [me], is this person really trying to go against me or are they just putting ideas out there, speaking out for themselves. [female perspective]

Participants who had multiple siblings, would highlight that sometimes cultural similarities or differences among siblings would be a consideration for choosing which sibling to consult on a specific issue. If the young adult wanted to gain a better understanding from a Chinese perspective, they would ask a sibling more involved with Chinese culture. If they wanted to understand a Canadian perspective, they would ask a sibling more involved with Canadian culture. Based on the situation, it was useful to have siblings that were either culturally similar to themselves or more different. One of the young adults described asking his older sister about dating because she was more similar to him in her involvement of Chinese culture and he wanted to get another perspective informed by Chinese culture:

I was dating this girl last year, and, around how intimate we should get, or is reasonable. I guess you could say I'm more conservative with this kind of stuff, so I'm not sure what to expect, and stuff, and what to do. So I asked my sister, older sister for advice, and she, because she was influenced more in by a Chinese culture, so she would say hey, as long as you guys are, as long as you're not forcing her to do whatever ... But at the same time, she told me to understand that my girlfriend comes from a Chinese background too, so, "whatever you do may impact how she and her family interacts". So she was reminding me of recognizing that, uh, my ex-girlfriend now, is influenced more by Chinese culture. [male perspective]

In the initial period following immigration, siblings are both new to Canadian culture and often do not speak English. Since siblings are similar culturally, and can communicate with one another, they often become closer during their early period of adjustment to Canada. The similar

cultural profiles of siblings in their early adjustment period can facilitate the development of a closer relationship that resembles a friendship:

Because sometimes, some problems, you won't tell your parents. For example, something you experience in school. For when I didn't have any friends over here, like he [her brother] basically would be the only other person that I'm already very familiar with. I would know that he would stand by my side. And like me doing the same thing for him. So, he would be a very good person. He became more like a friend ever since like we moved to Canada, than just an older sibling. [female perspective]

Both older and younger siblings in immigrant Chinese families can play a role in shaping their siblings' cultural profile and support them in their adjustment. The young adults reported bidirectional influences throughout development, such that older and younger siblings shaped their siblings' cultural profiles in different cultural domains. Both sibling similarities and differences were often seen as assets and rarely a source of conflict. Whereas sibling similarities allowed siblings to avoid cultural conflict and to understand each other, the presence of some sibling cultural differences allowed a more culturally moderate sibling to serve as a mediator in parent-child conflicts at home and to provide another perspective in delicate social situations. The findings suggest that siblings' cultural similarities and differences not only have an effect on other sibling's cultural profiles but also on sibling relationship quality and adjustment within and outside the family.

Discussion

Using quantitative and qualitative methods, the current study explored sibling similarities and differences in acculturation and enculturation and sibling influences in cultural involvement. The study expanded upon the current understanding of within-family differences in acculturation and enculturation by comparing siblings' cultural profiles using both quantitative analyses and interviews.

Similarities and Differences in Cultural Profiles

The first objective to examine sibling profile similarities and differences yielded unexpected quantitative results. In almost all instances siblings' behaviours, values, and identities were not more similar statistically than two randomly selected individuals from the broader population. I hypothesized that siblings would be more similar in their Canadian behaviour than in their Chinese behaviour because of the necessity to engage in Canadian behaviours outside the home. Surprisingly, the only instance in which siblings were more similar than by chance was in their reports of Chinese behaviours at Wave 1. Siblings were not more similar than chance in their practice of Canadian behaviours. In the full sample, there was no similarity in any of the other acculturation or enculturation domains at Wave 1 or at Wave 2.

The behavioural similarity in the Chinese domain is consistent with previous research of continuity in cultural behaviours across generations (Conger et al., 2009). Living in a shared cultural milieu makes adolescents more similar. Yet, the effect of a shared family environment was no longer found at Wave 2. The lack of similarity may be partly due to the small sample size. Again, given the low power in a small sample, the quantitative findings should be interpreted with caution. Given the young age of adolescents in the quantitative sample, it is unlikely that moving away from home and maturing is a reason for the differences. The results

from the qualitative findings suggest that individual differences may play a larger role as the siblings move into later adolescence. As siblings get older, they are allotted more freedom to spend time outside the home with friends than they previously did. Different friend groups are likely to contribute to greater differences in siblings' cultural profiles. Siblings who have relatively more same-ethnicity friends are more likely to report increasingly higher levels of both ethnic belonging and exploration (e.g., Kiang et al., 2010) compared to siblings that have friends from a non-Chinese background. The quantitative findings suggest that there is a lot of individual variability in immigrant siblings' choice of behaviours, values, and identity in a metropolitan Canadian context.

It may seem surprising that siblings do not share more similarity than chance in many cultural domains. However, results from the interviews provide a striking number of factors that may contribute to differences in cultural profiles. There are structural differences as well as individual and contextual differences that appear to influence how similar or different siblings become in their cultural orientations. Differences in birth order and age of arrival often contributed to differences in cultural profiles. Congruent with earlier research on the role of sibling birth order in Asian American families (e.g., Park & Chesla, 2007; Pyke, 2005), participants reported that older siblings were often more oriented toward the heritage culture than younger siblings. Younger siblings were often described to be more oriented toward Canadian culture than older siblings. Likewise, individual differences in personality and motivation also contributed to differences in cultural profiles, as did developmental transitions, such as moving away from home and maturing. A factor contributing to similarity was sharing more experiences together, which was common among siblings close in age. Siblings would often report a pattern of high similarities in cultural profiles, many shared experiences, and close age gaps. These

findings suggest that members of a sibling dyad that are more different to begin with and who also have fewer shared experiences and larger age gaps are likely to be more culturally different than siblings that are individually more similar to begin with and also share more experiences together.

Part of my first research objective was to explore if siblings' cultural orientation become more similar or different over time. The quantitative and qualitative data suggest that siblings may become more dissimilar culturally during middle adolescence, but become more similar again as they mature and recognize the importance of their heritage culture. In the quantitative sample, Chinese behaviour was the only domain in which siblings were more similar than chance. In the qualitative interviews, perceived cultural similarity appeared to be due to sharing a set of core Chinese values (e.g., demonstrating appropriate respect for hierarchy and family rules and prioritizing the family). When participants reported being uncertain about their siblings' identification with Chinese and Canadian culture because of difficulty estimating siblings' behaviours, participants would infer similar identification if their values were similar. Several participants noted that they became more different from their siblings in the number of Chinese behaviours they practiced after they left home. Many participants believed that siblings should be free to decide how much they engaged in Chinese or Canadian behaviours if those behaviours did not contradict the core family values. Taken together, it is possible that siblings are allotted more freedom to choose behaviours than values resulting in greater similarities in Chinese cultural behaviours than cultural values. In other words, at the surface level siblings may appear to become culturally different with age, but they may still be similar at the level of values.

I expected that the gender constellation of sibling dyads also would predict similarities and differences in siblings' cultural profiles. Quantitative tests suggested that same-gender dyads

were more similar than mixed-gender dyads. Whereas siblings in mixed-gender dyads were not more similar than chance in any of the cultural domains, same-gender dyads were more similar in their reports of Chinese behaviours, independence values, Chinese identity, and Canadian identity at Wave 1. Yet, these similarities were not found at Wave 2. Again, given the small sample, the results must be interpreted with caution. These findings are consistent with the literature showing same-gender siblings to generally be more similar than mixed-gender sibling dyads (Kramer & Conger, 2009). Results from the qualitative study corroborate this trend of same-gender sibling dyads being more culturally similar than mixed-gender sibling dyads. The qualitative findings suggest that same-gender sibling dyads may be more similar than mixed-gender dyads because same-gendered siblings have more shared topics of interest and spend more time together. These accounts are congruent with research examining the links between family cohesion and ethnic identity (Kiang et al., 2010), which has found that for Asian adolescents, increases in family cohesion are related to increases in reports of ethnic belonging. It is likely that spending time with siblings, asking them for help, and feeling close to a sibling fosters similar cultural trajectories. The qualitative findings also suggested that in the Chinese immigrant context, mixed-gender sibling dyads may be less close and more different in their cultural profiles because of gender-based favouritism that females experience as unfair. Overall, the quantitative and qualitative data both provide preliminary evidence that same-gender sibling dyads may be more culturally similar than mixed-gender dyads.

Despite the importance of structural factors, such as gender-constellation and birth order, the qualitative data appeared to suggest that individual differences and shared experiences are more important for establishing cultural similarities and differences among siblings. Contrary to literature showing greater differentiation among siblings when environmental adversity is high

(Jenkins et al., 2005), stressful environments only appeared to spread siblings out on cultural indices if they were not experienced together. When experienced together, in the context of supportive sibling relationships, stressful experiences did not appear to lead to cultural dissimilarities. These shared experiences instead seemed to foster a closer sibling relationship because siblings feel understood and supported by virtue of experiencing the stressful event together. For example, when a young female experienced an incident with her brother where an older Caucasian male suggested that they were not Canadian, the siblings made sense of the experience together and responded collectively by laughing at the ridiculousness of the situation. Collective experiences such as these fostered strong cultural similarity and closeness despite being a mixed-gender dyad.. On the other hand, individual experiences of discrimination often led a sibling to become more disengaged toward Canadian culture than their sibling who did not have that negative experience.

Research shows that when support is not available for a sibling in times of stress, the outcome for the individual child becomes less favourable (Conger et al., 2009). The presence of a sibling when experiencing acculturative stressors, may not only serve to keep siblings culturally similar, but also serve as an important buffer against poor adjustment. Each sibling may have different risk factors for vulnerability to adversity, such as achievement levels and physiological reactivity (Kramer & Conger, 2009). It may be that the collective interpretation formed by siblings who experience negative life events together serve to benefit a sibling prone to a more negative interpretation of stressors. More research is needed to understand how collective sibling experiences, especially for negative life events, may serve to strengthen sibling relationships and ameliorate the risk of poor adjustment. For example, future research in this area is needed to clarify what elements of the shared sibling experience appear to be promoting

greater cultural similarity and adjustment among siblings. If it is the ability to talk about the acculturative stressor, perhaps encouraging siblings to talk about acculturation stressors may help them cope better even if they experience negative life events individually.

Sibling Effects on Cultural Involvement

My second research objective was to examine sibling influences on acculturation and enculturation. Before discussing sibling influence, it is worthwhile to note the general stability in siblings' report across cultural domains. The quantitative evaluation of sibling effects often showed robust stability in older siblings' reports on all cultural domains for both the Chinese and the Canadian dimension. In other words, there was strong consistency among older siblings in their cultural involvement over the 18-month period. Likewise, younger siblings were also stable in their reports, except for in the values domains. Given that the mean age of the younger siblings was 13.24 years at Wave 1, the lack of evidence for stability may reflect the developmental period. Early adolescents may be beginning to grasp the concept of values. There has been little research on the change in the values of Asian immigrants in Canada. Interestingly, the stability in identity for both younger and older siblings in our sample is different from findings in the United States with Asian adolescents. In a study examining change in ethnic identity across high school years, Asian adolescents reported declines in levels of belonging (Kiang et al., 2010). The greater fluctuations in identity by Asian adolescents in the United States is consistent with the argument by Berry (2006) that broader social policies have implications for the cultural profiles of immigrants. Adolescents in societies with legislation supporting multiculturalism, such as Canada, may be more secure in their identity than ethnic minority adolescents who reside in nations without the legislative support for multiculturalism, such as in the United States. Our qualitative results suggest that the stability in older siblings' reports of

heritage cultural involvement may change during the transition to living independently, when parental socialization influences are lessened. Taken together, both social policies and developmental processes may contribute to patterns of similarity and dissimilarity in siblings' report of stability over time.

A key research objective was to understand when sibling influences would occur and under what circumstances siblings were likely to model one another or attempt to differentiate from one another. Results from the quantitative data provided interesting preliminary findings of siblings' influential role in one another's cultural involvement. The quantitative data suggested a reaction against a sibling's level of involvement with Canadian culture. That is there were three negative partner effects in the Canadian dimension (and none in the Chinese dimension). In two cases, the influences were unidirectional from the older to the younger sibling and in one case, the influence was from the younger to the older sibling. Higher reports by either the older or younger sibling in a domain of Canadian culture predicted decreases in their sibling's report in that domain 18 months later. These negative effects can be interpreted in multiple ways. Absent of the qualitative interviews, the findings seem to support the deidentification theory (Whiteman et al., 2007), which argues that individuals are motivated to carve out unique identities, shaped by their perception of their siblings' qualities. Adler (1956) originally proposed sibling deidentification to describe siblings' conscious or unconscious efforts to define themselves as different from each other to establish a unique identity and to reduce competition for parental affection. The conceptualization has changed since Adler's initial work, but the main tenet is still that siblings protect themselves from social comparison and rivalry by differentiating themselves (Whiteman & Crouter, 2007).

The interviews suggested that siblings do react to their siblings' qualities, but the motivation for the reaction is not to reduce competition. Instead, it is part of a process of selecting qualities from each culture they deem admirable and rejecting the undesirable qualities. In the interviews, participants described a cherry-picking approach for modelling and reacting against siblings' cultural profiles. For example, one of the participants described that there were elements of Canadian cultural involvement that he admired about his younger sister that he wanted to emulate, namely being more confident, but other aspects that he wanted to avoid (e.g., his younger sister's involvement with dating in high school). A sibling can strive to both model and differentiate from a sibling in the same cultural dimension. Within the same domain, a sibling can also change their response to a sibling's cultural orientation over time. For example, a female participant described trying to emulate her older sister by studying hard when she was younger, as education is highly valued in Chinese culture. However, in university she wanted to be different from her sister, so she chose a different major and no longer tried hard in school. The desire to model a sibling or differentiate from them can occur within the same domain over time.

The patterns of sibling influences were partly consistent with the literature on hierarchical structures in sibling relationships in the Chinese cultural context. As the literature would suggest (e.g., Perlman et al., 2000; Tucker & Updegraff, 2010), older siblings were often influential in affecting younger siblings' cultural behaviours. However, in our quantitative and qualitative findings, sibling influences were often not unilateral. The quantitative results showed that younger siblings' higher reports of Canadian values were predictive of decreases in older sibling's cultural values. Bidirectional patterns of influence were also described in interviews. Both younger and older siblings shaped one another's cultural profile. The frequency of younger siblings' influence on older siblings was unexpected given the emerging research showing

modest declines of older siblings' power in early and middle adolescence (Campione-Barr, 2017; Lindell & Campione-Barr, 2017). However, this may be due to the relatively small age gaps (2.76 years at Wave 1) between older and younger siblings in the quantitative sample and the long time span covered in the qualitative reports (based on experiences throughout childhood and adolescence). Regardless of the size of the age gap, in a Chinese cultural context, the hierarchy tends to be more distinct (Park & Chesla, 2007; Pyke, 2005) suggesting that the higher status allocated based on age and gender is less likely to change over time even if the age gap is small. Yet, the evidence suggests that in an immigrant context, the power structure may shift in some families due to acculturation and associated beliefs about equality. The qualitative findings showed that in some families the hierarchy remained distinct but that in other families the hierarchy became more egalitarian and the sibling relationships became more akin to a friendship. This appeared especially to be the case for sibling dyads that immigrated to Canada together and were close in age. In these instances, older and younger siblings served as socializing agents, teaching one another about Canadian norms. Further research is needed to understand when these power structures shift and why they are experienced as a positive change in some sibship and a negative change in others. For instance, it is possible that the shift in the power structure is more likely to be perceived as positive when both siblings want the other sibling to assume the role of a friend, especially immediately following immigration when neither sibling has made friends. Perhaps conflict is more likely when younger siblings do not perceive older siblings' greater power to be legitimate, such as when younger siblings do not feel that they provide helpful guidance, but only unsolicited advice.

Another common pattern of change described in the interview was the tendency to become more moderate in one's cultural orientation to avoid conflict with parents. These results

fit with the quantitative pattern of a high level of Canadian involvement by one sibling resulting in decreases in that Canadian domain by the other sibling. Within the family system, siblings learn from their own as well as from their siblings' interactions with parents. As described previously, some siblings played the role of mediator in conflicts between parents who were more oriented toward the heritage culture and siblings who were more oriented toward Canadian culture. In these instances, siblings who were more oriented toward Canadian culture learned from their sibling how to reduce tendencies to engage in direct confrontation when communicating with parents. In addition, they likely also learned that a high Canadian orientation often leads to conflict. It is plausible that the mediating sibling decreases their Canadian orientation, as the negative interaction between their parents and sibling reinforces their sentiment that they do want to be highly oriented toward Canadian culture. This explanation would be consistent with the quantitative pattern of decrease in the endorsement of Canadian behaviours, values, or identity in reaction to another sibling's high orientation to Canadian culture.

I also sought to explore if the gender composition of the sibling constellation influenced the strength of sibling effects. I was unable to test if same-gender siblings would influence one another more than mixed-gender sibling due to the small sample size. However, the qualitative findings suggest that same-gender siblings may be more influential, at least as role models. Several younger females reported that they wanted to become more like their older sister; they would follow the older sister around, participate in the same activities she was part of and model her behaviour. Future research with a larger sample is needed to examine gender constellation as a between-group moderator.

Based on literature reporting that older Asian male siblings receive higher status, I predicted that sibling effects would be stronger when the older sibling was a male rather than a female (Park, & Chesla, 2007; Tingvold et al., 2012). Given the small sample size, I was only able to examine this question qualitatively. Contrary to previous research that found older Asian male siblings to receive a higher status than female siblings (Park, & Chesla, 2007; Pyke, 2005; Uba, 1994), older siblings in the current study appeared to be respected equally by younger siblings regardless of gender. Younger male sibling expressed respecting older female siblings because of their greater experience and their helpful guidance. The qualitative findings suggested that the role of older siblings persists following migration, but that within the sibship, males are not allotted a higher status. These findings are consistent with the theme of all female participants and most male participants to be opposed to gender-based favouritism. The young adults' valuing of gender equality suggests that sibling birth order is more important than gender for the strength of sibling influence. An older sister is likely to evoke equally strong modelling effects or elicit the same magnitude of differentiation effect as an older male sibling.

Cultural Similarities and Differences on Sibling Relationship Quality and Adjustment

The qualitative findings suggest that siblings' cultural similarities and differences not only affect sibling cultural profiles, but also influence sibling relationship quality and adjustment. That is, the findings suggest that there are a number of positive effects of sibling cultural similarities and differences. Cultural conflicts were rare among siblings. Cultural differences appeared to rarely interfere with sibling relationship quality when there was a core set of shared values. Siblings reported that sharing certain commonalities allowed them to perspective-take, helped mediate conflicts at home, and provided advice for ambiguous social situations. These findings raise important questions about when siblings are culturally similar

enough to support one another in cultural conflicts (e.g., when do siblings feel empowered to mediate in conflicts? How may core cultural differences prevent siblings from mediating conflicts at home or helping another sibling perspective-take?). In general, siblings reported good relationship quality: siblings were a source of support when they needed a listener or another perspective.

The current finding of mostly positive effects of sibling cultural differences is different from the findings in Pyke's (2005) interview with culturally dissimilar siblings. In her sample, cultural differences among Asian siblings often led to estranged relationships. However, Pyke specifically recruited participants who identified as having a more assimilated or ethnically traditional sibling than oneself. In her sample, older siblings often perceived younger siblings to be "black sheep" and younger siblings perceived older siblings to be "generational deserters." These participants described large cultural differences among siblings in the family. For example, assimilated siblings were described as disinterested in or ignorant about ethnic practices and unwilling to take on family responsibilities. Traditional siblings were described as adopting the ethnic values of parents, being respectful, and rarely expressing disagreement with their parents. The cultural differences reported in Pyke's (2005) sample are much larger than those found in the current sample where any participant with a Chinese immigrant background was invited to participate, with no requirement for siblings to be culturally similar or dissimilar. Participants in the current sample sometimes varied in their cultural behaviour, such as language proficiency and choice of leisure activities. However, unlike in Pyke's (2005) sample, the young adults in the current study almost always reported sharing Chinese cultural values of being respectful and valuing the family. These shared core values may not only be important for perceived cultural similarity, they may also be an important factor in understanding which

cultural similarities are most important for the development of strong sibling relationships. Future research is needed to understand how differences in siblings' core values may impact sibling relationships and their ability to support one another. For example, future studies could seek to illuminate whether the discrepancies in values are most consequential for sibling relationship quality compared to differences in other cultural domains, and if there are specific values that are especially important for siblings to agree on.

Studying Sibling Acculturation and Enculturation Within Families

Much of the literature on acculturation and enculturation assumes that studying one child in the family is sufficient to understand how immigrant families operate and influence adolescent adjustment (e.g., Lui, 2015, Telzer, 2010). Most research on acculturation and enculturation in families has therefore focused exclusively on the intergenerational relationship. In Tezler's (2010) review of the acculturation gap-distress model, a frequently used framework for studying acculturation in families, acculturation gaps were found to function in unique ways depending on the context. Unlike what the model predicts, immigrant children acculturating at a quicker pace than parents does not always lead to family conflict and youth maladjustment. The inconsistent empirical support for the model may partly be due to a failure to capture the role of siblings within immigrant families. The qualitative results suggest that the tendency of siblings to be relatively more similar culturally to one another than to parents sometimes allows them to mediate in parent-child conflicts. In these instances, siblings may mitigate the risk of maladjustment related to parent-child differences in acculturation. In other words, the disruption in intergenerational relationships may be reduced for some parent-child dyads with large acculturation gaps. It is also possible that siblings' provision of emotional support when a sibling does experience conflict with parents reduces the risk of maladjustment. Both the quantitative

and qualitative results also suggest that over time, siblings shape one another to become more moderate in their Canadian involvement, thereby reducing the acculturation gap between parents and children.

Immigrant sibling processes are poorly represented in acculturation and enculturation studies. Yet, these nuances in within-family differences in acculturation and enculturation appear to be important for understanding when an acculturation-gap between family members is likely to relate to youth adjustment. To understand the role of culture in immigrant youth's development, research needs to move beyond the dyadic level and examine the network of interrelationships within the family. As seen in the qualitative findings, both structural and individual factors shape cultural similarities and differences among siblings. Assuming that siblings' cultural orientation will be similar will mask important variability within the family. To better understand when cultural similarities and differences matter for family members, it is necessary to understand the cultural profiles of all individuals within the family.

Reflection on Using Mixed-methods

The use of a mixed-methods strategy has helped me gain a unique insight into the differences in results that are based on a standardized survey versus those that are based on interviewing individuals about their lived experiences. It is striking that in the qualitative data many of the young adults perceived themselves to be very culturally similar to their sibling. Yet, in the quantitative data, statistical tests suggested that siblings were rarely more similar than chance. These discrepancies may stem from using two different samples, but they may also be because the factors that give rise to perceived similarity are not well captured by the survey questionnaires measuring acculturation and enculturation. Another explanation for the differences is that even if statistically siblings may not be more similar than chance, they may

still perceive themselves as more culturally similar because they are more similar to each other relative to their parents. Future research designs need to be mindful that statistical similarity or difference may not be experienced as actual similarities or differences. An important next question is to understand to whether objective versus subjective cultural profiles matter to the same extent. Perhaps subjective experiences of similarities and differences are more important than statistically significant differences because they shape how well a sibling feels another sibling understands their experience or because it shapes the number of shared interests they have. The results of this study suggest that the objective and subjective experience of cultural similarities and differences may not be the same.

Our findings also suggest that perceived similarity often is based on a set of core values: demonstrating culturally appropriate respect and valuing family. The survey measuring Asian values captures these beliefs (Asian Values Scale; Kim, Atkinson & Young, 1999) but also include other values that may be less important for perceived cultural similarity. These findings raise questions about how the core set of values are determined (e.g., How do siblings determine what the core values are? Does family cohesion play a role in the emphasis on shared core values?) Further studies that examine how siblings develop a sense of perceived similarity and that determine what constitutes core family values will provide information about which values appear to be most important for fostering strong sibling relationships in Chinese immigrant families.

In this study, I used two different samples for the quantitative and qualitative portion, and the participants in these samples were in different development periods and data were collected at different time points. Replicating the current findings using the same population for the

quantitative and qualitative elements would provide valuable information about the ability to quantitatively measure the lived experience.

Limitations and Implications

Although the study was an important first step in investigating the role of acculturation and enculturation differences in the sibling relationship, it includes several limitations. The quantitative sample included a relatively small number of participants. Since I only conducted analyses to the extent the sample size allowed, the small sample size both limited the quantitative tests I could conduct and restricted the power of the tests. The similarity siblings showed on Chinese behaviours at Wave 1 was no longer detected at Wave 2. With a smaller sample in Wave 2, the sensitivity of statistical tests was reduced. It is unclear if the lack of similarity among siblings in the domain of Chinese behaviours at Wave 2 reflects a real absence of similarity among siblings or is the consequence of low power. It is noteworthy that the effect size, which is less impacted by sample size than power (Sullivan & Feinn, 2012) also decreased from Wave 1 to Wave 2 from $r = .46$ to $r = .09$. To detect the new and much smaller correlation at 80% chance at $\alpha = .05$ would require a sample of 760 participants. The sample used in the current study was only large enough to reliably detect correlations of .31 with the recommended 80% power (Cohen, 1988). Similarly, the APIM analyses with the current sample size could also only reliably detect small-medium effects at 80% power. Small effects could not be reliably detected in the current study. As such, it may be that siblings do share similarities in some domains at Wave 2 but that the effect sizes were too small to be detected. Future research with larger samples would allow researchers to examine the replicability of the patterns with more statistical power and to test for gender composition of dyads as a moderator of similarities and differences rather than simply comparing the groups. The current sample size was sufficient to identify and

highlight potentially important sibling dynamics, a future larger sample would provide more confidence in the generalizability of findings.

The current study was also limited by only having two assessments more than a year apart. With two time points, it is not possible to determine if the difference in reports of cultural behaviours, values, and identity between the first and the second time point represents change or regression to the mean (Barnett, van der Pols, & Dobson, 2004; Twisk, 2013). Regression to the mean occurs when unusually large or small reports tend to be followed by a report closer to the mean (Barnett, van der Pols, & Dobson, 2004). This pattern of reporting can make a natural variation in repeated data appear to be real change. Future research should consider at least three time points to rule out regression to the mean. Having the two waves 18-months apart also reduces the ability to disambiguate the role of sibling effects from other confounds (Kenny, & Campbell, 2014). For example, the mean age of the younger siblings at Wave 1 was 13 years. Younger siblings may have decreased their engagement in Canadian behaviours and amount of identification as Chinese because of personal experiences rather than in response to an older sibling's higher report in these domain. For example, the younger sibling may have experienced discrimination after entering high school. A study with a shorter time span between waves of data collection would provide a clearer picture of the relation between sibling effects and changes in sibling's acculturation and enculturation profiles. For example, if the responses were collected a month apart, it would allow reasonable time for a more acculturated sibling to have an argument with parents. A subsequent decrease in another sibling's Canadian orientation could be more confidently attributed as a reaction to their sibling's conflict.

Furthermore, culture is a complex and dynamic construct that was simplified for the current study. To make cultural values easily amenable for study, they were conceptualized and

measured using scales that treated values as either Chinese (Asian Values Scale; Kim et al., 1999) or Canadian (Adolescence Independence Values; Rosenthal et al., 1996). However, many of the values exist in both cultures; the cultural differences in values are a matter of degree and not categorically present in one culture and absent in the other. Cultural values also change over time (Lawrence, 2017). For example, researchers (To, 2013; Yan, 2009; Yan, 2010) have documented changes in Chinese youths' values over the last few decades. Yan (2009) argues that there has been a rise in individualization because of the Chinese economic reform and one-child policy. More young women than ever before also choose to focus on developing a career in their twenties despite parental expectations to get married (To, 2013). These recent changes are not reflected in the Asian Values Scale that was used in the current study which included items such as "following family and social expectations" or "people should think about the group before themselves". With globalization and greater blending of beliefs across cultural groups, it is necessary to be mindful that scales that were developed to measure values are reflective of the collective beliefs of a group at a particular time and may become less valid as cultures change. Even though values cannot be purely assigned to one culture only, the foci of the current study, on sibling similarities and differences and on siblings' mutual influence on each other, could still be assessed using the imperfect measures.

Despite these limitations, the current research may have implications for theories about the role of siblings in immigrant families and for policies for receiving immigrant families. For a more complete understanding of when cultural similarities and differences matter in families, researchers must consider the cultural profiles of siblings. The acculturation and enculturation levels of siblings cannot be assumed to be the same. Research at the dyadic level will miss the role of other within-family relationships on youth's adjustment. Cultural similarities and

differences among family members are best understood within the context of the entire family. Progress in understanding the role of acculturation and enculturation, family relationships, and adjustment would be advanced by adopting a family system perspective (Costigan, 2011).

The current findings suggest that siblings often play a positive role in immigrant Chinese families' adjustment. Siblings generally socialize and support one another as they develop their cultural understanding. It appeared that in a few instances, when siblings experienced negative life events individually, that sibling became more culturally different and it can become harder to relate to one another. Adequate support in initial adjustment phases may serve to ensure adolescent children feel a sense of support in adapting to life in Canada. For example, settlement agencies could provide consultation around how to strengthen sibling ties through open communication.

Results of the current study may also have implications for family-based interventions. The results suggest that siblings are important socializing agents for cultural learning and often uniquely able to understand and support one another. These findings could help clinicians or educators working with immigrant youth to use the youths' siblings as resources if they are experiencing cultural conflicts at school or at home. Many siblings appear to naturally ask siblings for another perspective in ambiguous social interactions but some adolescents may not. It may be helpful to encourage an adolescent to consult a sibling if they appear to misinterpret direct feedback by Canadian peers as offending when those comments are not intended as such. Mental health professionals may also pay attention to the possibility of siblings helping to ameliorate cultural conflicts at home between parents and more acculturated siblings. For example, instead of providing individual treatment, it may be useful to adapt therapy with an immigrant Chinese adolescent to include strengthening relationships with siblings, so they can be

a source of support. Some initial data on the effectiveness of workshop with immigrant families (Hwang, 2006; Ying, 1999) suggest that it is beneficial for youth's adjustment and family relationships when families that experience cultural conflict learn empathy and perspective taking skills.

In conclusion, siblings generally perceived themselves to be similar culturally if they shared a similar set of core values. Results supported the presence of sibling influences on one another's cultural profiles; the quantitative results suggested that siblings reacted to high levels of Canadian involvement by one sibling by decreasing their Canadian involvement. This pattern of reactance appeared to be part of a general tendency of adolescents to select what they perceived to be the best characteristics of Canadian and Chinese culture, rather than to create a unique niche to reduce competition for parental attention. The qualitative results also supported sibling modelling in cultural learning. Furthermore, our findings suggested that siblings can play an important role in the family by supporting one another in adjusting to life in Canada by mediating conflicts at home or by providing support in interpreting social interactions outside the home. Results underscored a need to expand studies of acculturation and enculturation to adopt a family perspective. Learning about the processes all immigrant family members play in acculturation and enculturation will provide a more complete picture of how family members can facilitate positive psychological outcomes as they integrate into Canadian societies.

Tables

Table 1. Demographics summary of quantitative and qualitative sample

	Quantitative sample		Qualitative sample
Average Age		Age	
Older sibling's age Wave 1	16.0 years	Average age of participant	20.37 years
Younger sibling's age Wave 1	13.24 years	Age sibling closest in age	20.21 years
Older sibling's age Wave 2			
Younger sibling's age Wave 2			
Born in Canada		Born in Canada	
Older siblings	35.48%	Participant	37.50%
Younger siblings	48.38%	Siblings	37.50%
Birth Order		Birth Order	
Older sibling	25 oldest child, 6 middle child	Participant	5 oldest child, 5 middle child, 6 youngest child
Younger sibling	4 middle child, 18 youngest child, 9 unknown		

Table 2. Power Analyses for Actor-Partner Interdependence Models

	<i>a</i>	Power to detect <i>a</i>	<i>p</i>	Power to detect <i>p</i>
Chinese behaviour				
Older Sibling	0.93	0.99	-0.19	0.78
Younger Sibling	0.60	0.99	-0.04	0.07
Asian values				
Older Sibling	0.81	0.99	0.33	0.99
Younger Sibling	0.34	0.99	-0.15	0.64
Chinese identity				
Older Sibling	0.73	0.99	0.03	0.03
Younger Sibling	0.61	0.99	0.07	0.07
Canadian behaviour				
Older Sibling	0.40	0.84	-0.32	0.66
Younger Sibling	0.81	0.99	-0.01	0.05
Independence values				
Older Sibling	0.66	0.99	-0.03	0.06
Younger Sibling	0.19	0.36	-0.27	0.62
Canadian identity				
Older Sibling	0.57	0.99	-0.41	0.95
Younger Sibling	0.48	0.99	0.17	0.33

Note. *a* = actor effect, *p* = partner effect; *a* is an unstandardized regression coefficient. The estimated power available to detect the actor and partner effects are based on the actor effects and partner effects provided in Figures 2 to 7, a sample size of $n = 23$ at $\alpha = 0.05$.

Table 3 Descriptive statistics of acculturation and enculturation measures

	Older Siblings				Younger siblings			
	N	Mean (SD)	Skewness	Kurtosis	N	Mean (SD)	Skewness	Kurtosis
<i>Wave 1</i>								
<i>Chinese domains</i>								
Chinese behaviour	31	3.56 (.70)	-0.45	0.09	31	3.10 (.71)	0.45	-0.73
Asian values	31	4.67 (.80)	-0.24	-0.99	30	4.70 (.83)	-0.27	-0.12
Chinese identity	31	3.06 (.40)	0.23	-0.87	31	2.68 (.49)	-0.43	1.29
<i>Canadian domains</i>								
Canadian behaviour	31	4.04 (.43)	-0.47	2.11	31	3.94 (.49)	-0.52	-0.71
Independence values	31	3.07 (.68)	-0.56	-0.03	30	3.03 (.75)	-1.05	0.72
Canadian identity	31	3.01 (.31)	0.37	-0.26	31	2.86 (.48)	0.33	-0.33
<i>Wave 2</i>								
<i>Chinese domains</i>								
Chinese behaviour	21	3.28 (.76)	0.26	-0.38	22	2.98 (.64)	0.48	0.51
Asian values	21	4.60 (.99)	0.20	1.48	21	4.65 (.83)	-0.43	0.75
Chinese identity	20	2.92 (.42)	0.31	0.82	22	2.77 (.40)	-0.07	0.34
<i>Canadian domains</i>								
Canadian behaviour	21	4.01 (.36)	0.43	-0.70	22	3.88 (.49)	-0.24	-0.75
Independence values	21	3.19 (.50)	0.01	-1.05	21	3.17 (.56)	1.86	-1.10
Canadian identity	20	3.02 (.36)	1.03	2.98	22	2.84 (.34)	0.02	0.85

Note. Possible ranges for main study variables are: Chinese Behaviour (1-5), Canadian Behaviour (1-5), Asian Values (1-7), Independence Values (1-4), Chinese Identity (1-4), Canadian Identity (1-4).

Table 4. Stability of Ratings on Chinese and Canadian Dimensions

	Older sibling	Younger sibling
<i>Chinese Dimension</i>		
Chinese behaviour	0.85**	0.69**
Asian values	0.60**	0.33
Chinese identity	0.67**	0.68**
<i>Canadian Dimension</i>		
Canadian behaviour	0.44*	0.72**
Independence values	0.60**	0.20
Canadian identity	0.44	0.54**

Note. Zero-order correlations from W1 to W2

* $p < .05$. ** $p < .01$, *** $p < 0.001$

Table 5. Correlations among Main Study Variables Within W1 and W2

<i>Wave 1</i>	1	2	3	4	5	6
1. Chinese behaviour	---	0.36*	0.65**	-0.08	-0.12	0.05
2. Asian values	0.30	---	0.32	-0.31	-0.42*	-0.07
3. Chinese identity	0.59**	0.48**	---	-0.18	-0.50**	0.17
4. Canadian behaviour	0.12	0.33	0.17	---	0.25	0.49**
5. Independence values	0.21	0.06	0.32	-0.23	---	-0.01
6. Canadian identity	0.31	0.40*	0.62**	0.58**	-0.10	---
<i>Wave 2</i>	7	8	9	10	11	12
7. Chinese behaviour	---	0.67**	0.74**	0.28	-0.10	0.29
8. Asian values	0.63**	---	0.55*	0.09	-0.17	0.18
9. Chinese identity	0.73**	0.41	---	0.34	-0.30	0.55*
10. Canadian behaviour	0.36	-0.07	0.58**	---	0.27	0.62**
11. Independence values	-0.05	0.10	-0.20	-0.41	---	0.16
12. Canadian identity	0.47*	0.21	0.73**	0.46*	0.17	---

Note. Correlations for older siblings are presented above the diagonal and below the diagonal for younger siblings.

* $p < .05$. ** $p < .01$, *** $p < 0.001$

Table 6. Zero Order Correlations between Demographic Variables and Main Study Variables

	Older Siblings				Younger siblings			
	N	Age	Edu	Arrival	N	Age	Edu	Arrival
<i>Wave 1</i>								
<i>Chinese dimension</i>								
Chinese behaviour	31	0.23	0.19	.370*	31	0.07	-0.30	-0.12
Asian values	31	0.00	-0.07	0.01	30	0.03	-0.17	-0.45*
Chinese identity	31	0.35	0.21	0.25	31	0.17	-0.09	-0.25
<i>Canadian dimension</i>								
Canadian behaviour	31	-0.27	0.08	-0.17	31	-0.29	-0.09	-0.40*
Independence values	31	0.00	-0.06	-0.16	30	0.12	-0.06	-0.16
Canadian identity	31	0.35	-0.09	-0.17	31	-0.08	-0.05	-0.39*
<i>Wave 2</i>								
<i>Chinese dimension</i>								
Chinese behaviour	20	0.35	0.24	0.59**	22	-0.26	-0.51*	0.42
Asian values	20	0.35	0.12	0.38	21	0.13	-0.16	0.57
Chinese identity	19	0.26	0.26	0.39	22	-0.24	-0.20	0.28
<i>Canadian dimension</i>								
Canadian behaviour	20	0.35	0.09	0.22	22	-0.24	-0.23	0.07
Independence values	20	-0.30	-0.24	-0.15	21	0.57**	0.15	0.01
Canadian identity	19	-0.37	-0.16	0.02	22	-0.17	0.07	0.45

Note. Edu.= mother's level of education; Arrival = age of arrival.

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

Table 7. Dyadic Indices for Similarity and Dissimilarity

	<i>n</i>	<i>r</i>	95%CI	ICC	95%CI
<i>Wave 1</i>					
<i>Chinese dimension</i>					
Chinese behaviour	31	0.46**	[.13, .70]	0.45**	[0.07, 0.79]
Asian values	30	0.04	[-.33, .39]	0.01	[-1.02, 0.60]
Chinese identity	31	0.34	[-.44, .26]	-0.09	[-0.95, 0.36]
<i>Canadian dimension</i>					
Canadian behaviour	31	0.16	[-.21, .49]	0.16	[-0.52, 0.65]
Independence values	30	0.34†	[-.02, .63]	0.32*	[-0.3, 0.77]
Canadian identity	31	0.25	[-.12, .55]	0.22	[-0.26, 0.69]
<i>Wave 2</i>					
<i>Chinese dimension</i>					
Chinese behaviour	20	0.09	[-.37, .51]	0.12	[-1.11, 0.69]
Asian values	20	0.13	[-.33, .54]	0.07	[-1.06, 0.73]
Chinese identity	19	0.03	[-.43, .48]	0.15	[-1.62, 0.63]
<i>Canadian dimension</i>					
Canadian behaviour	20	-0.22	[-.61, .24]	-0.19	[-3.32, 0.32]
Independence values	20	0.02	[-.43, .46]	0.15	[-1.59, 0.62]
Canadian identity	19	-0.06	[-.50, .40]	-0.03	[-1.85, 0.50]

Notes: *r* = Pearson correlation coefficient ; *ICC* = Intraclass correlation coefficient

p* < .05. *p* < .01, ****p* < 0.001, † *p* < .07

Table 8. Dyadic Indices for Similarity and Dissimilarity by Gender Composition

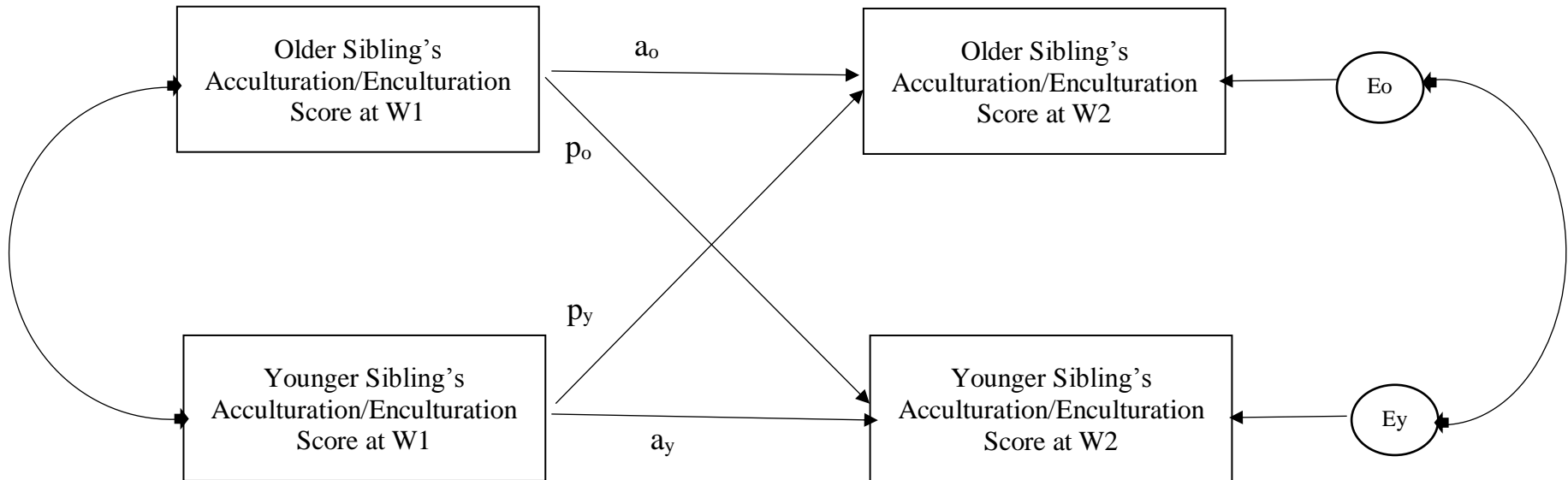
	Mixed-gender dyads					Same-gender dyads				
	<i>n</i>	<i>r</i>	95%CI	ICC	95%CI	<i>n</i>	<i>r</i>	95%CI	ICC	95%CI
<i>Wave 1</i>										
<i>Chinese dimension</i>										
Chinese behaviour	19	0.13	[-0.34, 0.55]	0.10	[-0.43, 0.59]	12	0.71*	[0.22, 0.91]	0.70**	[0.48, 0.95]
Asian values	18	-0.16	[-0.58, 0.33]	-0.22	[-3.13, 0.59]	12	0.40	[-0.22, 0.79]	0.40	[3.19, 0.85]
Chinese identity	19	-0.37	[-0.70, 0.10]	-0.31	[-2.29, 0.59]	12	0.47	[-0.14, 0.82]	0.47†	[2.21, 0.85]
<i>Canadian dimension</i>										
Canadian behaviour	19	0.23	[-0.25, 0.2]	0.21	[-0.68, 0.59]	12	0.17	[-0.45, 0.68]	0.17	[0.66, 0.75]
Independence values	18	0.14	[-0.35, 0.57]	0.10	[-1.13, 0.59]	12	0.65*	[0.13, 0.89]	0.65**	[1.13, 0.95]
Canadian identity	19	0.17	[-0.31, 0.58]	0.13	[-0.90, 0.59]	12	0.55 †	[-0.03, 0.86]	0.55*	[0.91, 0.85]
<i>Wave 2</i>										
<i>Chinese dimension</i>										
Chinese behaviour	12	-0.03	[-0.59, 0.55]	0.09	[-2.95, 0.59]	8	0.11	[-0.64, 0.76]	0.15	[2.90, 0.85]
Asian values	12	0.10	[-0.50, 0.63]	0.11	[-2.15, 0.59]	8	0.09	[-0.66, 0.75]	0.02	[2.17, 0.85]
Chinese identity	11	0.24	[-0.42, 0.73]	0.41	[-1.69, 0.59]	8	-0.07	[-0.74, 0.67]	0.05	[1.64, 0.75]
<i>Canadian dimension</i>										
Canadian behaviour	12	-0.39	[-0.78, 0.23]	-0.32	[-8.96, 0.59]	8	0.29	[-0.52, 0.83]	0.22	[8.99, 0.85]
Independence values	12	-0.05	[-0.60, 0.54]	0.20	[-4.03, 0.59]	8	0.15	[-0.62, 0.77]	0.09	[4.00, 0.85]
Canadian identity	11	0.01	[-0.59, 0.60]	0.12	[-3.24, 0.59]	8	-0.20	[-0.79, 0.59]	-0.25	[3.24, 0.75]

Notes: *r* = Pearson correlation coefficient ; *ICC* = Intraclass correlation coefficient

p* < .05. *p* < .01, ****p* < 0.001, † *p* < .07

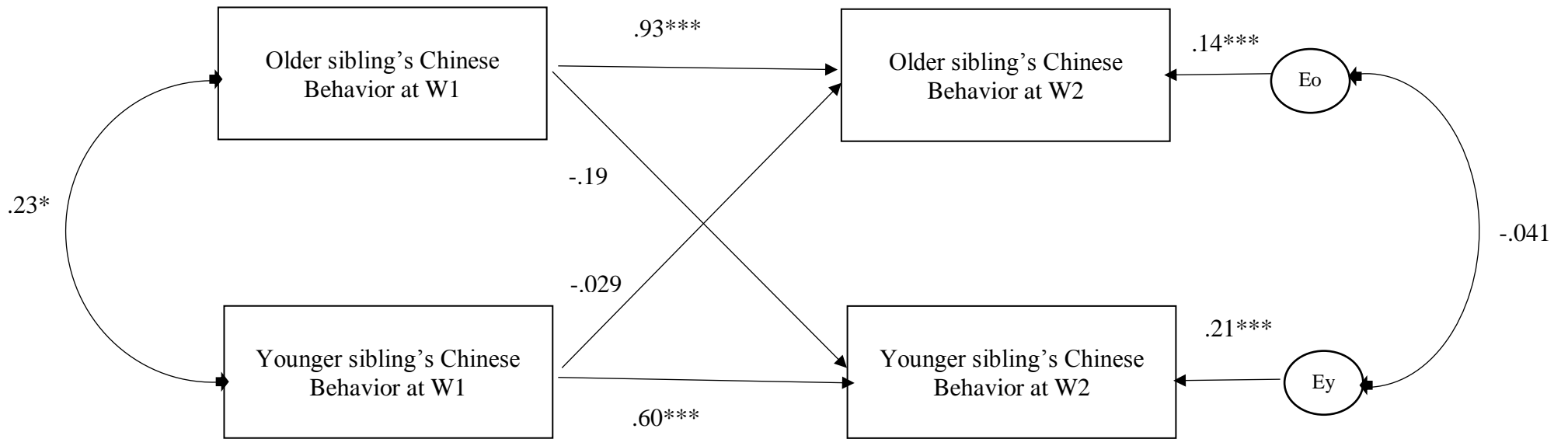
Figures

Figure 1. Conceptual model for sibling effects for acculturation and enculturation domains from W1 to W2.



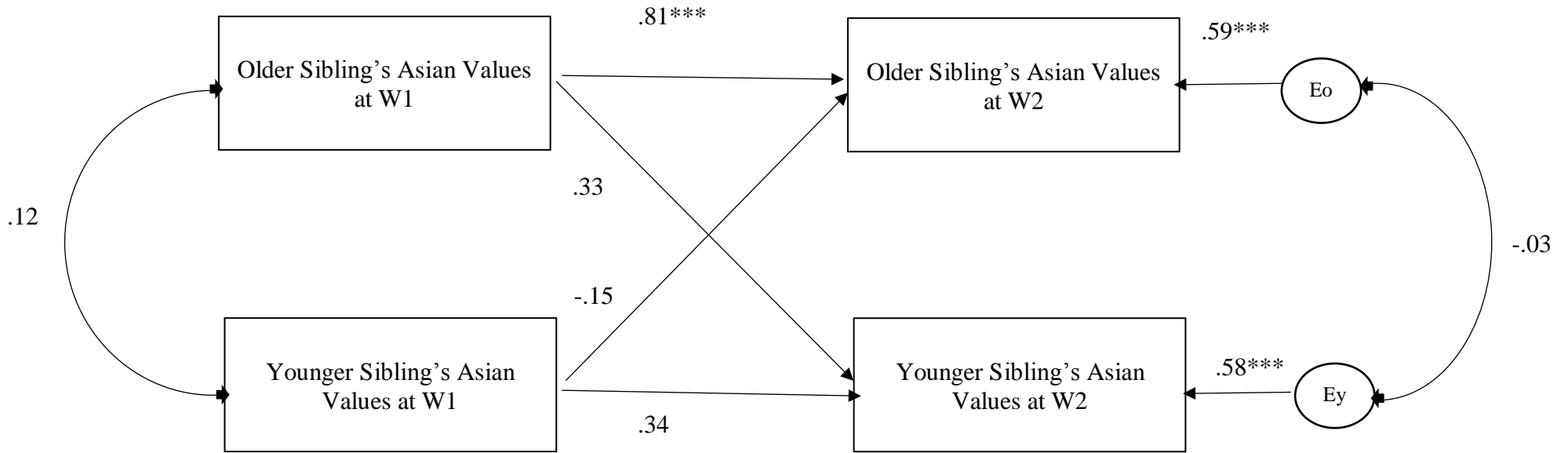
Note: a = actor effect, p = partner effect; a is an unstandardized regression coefficient; E. = error terms; o = older sibling; y = younger sibling

Figure 2. Actor-Partner Interdependence Model for Chinese Behavior with the Full Sample



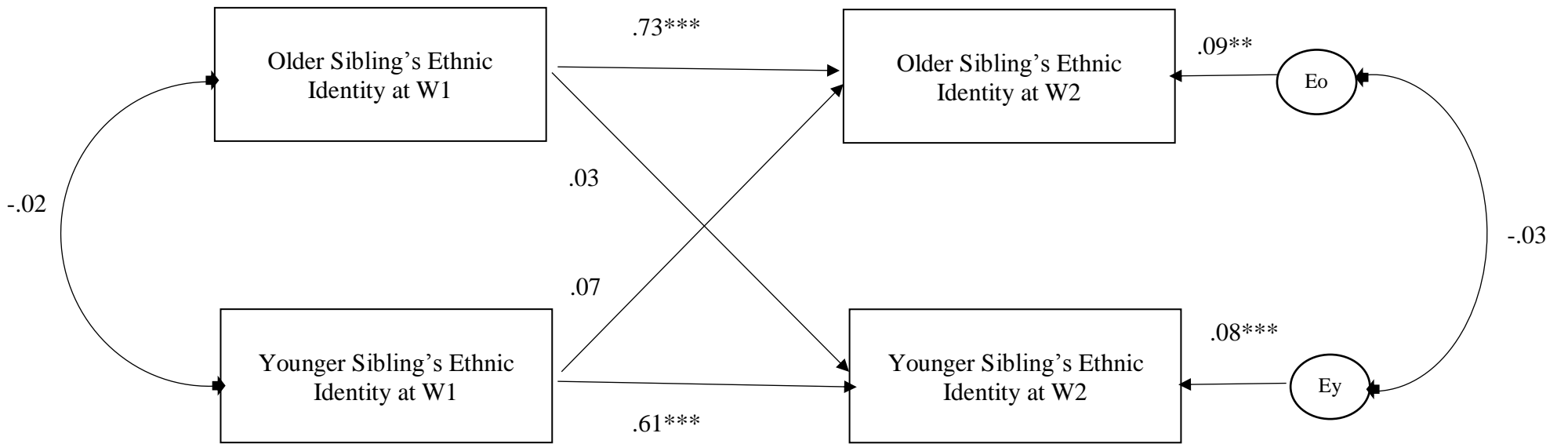
Note: o = older sibling; y = younger sibling
 $*p < .05$. $**p < .01$. $***p < .001$

Figure 3. Actor-Partner Interdependence Model for Asian Values with the Full Sample



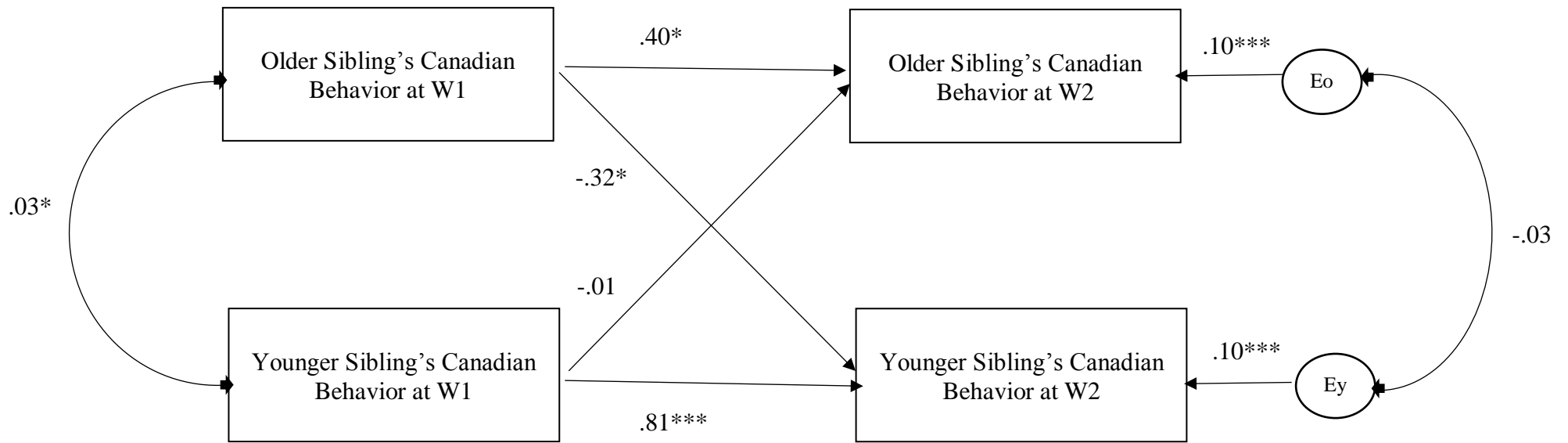
Note: o = older sibling; y = younger sibling
 $*p < .05$. $**p < .01$. $***p < .001$

Figure 4. Actor-Partner Interdependence Model for Ethnic Identity with the Full Sample



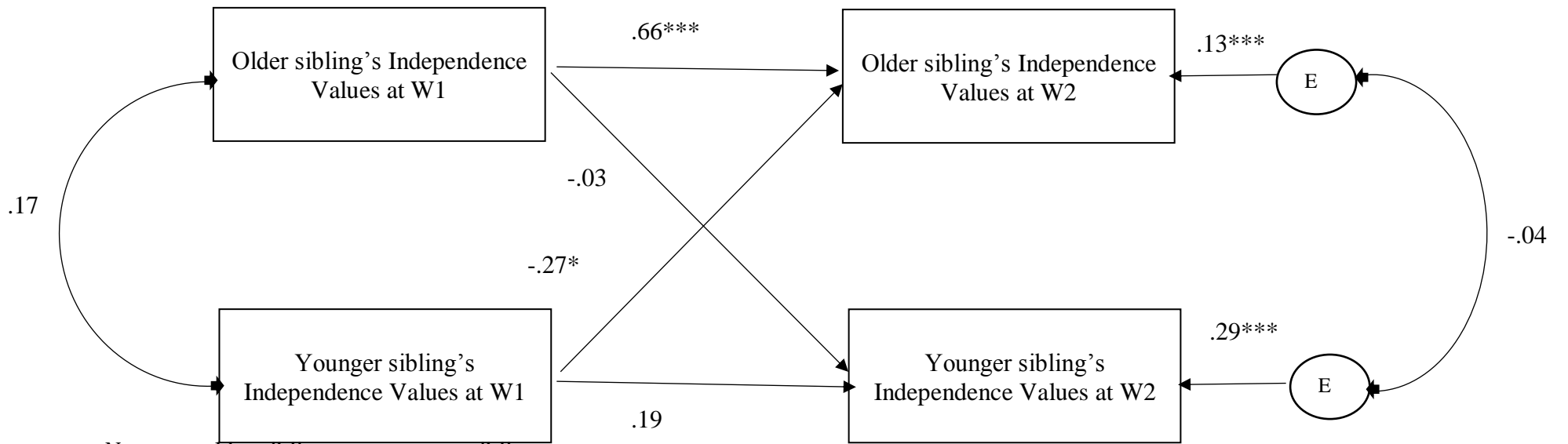
Note: o = older sibling; y = younger sibling
 $*p < .05$. $**p < .01$. $***p < .001$

Figure 5. Actor-Partner Interdependence Model for Canadian Behavior with the Full Sample



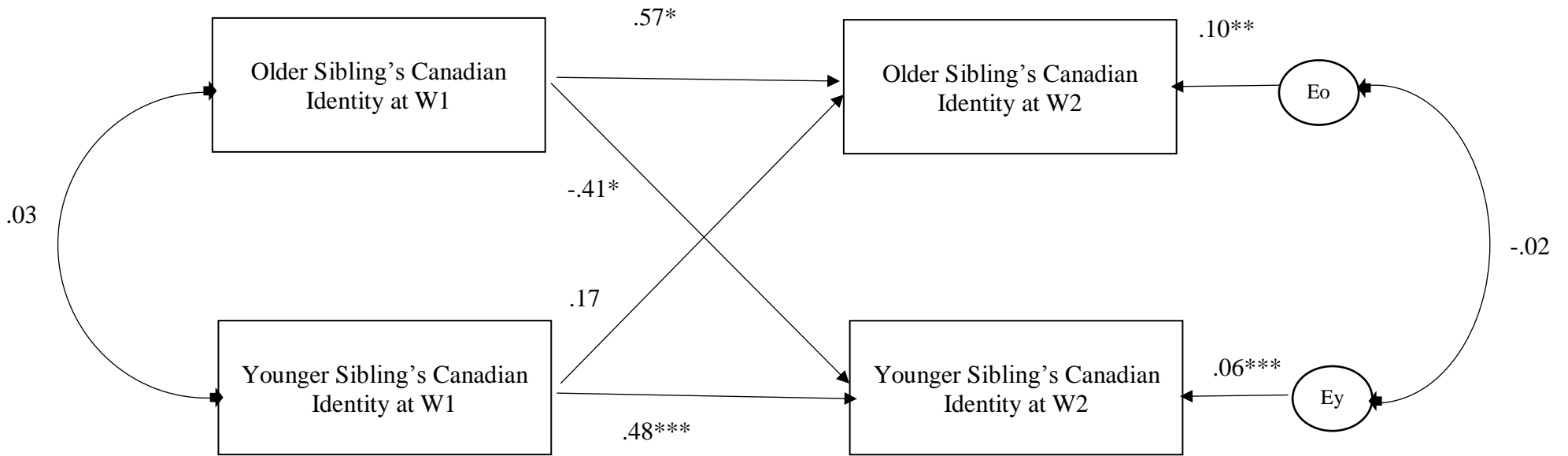
Note: o = older sibling; y = younger sibling
 * $p < .05$. ** $p < .01$. *** $p < .001$

Figure 6. Actor-Partner Interdependence Model for Independence Values with the Full Sample



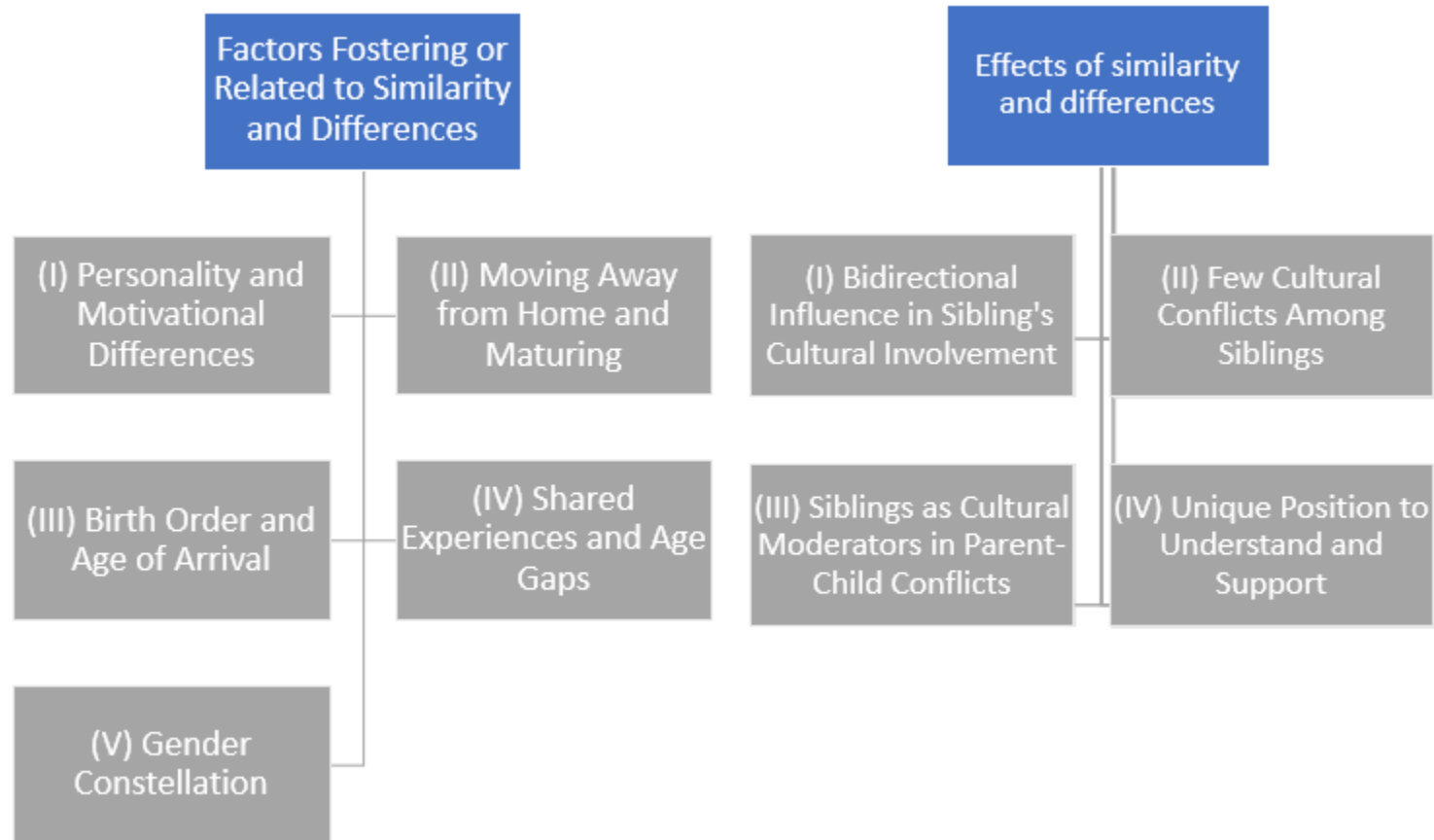
Note: o = older sibling; y = younger sibling
 $*p < .05$. $**p < .01$. $***p < .001$

Figure 7. Actor-Partner Interdependence Model for Canadian Identity with the Full Sample



Note: o = older sibling; y = younger sibling
 $*p < .05$. $**p < .01$. $***p < .001$

Figure 8. Themes associated with sibling cultural similarities and differences



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Appendix A: Questionnaire and Interview Questions

Personal Demographic Questionnaire

Please answer the following questions:

1. Age _____
2. Date of birth: month _____ day _____ year _____
3. Gender (select one) Male _____ Female _____ Other (please specify) _____
4. How would you describe your ethnic background? _____
 - What is your country of origin? _____

5. Do you speak:

	No	Yes	A little
English			
Mandarin			
Cantonese			
Other heritage language (specify): _____			

6. In terms of birth order, are you:

- a) ___ the oldest b) ___ middle child c) ___ the youngest d) other _____

7. How many siblings do you have? _____

Please, specify their age and gender (e.g. M21, F17):

8. At what age did you immigrate to Canada? _____ Years _____ Months

9. Did you live anywhere else besides your country of origin?

- Yes - specify: where _____, how many _____ years
_____ months
- No

10. What is your current Canadian citizenship status?

Refugee Landed Immigrant Permanent Resident
 Canadian citizen Other

11. If you hold dual citizenship or are not a Canadian citizen, what citizenship(s) do you hold? _____

12. What is your primary area of study?

Humanities
 Social Sciences
 Sciences
 Education
 Engineering
 Law
 Nursing
 Other If other, please specify: _____

13. Do you work part-time? _____

14. What is your current living situation? (select all that apply)

Living alone
 With parent(s)
 With sibling(s)
 With roommate
 With romantic partner
 With children

15. What was the annual family income of your family when you grew up during adolescence?

Please choose one.

less than \$10,000 \$10,000-19,999 \$20,000-29,999
 \$30,000-39,999 \$40,000-49,999 \$50,000-59,999
 \$60,000-69,999 \$70,000-79,000 \$80,000-89,999
 \$90,000-99,999 \$100,000 and over don't know

16. Highest level of education your father completed

Elementary (Grade 6)
 Junior High (Grade 8)
 High school (Grade 12)
 Vocational school or college
 University
 Graduate/Professional

17. Highest level education your mother completed

- Elementary (Grade 6)
- Junior High (Grade 8)
- High school (Grade 12)
- Vocational school or college
- University
- Graduate/Professional

18. What is your current marital status?

- Single
- Married
- Common-Law
- Co-habiting
- Separated
- Divorced
- Other

Sibling Demographic Questionnaire

Please complete the questionnaire for each of the siblings you have.

1. Sibling's age _____
2. Sibling's date of birth: month_____ day_____ year_____
3. Sibling's gender? Male___ Female___ Other (please specify)_____
4. Does he/she speak:

	No	Yes	A little
English			
Mandarin			
Cantonese			
Other heritage language (specify): _____			

5. What is his/her birth order:
 - a)___the oldest b)___middle child c) __ the youngest d) other _____
6. How many years of your life have you lived with your sibling? _____
7. At what age did he/she immigrate to Canada? _____
8. Did you and your sibling immigrate to Canada at the same time?
9. What is his/her current citizenship status?
 - ___ Refugee ___Landed Immigrant ___Permanent Resident
 - ___ Canadian citizen
10. What is his/her highest level of educational attainment?
 - ___ elementary school
 - ___ some high school
 - ___ high school diploma
 - ___ some post-secondary school (college or university)
 - ___ vocational school certificate (e.g., Trios, Everest)
 - ___ college diploma
 - ___ university degree
 - ___ some graduate or professional school

graduate degree (e.g., MA, MBA, PhD)

11. What is his/her current living situation? (check all that apply)

Living alone

With parent(s)

With sibling(s)

With roommate

With romantic partner

With children

Appendix B: Sibling Interview Questions

Participants will be asked to respond to the question in relation to the sibling they are closest in age with.

Introduction

1. What has it been like for you and your siblings to move to Canada with your family?

Part 1: About sibling similarity and differences in acculturation and enculturation

Make references to the participant's answers in the introduction whenever applicable and probe in those domains. Emphasize questions to be about acculturation and enculturation.

1. How close are you with your sibling compared to your closeness with other family members and friends?

Connection to Chinese and Canadian culture.

2. Describe your connection with Chinese culture. (Provide examples of how this can manifest in the domains of behaviours, values, and identity).
3. Describe your connection with Canadian culture. (If needed, provide examples of how this can manifest in the domains of behaviours, values, and identity).
4. You described your connection with Chinese culture as _____ [paraphrase their previous response]. What is it like for your [insert sibling's name]? (Probe for similarity and differences).
5. You described your connection with Canadian culture as _____ [paraphrase their previous response]. What is it like for [insert sibling's name]? (Probe for similarity and differences).
6. How similar or different are you and _____ [use sibling's name] in relation to one another in your connection with Chinese and Canadian culture compared to other family members?

Bidirectional relations among cultural similarity, cultural differences, and sibling relationship.

7. How have similarities or differences between you and your sibling about Chinese culture affected how you get along with each other?
8. Has your relationship with [inset sibling's name] shaped how similar or different the two of you are in your connection with Chinese culture?
9. How have similarities or differences between you and your sibling about Canadian culture affected how you get along with each other?

10. Has your relationship with [inset sibling's name] shaped how similar or different the two of you are in your connection with Canadian culture?

Strengths and/or challenges from cultural similarities or differences.

11. You mentioned that you and your sibling are similar in X. Are there any benefits of being similar in that way? Are there any drawbacks?
12. You mentioned that you and your sibling are different in Y. Are there any benefits of being different in that way? Are there any drawbacks?

Changes in cultural similarities and differences over time.

13. Did you and your sibling become more similar or more different in your Chinese cultural orientation growing up? Or did it stay about the same?
14. Did you and your sibling become more similar or more different in your Canadian cultural orientation growing up? Or did it stay about the same?

Role of gender in cultural similarities or differences.

15. Do you think gender has played a role in the similarities and differences between you and your sibling in your involvement with Chinese or Canadian culture?

Part 2: About sibling effects for acculturation and enculturation

Make references to the participant's answers in the introduction whenever applicable and probe in those domains.

1. Did your sibling help you learn about Chinese culture in any way?
2. Did your sibling help you learn about Canadian culture in any way?
3. How important is it for you to be seen as similar to your sibling, or different from them?
 - a. Probe for efforts they made to make it happen, if applicable.
 - b. Do you think _____ [insert sibling's name] ever tried to be like you or tried to be different from you? If yes, follow up.

Part 4: Other

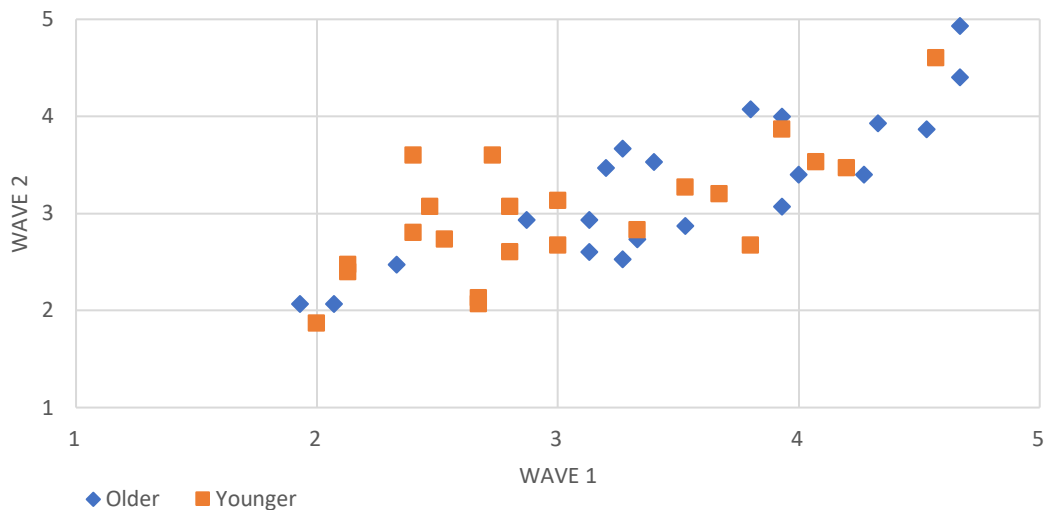
1. Has having a sibling that is similar or different from you in your _____ [tailor based on information they shared about their orientation toward Chinese and/or Canadian culture] influenced your sense of well-being or ability to cope with stresses?

2. If participant has multiple siblings:
 - a. How do you think each sibling's similarity and differences contribute to how well you all get along?
3. Are similarities or differences a topic of discussion among you and other family members?
 - a. *If yes – probe:* Tell me what some of the discussions are about.
4. How similar or different are you and _____ [use sibling's name] in your connection with Chinese and Canadian culture compared to other immigrant friends and their siblings?
5. Is there anything about your relationship with _____ [sibling's name] that would be important for me to understand that hasn't come up yet?

Thank them for their time.

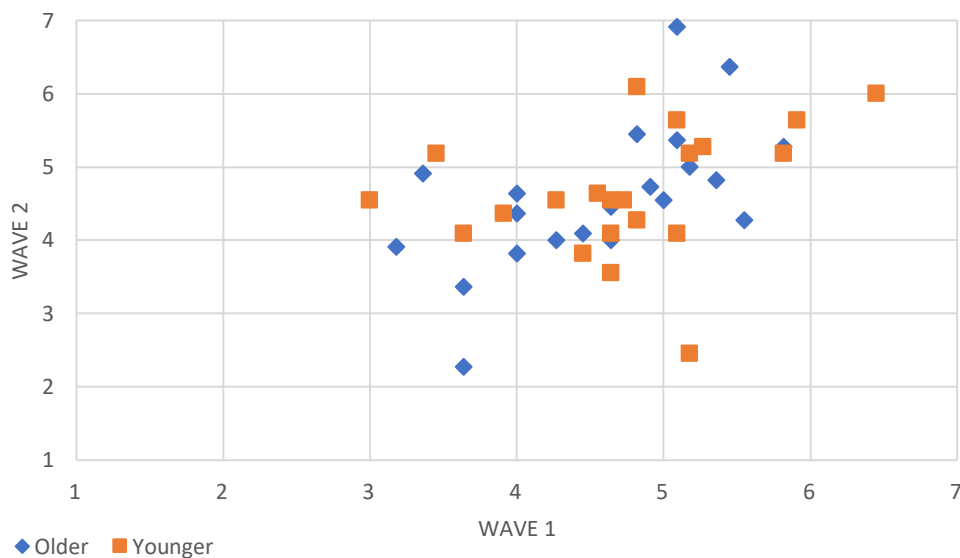
Appendix C: Visual Representation of Sibling Responses to Acculturation and Enculturation Domains

Figure 1. Older and younger siblings' level of Chinese behavior at W1 and W2



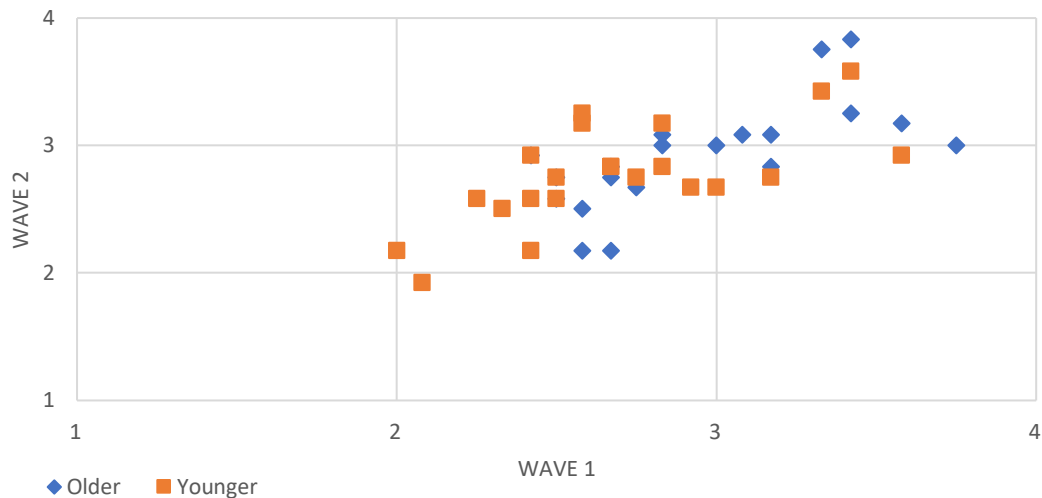
Note. Possible range for Chinese behaviour is 1-5.

Figure 2. Older and younger siblings' level of Asian values at W1 and W2



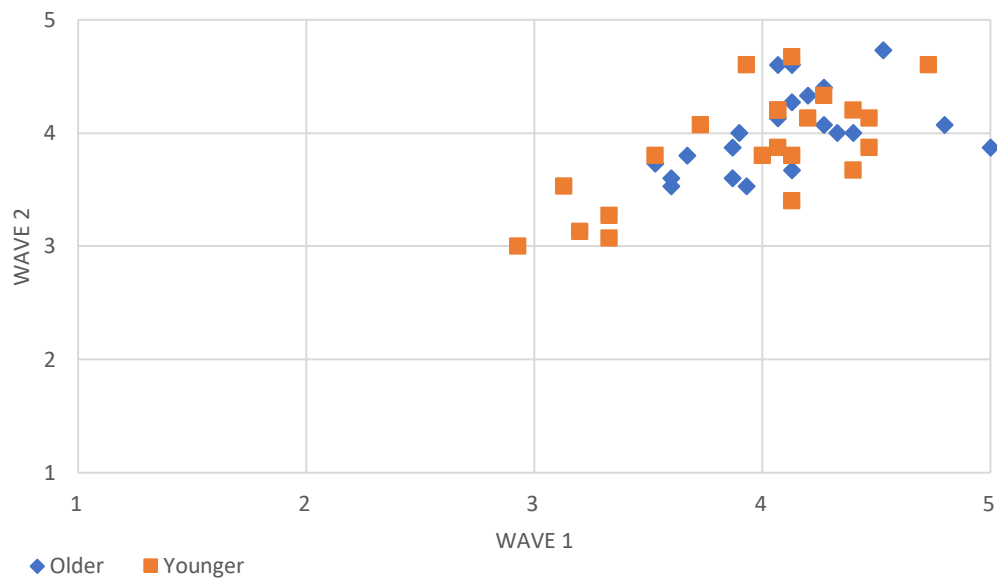
Note. Possible range for Chinese values is 1-7.

Figure 3. Older and younger siblings' level of ethnic identity at W1 and W2



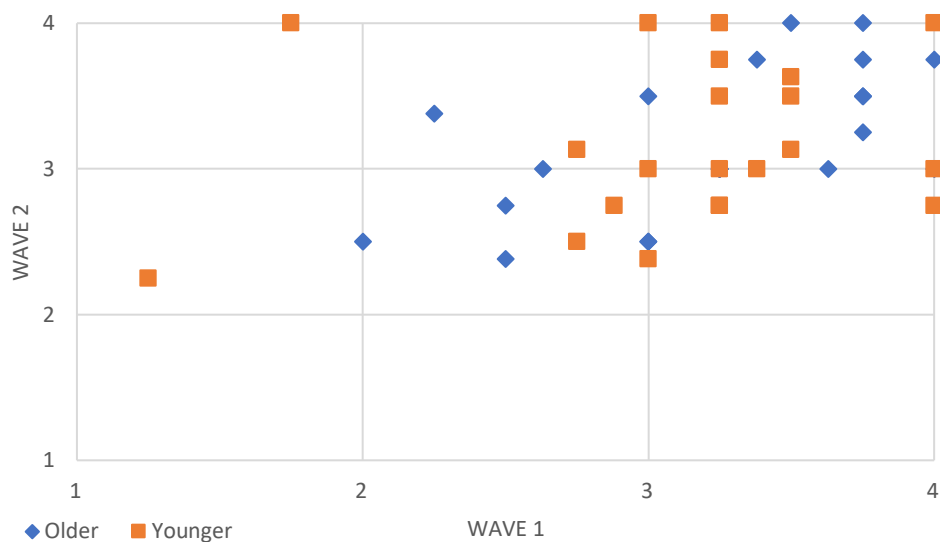
Note. Possible range for ethnic identity is 1-4.

Figure 4. Older and younger siblings' level of Canadian behavior at W1 and W2



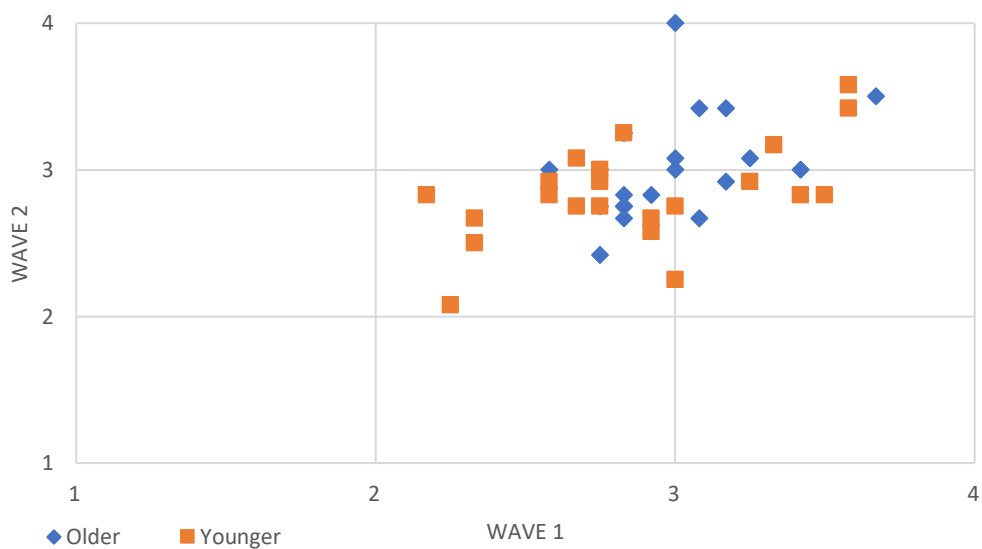
Note. Possible range for Canadian behaviour is 1-5.

Figure 5. Older and younger siblings' level of independence values at W1 and W2



Note. Possible ranges for independence values is 1-5.

Figure 6. Older and younger siblings' level of Canadian identity at W1 and W2



Note. Possible range for Canadian identity is 1-4.