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Acculturation Strategies and Educational Outcomes
of Chinese American Children of Immigrants

By

Kathleen A. Yu

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requirements for the degree of

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University of California, Berkeley

Committee in charge:

Professor Frank C. Worrell, Chair
Professor Qing Zhou
Professor Rebecca Cheung

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Acculturation Strategies and Educational Outcomes
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Abstract

Acculturation Strategies and Educational Outcomes
of Chinese American Children of Immigrants

by

Kathleen A. Yu

Doctor of Philosophy in Education

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Professor Frank C. Worrell, Chair

In this study, I examined whether Berry's (1997) acculturation strategies would be found in a sample of 258 Chinese American adolescents who are children of immigrants (CIs) and whether these strategies were associated with educational outcomes. I conducted separate latent profile analyses (LPA) on participants' American and Chinese orientation in each of the three behavioral acculturation domains (language proficiency, social relationships, and media use). I also conducted LPA on the composite scores of participants' Chinese and American orientations which combined all of the domains to see whether there were differences when analyzing acculturation by domain or combined as a composite. I found six different profiles (integrated, assimilated, marginalized, moderately separated, strongly separated, and ambivalent), but they were not all represented in every acculturation domain. I found practically significant differences in GPA (i.e., Hedges' $g \geq 0.41$), educational expectations, and perceived competence among the profiles in the three acculturation domains and the composite analysis. Generally, participants with the integrated and assimilated profiles often reported the more favorable academic achievement outcomes, and the other profiles were associated with different educational outcomes depending on the domain examined. The results demonstrate the complexity of Chinese American CIs' acculturation processes and can inform future acculturation research on this population.

Keywords: acculturation, children of immigrants, educational outcomes, latent profile analysis, Chinese American adolescents

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Acculturation Strategies and Educational Outcomes of Chinese American Children of Immigrants

The children of immigrants (CIs) population in the US has grown by 51% from 1994 to 2017 (Child Trends, 2018). Currently, one-quarter of children in the US are CIs. Although cross-cultural psychology researchers use various labels to refer to this population, such as immigrant children and immigrant-origin youth (Child Trends, 2018; Portes & Rumbaut, 2005), in this paper, the label CIs refers to individuals who have at least one foreign-born parent. This definition includes both children who were born outside of the US (first-generation immigrants) and children who were born in the US (second-generation immigrants; Suarez-Orozco et al., 2018).

Duong et al. (2016) argued that many CIs are at risk for low academic achievement due to stressors such as discrimination, low socioeconomic status (SES), and navigating two or more cultures. However, other researchers have reported that CIs perform better academically than their U.S.-born peers (Coll & Marks, 2012). To further understand CIs' academic performance, many researchers examine whether acculturation, the process of change that results from the contact between two or more cultures (Berry, 1997), may be attributed to differences in CIs' academic outcomes. Research on acculturation has increased due to the rapid growth of immigrant populations (Schwartz et al., 2010). For example, a search on PsycINFO revealed an increasing number of articles that mentioned the word *acculturation* by the decade, with 648 articles in the 1980s, 1,364 articles in the 1990s, and 8,049 articles in the first decade of the 2000s.

CIs face unique psychosocial challenges throughout their development. CIs have to balance both basic developmental tasks such as establishing positive relationships or doing well in school and tasks associated with acculturation (Motti-Stefanidi & Masten, 2013). Examples of acculturative challenges include the navigation among multiple cultures, linguistic challenges, stressful immigration experiences, loss of social supports from their origin country, family stress, and discrimination (Romero & Pina-Watson, 2017). Researchers have linked acculturative challenges to negative mental health, physical health, adjustment, and academic outcomes (Motti-Stefanidi & Masten, 2013; Schwartz et al., 2010). In particular, there is a lack of research on adolescent acculturation because much of the acculturation research focuses on adult populations (Berry, 1997; Birman & Simon, 2014). Considering the rapid growth of the CIs population and the acculturative challenges they may face, school personnel, policymakers, and researchers would benefit from further understanding CIs' acculturation process and how to promote positive development for this population. Therefore, the present study provides a unique contribution to the acculturation literature through an examination of the acculturation and educational outcomes of adolescent CIs.

The Immigrant Paradox

Research on the academic performance of CIs has yielded inconsistent results. For example, Duong et al. (2016) stated that "risk factors for low achievement are disproportionately likely to affect immigrant youth, including limited English proficiency, high rates of poverty…living in segregated, low SES neighborhoods, and experiences of racism and discrimination" (p. 4). However, other researchers provided evidence for the *immigrant paradox* phenomenon, finding that many immigrant students perform better in school than their U.S.-born peers (Motti-Stefanidi & Masten, 2013). Schwartz et al. (2010) explained that the conflicting results may be due to differences in research methods and measurement. CIs' educational outcomes may vary based on numerous factors, including the measure of acculturation (e.g., generational status, an acculturation scale, or

language proficiency), measure of academic competence (e.g., test scores versus studying habits), nature of the receiving society, the ethnic group studied, and SES (Makarova & Birman, 2015; Motti-Stefanidi & Masten, 2013).

In addition to academic outcomes, CIs' other adjustment outcomes vary based on differences in research methods and measurement. An individual's level of adaptation may differ based on the domain of adaptation studied. For example, although an individual may be well-adjusted in the academic domain, they may be poorly adjusted in a different domain such as their mental health. Asian American students, for instance, are stereotyped as model minorities in education based on assumptions that all of these students demonstrate high academic performance (Kao & Thompson, 2003), but many Asian American students also report poor psychological and social adjustment (Motti-Stefanidi & Masten, 2013; Qin, 2007). Researchers have also found significant heterogeneity in academic and mental health adjustment when comparing Asian American CIs of different generational statuses (Tan, 2016) and different Asian American groups (e.g., Filipino compared to Chinese students; Eng et al., 2008; Zhou et al., 2012). Therefore, it is essential that researchers avoid overgeneralization of immigrant groups, clearly describe their population of interest, and consider the multifaceted nature of acculturation.

The present study contributes to the acculturation literature by providing a more nuanced examination of Asian American adolescents. Specifically, I examine whether Berry's (1997) four acculturation strategies would be replicated in a sample of Chinese American high school students who are CIs. I also examine whether these acculturation strategies are related to three forms of educational outcomes, including students' academic performance (as measured by grade point average; GPA), perceived academic competence, and educational expectations. First, I review the literature on the current conceptualization of acculturation. Then, I provide a broad discussion of the contextual, historical, and societal influences on the acculturation and education of Chinese American youth. Next, I discuss Berry's (1997) four acculturation strategies and discuss research on ethnic and racial identity profiles. Then, I discuss research that links the acculturation strategies to educational outcomes. Finally, I introduce my hypotheses that were informed by the literature review.

Acculturation

Berry (1997) defined acculturation as the process of change that results from the contact between two or more cultures. These changes may occur at the cultural level where change is generated in both cultures and at the individual psychological level where change occurs in the individual who is exposed to new or multiple cultures. Acculturation research generally focuses on individuals who have moved to a new country, including immigrants, refugees, sojourners, and asylum seekers (Schwartz et al., 2010). However, acculturation is also a relevant process for individuals who have contact between different cultures and have not moved to a new country such as minority students and CIs (Makarova & Birman, 2015).

Several researchers consider acculturation a broad construct, whereas other researchers make more specific distinctions between the processes of assimilation, enculturation, and cultural orientation (Miller, 2007). *Assimilation* (sometimes used interchangeably with the term acculturation; Chen et al., 2014) is defined as acquiring and adopting the mainstream culture, practices, beliefs, and values of the receiving country (Schwartz et al., 2010). *Enculturation* is "the process of selectively acquiring or retaining elements of one's heritage culture while also selectively acquiring some elements from the receiving cultural context" (Schwartz et al., 2010, p. 239).

Cultural orientation (also known as acculturation orientation; Makarova & Birman, 2015) is "the degree to which individuals are influenced by and actively engage in the traditions, norms, and practices of a specific culture" (Tsai et al., 2002, p. 95). Although these concepts are all related and fall under the umbrella of acculturation research, the inconsistency of terms contributes to confusion in the field (Rudmin, 2003). In the present study, I used Berry's (1997) definition of individual-level acculturation and focused on the cultural orientations of CIs. More specifically, I examined individuals' language proficiency, media use, and social relationships in both Chinese and American cultures.

Acculturation as a Bilinear Process

Despite the variations in terminology, recent researchers agree on conceptualizing acculturation in terms of linearity and domains (Berry, 1997; Miller, 2007; Yoon et al., 2013). Acculturation was initially defined as a unilinear process in which higher orientation to the mainstream culture resulted in lower orientation to the heritage culture (Gordon, 1964). However, in the 1980s, researchers began to argue for a more complex conceptualization of acculturation as a bilinear process (Berry, 1997). For example, Chinese American CIs may acculturate to American (mainstream) and Chinese (heritage) cultures at different rates and their cultural orientation to each culture may also vary (e.g., high orientation to Chinese culture and low orientation to American culture, high or low on both orientations, etc.), demonstrating the bilinear nature of acculturation.

Acculturation as a Multidimensional Process

Recently, researchers have also made a theoretical shift to consider the multiple domains in which acculturation can occur. These domains include areas such as behaviors, values, knowledge, and identity (Yoon et al., 2013). For example, Miller's (2007) study provided evidence that acculturation occurs across distinct domains. Miller (2007) measured Asian American adolescents' acculturation and found that a multidimensional model that separated values and behaviors fit the data better than a unidimensional model.

Additionally, researchers found that different cultural orientations in the behavioral and value domains explain differences in outcomes such as help-seeking behavior and mental health (Miller et al., 2013). Although researchers agree on the multidimensional nature of acculturation, Miller (2007) noted that there is a lack of consensus on how many domains exist and should be considered in the acculturation process. More research is needed on how acculturation in different domains impacts developmental outcomes and which domains are more influential across development. For example, Chen et al. (2014) noted that English proficiency acquisition (an example of behavioral acculturation of American culture) is critical for behavioral and academic outcomes in early childhood whereas behavioral acculturation towards American culture in adolescence could lead to association with deviant peers and substance use.

Despite the multidimensional conceptualization of acculturation, many studies focus only on one domain such as behavioral acculturation (e.g., language proficiency or cultural practices; Kim et al., 2014). For the scope of this paper, I also focused on behavioral acculturation but examined multiple aspects of behavioral acculturation (language, media use, and social relationships). In sum, researchers such as Yoon et al. (2013, p. 16) have recommended conceptualizing acculturation as a "bilinear (i.e., cultural socialization to mainstream and ethnic cultures proceeding relatively independently from each other) and multidimensional (i.e., across multiple [domain] areas such as behaviors, cultural identity, knowledge, values) cultural socialization process that occurs in interaction with social contexts (e.g., home, school, work, and community)."

Asian American Sociocultural History and Stereotypes

A culturally responsive understanding of Chinese American CIs grounded in historical and sociocultural research can provide educators, researchers, and practitioners with a broader understanding of these students' identity development, acculturation processes, and navigation through the educational system. Therefore, this paper uses an ecological approach to understand acculturation, which states that an individual's context influences the relationship between acculturation and adjustment (Makarova, 2019). In this section, I discuss contextual, historical, and societal influences on the acculturation and education of Chinese American youth.

Pre-Migration Context

In discussing immigrant experiences and acculturation, researchers consider both immigrants' cultural context before immigration (e.g., conditions in China) and after immigration (e.g., in the US; Holloway & Kunesh, 2015). For example, an individual's experience of stressors, poverty, war, or trauma in their pre-migration context may have long-term effects on their mental health, physical health, ability to adapt, actions, and beliefs, even after they have immigrated to the US (Schwartz et al., 2010; Torres & Wallace, 2013). Although a majority of Chinese American CIs in this sample were born in the US and may not have experienced a pre-migration context directly, their parents' pre-migration experience can shape CIs' developmental context through parental involvement, beliefs about education, stories about past events, participation in cultural traditions, intergenerational trauma, emotional availability, and so on.

Holloway and Kunesh (2015) highlighted the impact of sociohistorical experiences on Chinese American parents' beliefs about education and how these parents support their children's education. For example, Holloway and Kunesh noted that "the beliefs and actions of contemporary Chinese–American parents have been shaped by the conditions that prompted immigration to the United States from the mid-1800s onward, including corrupt and repressive governments, popular rebellions, population pressures, and natural disasters" (p. 4). Approximately 110,000 Chinese immigrants were also recruited to the US from 1850 to 1880 for labor work on the Transcontinental Railroad and in mining industries (Guo, 2019; Lieber et al., 2001; Takaki, 1998). Holloway and Kunesh discussed how many of these Chinese immigrant parents "directly experienced violence, deprivation, and the negative effects of educational reforms during the Cultural Revolution (Dryburgh, 2013). We can expect these experiences to affect the cultural meanings of education, involvement in schooling, and hardship" (p. 4).

Chinese immigrants were the first Asian-origin group to immigrate to the US in large numbers (Juang & Cookston, 2009) and are currently the largest Asian-origin group in the US (Walton, 2015; Zhou & Kim, 2006). Due to the long history of migration of Chinese immigrants to America since the 1800s, the contemporary Chinese American community is generationally, socioeconomically, and ethnically diverse. The community consists of some Chinese Americans "who identify as fourth- or fifth- generation, some of whom may also identify as biracial, multiethnic, or mixed-race, and many of whom experience and construct Chinese identity in ways quite different from their second-generation counterparts" (Hall-Lew & Starr, 2010, p. 14). Some Chinese immigrant parents may come from highly educated backgrounds or high SES backgrounds and immigrated to the US due to the selective migration of skilled professionals (Holloway & Kunesh, 2015; Walton, 2015), resulting in different beliefs and actions. Although I did not examine parental involvement for the scope of this paper, it is important to acknowledge that such parental and historical influences can shape a child's own beliefs, values, and actions regarding their

education, socio-economic mobility, acculturation, and cultural identity development (Ng et al., 2007).

Post-Migration Context

The post-migration context, or receiving context, refers to the conditions that immigrant parents and CIs experience in the location that they migrate to (e.g., America). Paterson (2017) noted that educating CIs in a way that supports both their mainstream and heritage culture development "requires working against a difficult institutional history in the United States" (para. 11) Chinese Americans have a long history of and continue to face discrimination, institutional racism, and xenophobic attitudes since their arrival to the US (Ng et al., 2007). The concept of *othering* (powell & Menendian, 2016) provides an understanding of prejudice and race relations in American history. They defined othering as "a set of dynamics, processes, and structures that engender marginality and persistent inequality across any of the full range of human differences based on group identities" (powell & Menendian, 2016, p. 13). The act of othering privileges certain groups of people (who are subjectively considered the in-group), whereas groups considered the other continue to be marginalized and discriminated against, reinforcing group-based inequities. Additionally, powell and Menendian argued that American leaders and politicians have a long history of using anxiety, resentment, or fear of the *other* as a strategy to gain support (in elections, legislation, political movements) or to show nationalism. Examples of othering include exclusionary immigration laws, the Jim Crow segregation laws (powell & Menendian, 2016), and the incarceration during and forced relocation of Japanese Americans after World War II (Ng et al., 2007).

Two major Asian American stereotypes that I will discuss in this section are *forever foreigner* and *model minority*. Takaki (1998) discussed the history of Chinese Americans being racialized as forever foreigners (also used interchangeably with the term, perpetual foreigners) and stated that Chinese Americans have been excluded from being considered a part of the White mainstream society. When Chinese immigrants were recruited for labor work in the 1800s, Takaki noted that

> the inclusion of the Chinese in the economic structure was accompanied by their political exclusion. Not 'White,' they were ineligible for naturalized citizenship. They were, in effect, migrant laborers, forced to be foreigners forever…they were part of America's production process but not her body politic." (p. 28)

Chinese immigrants were also the first and only immigrants explicitly banned from immigrating to the US based on their ethnicity during the 1882 Chinese Exclusion Act; other immigrant groups were restricted from immigrating to the US in subsequent bans, but these bans were based on geographical region instead of ethnicity (Guo, 2019; Juang & Cookston, 2009). This exclusionary act is an example of othering and came from the fear of Yellow Peril, which was an anti-Chinese sentiment popularized by the media that stated the non-White *other* (i.e., Chinese people) was a threat to American economics, politics, health, and morals (Kawai, 2005; Lee, 2007).

The model minority stereotype characterizes all Asian Americans as economically and academically successful due to their hard work and perseverance in a fair and color-blind society (Kumashiro, 2006). Kim (1999) presented a theory of racial triangulation to further explain the model minority stereotype, which proposed that Asian Americans are stratified between African American and White race relations. In Kim's (1999) model, the process of racial triangulation "bolsters cultural racism…by discrediting one racially minoritized group's [African Americans] real struggles with racial barriers and discrimination through the valorization of oversimplified

stereotypes of another racially minoritized group [Asian Americans]" (Poon et al., 2016, p. 474). Researchers argued that Asian Americans are "strategically presented as a model of self-sufficient minority success…used to blame another minority group [African Americans] for its struggles, thus perpetuating the deficit thinking model prevalent in education" (Poon et al., 2016, p. 474).

The model minority stereotype also presents Asian Americans as *honorary Whites,* a notion that "de-minoritizes" (Ng et al., 2007, p. 111) Asian Americans and suggests that Asian Americans do not need institutional supports (Cabrera, 2014), obscuring their experiences of institutional racism (Chang, 1993). This stereotype is problematic, for example, in contexts such as higher education where "Asian American college students struggle to prove that they are still minorities as they are rendered invisible, their academic and student services needs unmet" (Ng et al., 2007, p. 111). Additionally, although Asian Americans are presented as a model of minority success, they are simultaneously presented as forever foreigners, which reinforces the notion that Asian Americans are not fully part of mainstream society and are delegated to a subordinate position to Whites (Junn & Masuoka, 2008; Kim, 1999; Poon et al., 2016).

These stereotypes and examples of institutional racism can create barriers in Asian American CIs' educational experiences and are reflected in contemporary educational contexts, including cultural barriers to student services (e.g., lack of culturally responsive services for students who have varying levels of academic preparedness, family demands and obligations, and financial resources), experiences of discrimination in college admissions and on college campuses, and schools' focus on English acquisition and English-only instruction (Ng et al., 2007; Paterson, 2017). These issues affect Asian American CIs not only on a broad level, but also on an individual level, such as their self-concept, acculturation, and social interactions.

Contextual Understanding of Acculturative Processes

Identity is one of the many domains of the acculturative process. Thus, discussions of acculturation and identity often are intertwined (Pyke & Dang, 2003). Identity is shaped by context and several models of identity discuss the dynamic, situational, and multidirectional nature of identity formation (Pyke & Dang, 2003). Identity formation is a salient developmental task for adolescents (Huynh & Fuligni, 2010) and adolescent CIs may be especially sensitive to the messages they receive from various individuals (e.g., their parents, society, or peers) as they navigate and attempt to understand the intersectionality of their multiple identities (e.g., gender, heritage culture, mainstream culture, sexual orientation, etc.). The previously discussed stereotypes, xenophobic attitudes, and historical influences play an important role in shaping the identity and acculturation experiences of adolescent Asian American CIs.

Many of these adolescents may feel pressured to conform to the mainstream culture through institutional racism or xenophobic messages, while trying to live in accordance with their heritage culture (Paterson, 2017). For example, Pyke and Dang (2003) demonstrated that racial beliefs of the dominant society and derogatory stereotypes can influence how Korean and Vietnamese college students describe their own ethnic identity and how they categorize their Asian American peers. Pyke and Dang interviewed 184 participants about their family relationships, social experiences, and identity in relation to their heritage culture and mainstream culture. Pyke and Dang found that when describing their peers, a majority of participants used the derogatory terms *fresh off the boat (FOB)* to describe what it meant to be too ethnic/Asian (e.g., speaking with an accent) and *Whitewashed* to describe what it meant to be too assimilated (e.g., having many White friends and being unfamiliar with cultural traditions). When describing their own identities, a majority of participants "attempt[ed] to carve out a non-stigmatized identity at the bicultural middle of the acculturative spectrum" (Pyke & Dang, 2003, p. 149).

In the present study, I examined individual acculturation strategies instead of the contextual influences on these strategies. However, the purpose of this section is to acknowledge the importance of having a socio-historically and ecologically grounded understanding of Chinese American CIs' acculturation process when researching this population. Additionally, due to Chinese Americans' and CIs' unique hardships and experiences in America, the acculturation of Chinese American adolescent CIs may be an especially important area to research.

Berry's Acculturation Model

I used Berry's (1997) four-fold model of acculturation as a conceptual framework to inform my understanding of participants' acculturation process and their orientations to their heritage and mainstream culture. In his model, Berry identified four acculturation *strategies* (also used interchangeably with the terms outcomes or profiles). These strategies are based on an individual's orientation (preference for and practice of) to their heritage culture and their orientation to the mainstream culture. Berry's four-fold model is one of the most influential and widely studied theories in acculturation research (Kuo, 2014). Berry (2019, p. 21) noted that he used the term strategies because "these various ways of acculturating are not just passive responses to daily events and the larger intercultural context, or merely attitudinal preferences, but are consciously chosen in order to achieve a particular goal."

The four strategies include assimilation, separation, integration, and marginalization (Berry, 1997). *Assimilation* refers to high orientation to the mainstream culture and low orientation to the heritage culture. *Separation* refers to low orientation to the mainstream culture and high orientation to the heritage culture. *Integration* refers high orientation to both the mainstream culture and heritage culture. *Marginalization* refers to low orientation to both the mainstream culture and heritage culture.

More research is needed on the utility of Berry's (1997) acculturation strategies because these strategies have received mixed support in the literature. For example, Miller et al. (2013) found four cluster groups representing Berry's strategies (assimilation, separation, marginalization, and integration) in three samples ranging from 288 to 326 Asian American college students. Berry et al. (2006) also found four cluster groups representing Berry's strategies in a sample of 7,997 ethnically diverse immigrant and U.S.-born youth. However, Fox et al. (2013) found only three strategies (assimilation, separation, and integration) using latent profile analysis in their study of 227 ethnically diverse college students. Jang et al. (2017) also used latent profile analysis and found clusters that represented two of Berry's strategies (integration and separated strategies) in their sample of 2,602 Asian American participants aged 18 to 98 years old. Jang et al. (2017) also found two clusters that they labeled moderately bicultural and alienated from heritage culture.

Schwartz and Zamboanga (2008) used latent class analysis and found six latent clusters in their sample of 436 Hispanic college students. The six latent clusters included three of Berry's strategies (assimilation, separation, and integration) and three other profiles labeled undifferentiated, partial biculturalism, and American-oriented biculturalism (Schwartz & Zamboanga, 2008). These studies demonstrate that not all of Berry's strategies may exist and variations of the strategies may exist within specific populations. With these mixed results in the extant literature from different researchers, I examined whether Berry's four strategies would be replicated in a sample of adolescent Chinese American CIs.

Some researchers have critiqued Berry's four-fold model, stating that the strategies are static and do not capture the multi-dimensional nature of acculturation across an individual's life course

(Lazarus, 1997). Rudmin et al. (2017) also argued that because the model is limited to four strategies based on orientation to two cultures, it does not acknowledge that cultures can share traits and that individuals can have an orientation to a third culture. However, Berry's (2017) response to these critiques is that his framework is multi-dimensional, developmental, and considers the interaction between individual processes and contextual influences. He also stated that acculturation strategies can differ based on the life domain examined (e.g., family, work, or school life) and contextual influences such as experiences of discrimination, rejection, or acceptance from the mainstream and heritage culture (Berry, 2017). For example, it is possible that I may not find all four of Berry's strategies in the language proficiency domain in the present study's sample of mostly adolescent CIs who are 1.5- and second-generation immigrants. Many adolescent CIs who are 1.5- and second-generation have limited heritage language proficiency because the American education system focuses on English-only instruction (Fillmore, 2000). The separation and marginalization strategies may be less common or non-existent in a specific sample such as adolescent 1.5- and later generation immigrants. Therefore, it is important to research how acculturation strategies may differ in different domains.

Schwartz and Unger (2017) also noted that Berry described acculturation as a *pattern* of adaptation, which implies that acculturation changes over time and that individuals may use different strategies at different developmental stages. Additionally, a majority of people living in the US (97.6% of people who participated in the 2010 U.S. Census) reported having one race, suggesting that a majority of people in the US only navigate between one to two races (U.S. Census Bureau, 2010). Although future studies could expand upon the model to include a third culture, the existing model still warrants research and is applicable to many people living in the US.

Ethnic and Racial Identity Profiles

Research from the ethnic and racial identity literature also provide evidence for the utility of examining profiles based on students' attitudes of or preferences for their heritage culture and the mainstream culture. Compared to a variable-level approach, the profile approach can provide a different understanding of the relationship between ethnic and racial identity and educational outcomes, as "examining profiles of identity beliefs would allow us to understand how individuals with a particular pattern or set of identity beliefs might be different from or similar to individuals with other patterns of beliefs" (Chavous et al., 2003, p. 1085). Furthermore, Rivas-Drake et al. (2014) argued that identity is multidimensional and "represent[s] constellations of different cognitions and affect" (p. 51), and that the profile approach allows researchers to examine these multiple dimensions of identity concurrently.

For example, Worrell et al. (2006) used cluster analysis and identified six racial identity profiles based on participants' scores on the Cross Racial Identity Scale (CRIS) in a sample of African American undergraduates. The CRIS examines participants' attitudes about their ethnic identity, American identity, and stereotypes of their ethnic group and other ethnic groups. Two of the racial identity profiles from Worrell et al.'s study share similarities with acculturation profiles. For example, individuals with the assimilation racial identity profile "see themselves as American rather than African American" (Worrell et al., 2006, p. 537), which is similar to the assimilation acculturation strategy. Individuals with the multiculturalist profile have a dual identity as they have a strong ethnic identity and report connectedness to other groups (ethnic minority and majority groups; Worrell et al., 2006), which is similar to the integrated acculturation strategy. Other studies have provided support for the generalizability of the CRIS racial identity profiles and the number of racial identity profiles replicated across different samples have ranged from five (Andretta et al., 2015) to six (Worrell et al., 2014).

In addition to examining the replicability of racial or ethnic identity profiles, researchers found that "individuals with different [ethnic or racial identity] profiles have been shown to differ on a variety of constructs, including acculturation" (Andretta et al., 2015, p. 1167) and academic achievement (Chavous et al., 2003; Oyserman, 2008). However, the research on identity profiles is also mixed, as some researchers found no differences in the academic performance between profiles and other researchers found differences among profiles. For example, Chavous et al. (2003) studied the racial identity and academic achievement of 606 African American high school students and categorized these students into four profiles labeled buffering/defensive, low connectedness/high affinity, idealized, and alienated. Chavous et al. found no significant differences in GPA between the racial identity profiles. However, Chavous et al. found that buffering/defensive students (had high connection to and felt positively about their ethnic group) demonstrated the highest percentage and alienated students (had low connection to and felt negatively about their ethnic group) demonstrated the lowest percentage of 2-year or 4-year college attendance. Additionally, the profiles in which students felt positively about their ethnic group (buffering/defensive, idealized, and low connectedness/high affinity students) had more positive school attitudes than alienated students.

A number of studies have demonstrated the benefit of bicultural profiles in which students identified with both their heritage and mainstream culture. For example, Oyserman et al. (2003) interviewed 94 African American, American Indian, and Latinx middle school students on their identity in relation to their ethnic group and the larger society. Based on the students' responses, Oyserman et al. categorized students into four racial ethnic schemas: dual, minority, aschematic, and in-group only. Dual and minority students defined themselves as members of both their ethnic group and mainstream society. Aschematic students did not define themselves as members of either their ethnic group or larger society. In-group only students defined themselves as only members of their ethnic group. Oyserman et al. (2003) found that dual students had higher grades than aschematic students ($d = 0.66$) and in-group only students ($d = 0.80$). In the second part of the study, Oyserman et al. found that in a sample of 524 Palestinian-Arab Israeli high school students, the aschematic and in-group only students had lower academic engagement (as measured by number of attempts on a mathematical task) than dual and minority students.

In another study of 213 African American and Latinx middle school students, Oyserman (2008) found that aschematic profiles were associated with lower GPA whereas dual and minority profiles were associated with higher GPA and school engagement. Oyserman (2008) argued that "positive connection to in-group alone will not have positive effects on school outcomes and well-being; connection to in-group needs to be accompanied by conceptualization of connection between in-group and broader society" (p. 13). Similarly, Worrell et al. (2010) examined ethnic identity in a sample of ethnically diverse high school students and found that students with dual-identity profiles demonstrated the highest GPA compared to other the ethnic identity profiles. Worrell et al. argued that "one does not have to give up one's cultural identity to be successful. Dual identity students are doing as well as or better than assimilated students" (Slide 25). Overall, research on identity profiles provides evidence that profiles in which participants identified with both their ethnic and mainstream culture and students' positive beliefs towards their ethnic group were associated with better educational outcomes. This evidence contributes to my hypothesis that the integrated strategy would be positively associated with GPA, educational expectations, and perceived academic competence.

Acculturation and Educational Outcomes

Few researchers have used Berry's (1997) four-fold model of acculturation to examine educational outcomes. In the following sections, I provide examples of studies that have used Berry's four-fold model as well as relevant studies that used general models of acculturation (e.g., that examined biculturalism or cultural orientations) to examine the link between acculturation and academic performance, expectations, and competence.

Academic Performance and Cognitive Skills

Berry's (1997) four-fold model informs my understanding that biculturalism (i.e., individuals who are oriented to both their heritage and the mainstream culture) is equivalent to the integration strategy. Comprehensive reviews have linked biculturalism to positive psychological and academic performance. For example, Nguyen and Benet-Martinez (2013) conducted a meta-analysis of 83 studies that examined the association between biculturalism and adjustment in ethnically diverse youth and adults. The researchers examined psychological adjustment (e.g., life satisfaction, self-esteem, and low negative affect) and sociocultural adjustment (e.g., academic achievement and positive conduct). Nguyen and Benet-Martinez found that biculturalism was significantly and positively associated with adjustment ($r^2 = 0.49$), which demonstrates the benefits of the integration strategy.

The relationship between adjustment and participants' orientation to only one culture was also positive (mainstream culture $r^2 = 0.38$ and heritage culture $r^2 = 0.31$), but this relationship was less strong compared to the relationship between adjustment and biculturalism (Nguyen & Benet-Martinez, 2013). Makarova and Birman (2015) also found that acculturation strategies have varying effects on adjustment, as "integration is usually perceived to be the most successful strategy, marginalization seems to be the least successful approach, and assimilation and separation orientations are shown to have an intermediate impact on adjustment" (p. 308). In the present study, I will contribute to this literature by examining which acculturation strategies are linked to positive academic performance.

Research on bilingualism provides further evidence for the benefits of the integration strategy on academic performance and cognitive skills. For instance, Valdes (2003) noted that bilingual youth tend to perform at higher levels of accomplishment compared to monolingual peers. Several researchers found that bilingual students outperformed monolingual students on tests of verbal and nonverbal intelligence, creative thinking, cognitive flexibility, memory, and knowledge in language and grammar compared to monolingual peers (Kroll et al., 2012; Kuipers & Thierry, 2013; Valdes, 2003). Adesope et al.'s (2010) meta-analysis of 63 studies found that bilingualism had small to large effects on cognitive skills, including metalinguistic awareness (individuals' knowledge of language use; Hedges' $g = 0.33$), metacognitive awareness (individuals' knowledge of their cognitive processing; $g = 0.32$), working memory ($g = 0.48$), abstract thinking ($g = 0.57$), attentional control ($g = 0.96$), and problem solving ($g = 0.26$).

Chinese American Samples

Studies on acculturation among Chinese American adolescents yielded similar results and researchers linked the integration strategy with positive academic achievement and cognitive outcomes. For example, Lee (2002) found that in a sample of 105 Chinese American and Korean American high school students, participants who had bicultural and bilingual orientations (integration) reported higher grade point averages ($r^2 = 0.88$) compared to participants who were only oriented to the mainstream culture (assimilation). Kim et al. (2015) found that both integration

and assimilation strategies were positively associated with participants' English Language Arts standardized test scores in a sample of 444 Chinese American adolescents.

Specific aspects of mainstream acculturation, such as English language proficiency are also associated with positive educational outcomes among Chinese American adolescents. For example, Yeh et al. (2008) found that English language proficiency was associated greater willingness seek academic help among 286 Chinese American high school students. Suarez-Orozco et al. (2009) found that English language proficiency was positively associated with GPA in a sample of 407 ethnically diverse immigrant youth that included Chinese immigrant youth ($r^2 = 0.15$), although the effect size was small. Despite the advantages of English language proficiency for academic achievement, bilingualism is positively associated with not only academic achievement (Guhn, Milbrath, & Hertzman, 2016) but also cognitive skills as discussed previously (Adesope et al., 2010; Kroll et al., 2012). These studies demonstrate that Chinese CIs' language use and proficiency are important factors in their acculturation process and academic performance.

Educational Expectations

Researchers have found contrasting results regarding the link between acculturation and educational expectations. Some researchers found that participants' orientation to the mainstream culture was more positively associated with expectations. For example, Flores et al. (2006) found that participants who were more orientated to the Anglo-American culture were more likely to set higher educational goals than participants who were less oriented to the Anglo-American culture ($B = .21$) in a sample of 105 Mexican American high school students. Orientation to Mexican culture was not associated with educational goals in their study. Flores et al.'s (2008) results supported these findings and found that participants who were more oriented to Anglo-American culture were more likely to set higher educational goals than participants who were less oriented to Anglo-American culture ($f^2 = 0.11$), whereas orientation to Mexican culture was not associated with educational goals.

By contrast, other researchers found that participants' orientation to their heritage culture was more positively associated with expectations. For instance, Shih and Brown (2000) found that students' orientation to their heritage culture was more predictive of expectations than students' bicultural orientation. Shih and Brown examined whether different acculturation strategies existed in their sample of 185 Taiwanese international students enrolled in American universities, but only found two strategies in their sample: bicultural, which mirrors the integration strategy and Asian, which mirrors the separation strategy. The researchers found that the Asian strategy was more predictive of vocational identity ($r^2 = 0.11$) than students' bicultural orientation, but the effect size was small. Although vocational identity is not equivalent to educational expectations, it is highly relevant to educational expectations, as Shih and Brown defined vocational identity as the "extent to which one possesses a clear and stable understanding of his or her aspirations, interests, and abilities, is one such variable that has been regarded as important to the career development and decision-making process" (pp. 37–38).

Although the research on acculturation and educational expectations have yielded mixed results, research on Asian American educational values and beliefs informs my understanding of how cultural orientations might impact educational expectations. For example, some researchers noted that Chinese culture emphasizes high educational expectations and family cohesion, and some children are socialized by their parents to internalize beliefs and values regarding the importance of education and having high educational expectations (Kwak, 2010; Qin & Han, 2014). However, researchers have cautioned against the assumption that high expectations are simply associated with the Chinese culture (Holloway & Kunesh, 2015). Holloway and Kunesh (2015, p. 5) argued that due

to the historical context of selective migration of highly educated professionals and institutional racism towards Chinese immigrants, these high educational expectations may be "a response by a relatively elite class to a hostile environment." Other researchers have found that some Chinese immigrant parents communicated to their children that racial discrimination would create barriers for their children's economic opportunities (Louie, 2001). These parents conveyed that obtaining higher education was valuable because it was a strategy to buffer the effects of racial discrimination and to gain socioeconomic mobility (Kibria, 2002; Louie, 2001). Therefore, I hypothesized that acculturation strategies that consist of high orientation to Chinese culture would be associated with high expectations.

Perceived Academic Competence

There are a limited number of studies where researchers examine the relationship between Berry's (1997) acculturation strategies and participants' perceived academic competence. Kim et al. (2013) identified five cluster groups in their sample of 294 third- to fifth-grade Mexican students. The groups represented three of Berry's strategies (marginalization, separation, and integration). Kim et al. found two other groups that they labeled moderately assimilated and highly assimilated. Kim et al. found that students in the separation group reported higher academic competence than students in the highly assimilated group, but the effect size was small ($\eta^2 = 0.05$). There were no statistically significant differences in perceived academic competence among the other groups.

Coatsworth et al. (2005) also examined the link between Berry's strategies and perceived academic competence. In a sample of 315 Hispanic adolescents, the researchers found five cluster groups representing the marginalization, separation, assimilation, and integration strategies, as well as a group they labeled the moderates. Coatsworth et al. found that students in the integration group reported higher levels of perceived academic competence than students in the other groups. A limitation of their study was that they only compared the integration group with the other strategies combined instead of comparing them each individually. Overall, studies linking acculturation and academic performance, expectations, and perceived competence have received mixed support in the literature. Berry's (1997) four-fold model enables me to examine acculturation in a more comprehensive and structured way. By using this model, I am able to examine whether individuals' orientation to the mainstream culture, orientation to their heritage culture, or a certain combination of both affects academic outcomes.

The Present Study and Hypotheses

The two goals I had in this study were to examine whether Berry's (1997) four proposed acculturation strategies would be found in a sample of Chinese American adolescents and whether these strategies were associated with educational outcomes. This is the first study that I know to examine the effect of acculturation strategies on three types of educational outcomes (academic performance, perceived academic competence, and educational expectations).

Hypotheses 1 and 2

Research has indicated highly variable associations between acculturation strategies and academic performance (Kim et al., 2015; Lee, 2002; Makarova & Birman, 2015). However, several researchers have associated the integration strategy with positive academic performance, with effect sizes ranging from moderate to large (0.49 to 0.88; Lee, 2002; Nguyen & Benet-Martinez, 2013). Research on bilingualism provides additional evidence for the academic and cognitive benefits of dual orientation (Adesope et al., 2010; Kroll et al., 2012; Kuipers & Thierry, 2013; Valdes, 2003). The ethnic identity literature also demonstrated that dual identity profiles were associated with

higher GPA and academic engagement (Oyserman, 2008; Oyserman et al., 2003). Researchers have also found that the assimilation strategy was associated with higher English Language Arts standardized tests scores (Kim et al., 2015) and greater academic help-seeking behavior (Yeh et al., 2008). Overall, the integration strategy appears most beneficial and the assimilation strategy has some academic benefits, but more research is needed on the benefits and risks of the four strategies.

Given that results on how acculturation strategies impact academic performance are mixed, I examined whether Berry's acculturation strategies were associated with participants' high school GPA. I hypothesized that Berry's (1997) four acculturation strategies (assimilation, integration, marginalization, separation) would be represented in the three acculturation domains (language proficiency, social relationships, media use) in a sample of Chinese American high school students. Second, I hypothesized that participants who used the integration and assimilation strategies would have higher GPAs than participants who used the marginalization and separation strategies.

Hypothesis 3

To my knowledge, currently, there is no study that examines the relationship between Berry's strategies and the educational expectations of Chinese American adolescents. This study contributes to the literature by examining this relationship, as it is unclear how Chinese Americans' acculturation strategies affect their educational expectations. However, research on Chinese cultural beliefs regarding education has indicated that many Chinese CIs internalize their parents' high expectations and educational values (Kibria, 2002; Louie, 2001). I hypothesized that participants who had high orientation to Chinese culture (integration and separation) would have higher educational expectations than participants who used the marginalization and assimilation strategies.

Hypothesis 4

Research also shows highly variable associations between acculturation strategies and perceived academic competence. Some researchers found that the separation strategy was positively associated with academic competence (Kim et al., 2013) whereas other researchers found that the integration strategy was positively associated with academic competence (Coatsworth et al., 2005). Due to the unclear relationships and limited research in this topic, it is difficult to predict which strategies would be positively associated with academic competence. I suspect that the association between acculturation strategies and academic competence may mirror the association between acculturation strategies and academic performance. Therefore, I hypothesized that participants who used the assimilation and integration strategies would have higher academic competence than participants who used the marginalization and separation strategies.

Method

Data

There are few studies that examine the association between Berry's (2006) strategies and the educational outcomes of Chinese American CIs, and there is no study that examines Berry's strategies and three types of educational outcomes in Chinese American CIs. Chinese American CIs' development is intertwined with a combination of unique contextual factors such as a history of institutional racism (Juang & Cookston, 2009), the selective migration of skilled professionals (Holloway & Kunesh, 2016), stereotypes (e.g, forever foreigner, model minority, and honorary Whites; Pyke & Dang, 2003), an educational system that focuses on White middle-class values (Paterson, 2017), having parents who grew up in a different country than them, and navigating

between two cultures. Therefore, I wanted to use a data set that focused specifically on Chinese American CIs.

Data were collected from an ongoing longitudinal study titled the Risk and Protective Factors for Mental Health Adjustment in 1st- and 2nd- Generation Chinese American Immigrant Children project (Zhou, n.d.). The longitudinal study followed 258 Chinese American school-aged CIs to examine their adaptation over time and surveyed them, their parents, and their teachers at three different time points from 2007 to 2018 in a large metropolitan area in northern California (Chen et al., 2014; Zhou, n.d.). During Wave 1, participants were recruited through the distribution of fliers at recruitment fairs, Asian and Chinese community events, schools with large Asian student populations, and through referrals from Chinese community organizations (Chen et al., 2014).

Participants

The sample consisted of both first-generation (born outside of the US, 23.6%) and second-generation (born in the US, 76.4%) youth. In order to participate in the study, participants were required to (a) be in first or second grade at Wave 1 of data collection, (b) identify as first- or second-generation, (c) live with at least one of their biological parents, (d) have parents who both identified as Chinese, and (e) be able to converse in English, Mandarin, or Cantonese (Chen et al., 2014). The first survey was administered between 2007 and 2009, when participants were in first, second, or third grade ($N = 258$). The second survey was administered approximately two years later, from 2009 to 2011, when participants were third or fourth grade ($N = 238$; 92% of the original sample). The third and final survey was administered from 2017 to 2018, when participants were in 10th to 12th grade ($N = 145$; 56% of the original sample). The survey included variables such as academic performance, acculturation, parental involvement, teacher-student relationships, and emotion regulation. Data from Wave 1 and Wave 3 were included in this study because the data contained relevant student variables such as demographic variables, acculturation, and educational outcomes.

Measures

Demographic Variables
Demographic variables from Wave 3 were used when available. However, data on gender and generational status were not collected at Wave 3, so Wave 1 data were used for these variables. Participants' gender at Wave 1 was a categorical variable (1 = *female* and 2 = *male*). Participants' generational status at Wave 1 was a categorical variable (0 = *first generation* and 1 = *second generation*). Participants' grade level at Wave 3 was a continuous variable ranging from (10 = *tenth grade* to 12 = *twelfth grade*). Parent income was an ordinal variable at Wave 1 (1 = *less than $5,000* to 20 = *greater than $95,001*) and Wave 3 (1 = *less than $5,000* to 24 = *more than $120,001*). Parent education level was a variable wherein values of 0 to 10 represented 0 to 10 years of school and values of 11 to 20 were categorical (11 = *completed part of high school but didn't finish* to 20 = *doctorate or other advanced degree*).

Academic Performance
Participants' GPA during Wave 3 (when participants were in 10th to 12th grade) was used as a measure of academic performance. Participants' grades were obtained from their report cards and from the most recently completed academic unit on the report cards (i.e., semester, quarter, trimester). Grades were coded on a 5-point scale (F = 0; D = 1; C = 2; B = 3; A = 4), were adjusted

0.3 points if they included plus or minuses (e.g., A+ = 4.3, B- = 2.7), and were averaged as a measure of GPA. Additional weight was not given to AP or Honor course grades as some researchers have found that unweighted GPA is a better predictor of academic outcomes (e.g., college performance) compared to weighted GPA (Geiser & Santelices, 2007).

Educational Expectations

Participants' educational expectations during Wave 3 were based on an item that measured the highest level of education participants expected to attain (1 = *graduate from high school*; 2 = *technical or vocational training after high school*; 3 = *graduate from 2-year community college*; 4 = *graduate from 4-year college*; 5 = *attend graduate or professional school after college*).

Perceived Academic Competence

Participants' perceived academic competence during Wave 3 was measured by the Coatsworth Competence Scale (Coatsworth & Sandler, 1993; Zhou et al., 2008). On this scale, competence is defined as "a developmental outcome reflecting how effectively youths are accomplishing age-appropriate tasks in…school" (Zhou et al., 2008, p. 11); I used the academic competence subscale. The academic competence subscale contained six items. Participants were provided with statements such as "You got good grades at school," "At least one of your teachers said that you did good work," and were asked to choose the response that best described them on a 4-point Likert scale from 1 (*not at all like you*) to 4 (*very much like you*). Zhou et al. (2008) found that scores on the academic competence scale demonstrated moderate reliability ($\alpha = 0.81$) in a sample of 209 ethnically diverse adolescents. In the present study, academic competence scale scores demonstrated moderate reliability ($\alpha = 0.74$).

Cultural and Social Acculturation Scale

Participants' orientations to American culture and the Chinese culture during Wave 3 were measured by the Cultural and Social Acculturation Scale (CSAS; Chen & Lee, 1996; Chen & Tse, 2010). The CSAS is a 31-item bidimensional measure that assesses participants' engagement and preference for the mainstream culture and their heritage culture separately. The scale assesses participants' cultural orientations in the domains of language proficiency, media use, and social relationships. The language proficiency domain included questions such as, "How well do you speak English," "How well do you speak Cantonese or Mandarin," and answers ranged from 1 (*extremely poorly*) to 5 (*very well*). The media-use domain included questions such as, "How often do you listen to Western music," "Are you involved in the celebration of Chinese festivals," and answers ranged from 1 (*almost never*) to 6 (*almost every day*). The social relationships domain included questions such as "How many American friends do you have," with answers ranging from 1 (*none*) to 4 (*seven or above*) and "How often do you invite your Chinese friends to your house" with answers ranging from 1 (*almost never*) to 5 (*more than once a week*). Participants' responses were averaged and standardized to create composite scores of participants' Chinese orientation and American orientation.

Researchers found that scores on this scale are reliable and valid in different samples (Chen & Tse, 2010). For example, in Chen and Tse's (2010) study of 356 Chinese Canadian children in Grades 4 to 8, the internal consistency was 0.89, 0.65, 0.85, and 0.63 for English language proficiency, Western media use, Chinese language proficiency, and Chinese media use, indicating modest to high reliability. In Chen et al.'s (2014) study of 258 Chinese American CIs, the internal consistency was 0.91, 0.51, and 0.73 for child's English proficiency, English media use, and American social relationships; and 0.87, 0.68, and 0.68 for child's Chinese proficiency, Chinese media use, and Chinese social relationships, indicating low to high reliability. In the present study, the internal consistency was 0.91, 0.66, and 0.60 for child's English proficiency, English media use,

and American social relationships; and 0.86, 0.57, and 0.62 for child's Chinese proficiency, Chinese media use, and Chinese social relationships, indicating low to high reliability (Table 1). Although scores on some scales yielded reliability estimates that were lower than ideal, the alpha values were consistent with previous studies (Chen et al., 2014).

Procedure

Youth, parent, and teacher surveys were given to the participant (youth), one of the parents, and the participant's teacher during Wave 1 and 2. Surveys were available in participants' preferred language (Chinese or English). Participants who participated in Wave 1 were contacted again via phone during Wave 2 and Wave 3 of data collection. At Wave 3, parent and youth surveys were sent through the mail and returned by mail or administered online, depending on the parent's preference.

Data Analysis Plan

In the present study, latent profile analysis (LPA) was used to examine whether acculturation profiles representing Berry's four strategies (measured by the CSAS) would be found in a sample of Chinese American CI adolescents. LPA was used to "examine the number of underlying subgroups (latent profiles) of participants with similar patterns of latent factor scores...Profiles are identified on the basis of differences in means and covariances of the profile indicators" (Wells et al., 2018, p. 96). I also examined whether there were differences among the profiles in the three educational outcomes (GPA, perceived competence, and expectations). Analysis of variance (ANOVA) was used to analyze whether the profiles were associated with different educational outcomes (Pastor et al., 2007; Stanley et al., 2017).

Missing data were imputed using the PcAux package in R (Lang et al., 2017). This statistical package uses principal components analysis (PCA; Howard et al., 2015) to create "a set of auxiliary variables, which [are] then used in the multiple imputation procedure" (Roche et al., 2019, p. 1165). The imputation produced 100 multiply imputed data sets (Roche et al., 2019). Other researchers have used the grand mean data set from the 100 multiply imputed data sets to conduct their analyses (Lang & Little, 2015; Roche et al., 2019); thus, I also used the grand mean data set to conduct the data analyses. LPAs were conducted in M*plus* and ANOVAs were conducted in SPSS.

Results

Tables 2 and 3 include descriptive statistics for the data before multiple imputation (using listwise deletion; $N = 76$) and after multiple imputation ($N = 258$). After multiple imputation, a majority of participants were female (51.9%), second generation immigrants (76.4%), and had high educational expectations (51.9% expected to complete graduate/professional school; Table 2). Means and standard deviations of participants' grade level, GPA, academic competence, educational expectations, parent income, parent education level, and years parents lived in the US are presented in Table 3. Skewness and kurtosis of the imputed variables are also presented in Table 3. Generally, all variables were normally distributed. Participants' mean grade level at Wave 3 was 10.79 and the mean GPA was high ($M = 3.61$).

Latent Profile Analyses

Acculturation researchers have argued that acculturation occurs across distinct domains (Berry, 2017; Miller, 2007). Therefore, I conducted separate LPAs on participants' American and Chinese orientation for each of the three behavioral domains (language proficiency, social relationships, and media use). I also conducted LPA on the composite scores of participants' Chinese and American orientations which combined all of the domains (I will refer to this as the composite analysis for brevity), to see whether there were differences when analyzing acculturation by domain or combined as a composite. Table 4 presents the results of LPAs from two- to four- cluster models across the three domains and the composite analysis. In LPA research, lower Akaike information criterion (AIC; Akaike, 1974) and Bayesian information criterion (BIC; Schwarz, 1978) values indicate better model fit. The Bootstrap Lo-Mendell-Rubin test (BLRT) and Lo-Mendell Rubin likelihood ratio test (LMR-LRT) also provide model fit information wherein p-values < 0.05 indicate that the current class model performs better than the model with one less class and p-values > 0.05 indicate that the model with one less class should be used (Aldridge & Roesch, 2008; Amour et al., 2011; Daljeet et al., 2017; Jang et al., 2017).

Some researchers use these goodness-of-fit indexes as their first step in selecting their model solution (Schwartz & Zamboanga, 2008), whereas other researchers first "determine the number of groups [classes] with well-defined, differentiated profiles" (Marsh et al., 2009, p. 194). Some researchers also require that each class represent a minimum percent of the sample in order to be considered (e.g., at least 1% of the sample; Schwartz & Zamboanga, 2008). Marsh et al. (2009) noted that researchers have "warned against the common practice of using goodness-of-fit indexes as 'golden rules' that obviate the need for the researcher to make subjective evaluations of models based on parameter estimates in relation to substantive theory as well as indexes of fit" (p. 195) and recommended that researchers use some combination of informed judgment, theory, previous research, goodness-of-fit indexes, and tests of statistical significance to select the most appropriate model for the research conducted.

Selecting and Naming the Acculturation Profiles

Because Berry (1997) proposed that there are four acculturation strategies, I chose the solution with four classes if each class had at least three participants (i.e., 1% of the sample) and the classes were conceptually distinct from each other. I chose the four-class solution for the social relationships and the media use domains. For the language proficiency domain, I rejected the four-class solution and chose the three-class solution because one of the classes in the four-class solution was too small. Additionally, the four-class solution consisted of three similar profiles whereas the three-class solution had more distinct profiles and sufficient class sizes. However, for the composite analysis, I chose the four-class solution despite one of the classes having only one participant because this solution had four conceptually distinct profiles and I did not include the class with one participant in the subsequent ANOVAs. I refer to the resulting classes as acculturation profiles.

The different acculturation profiles (using T-scores) found in each domain are shown in Figure 1. I hypothesized the four profiles representing Berry's (1997) strategies would be found in every domain. My hypothesis was partially supported and I found six different profiles, but they were not all represented in every domain. Three of the profiles matched Berry's (1997) strategies (*marginalized, assimilated,* and *integrated*). Two of the profiles were variations of Berry's separated strategy. Participants with the *moderately separated* profile had below the mean scores on American orientation and above the mean scores on Chinese orientation, but their scores were not as low on American orientation and not as high on Chinese orientation compared to participants with the

strongly separated profile. The sixth profile did not match Berry's proposed strategies and was named the *ambivalent* profile. Participants with the ambivalent profile had scores that were very close to the mean. Previous studies have also identified the ambivalent (used interchangeably with the term, diffuse) profile in their sample and described this profile as medium or moderate (i.e., close to the mean) orientation to both the heritage and mainstream culture, indicating no strong preference to either cultures (Özbek, 2015; Stevens et al., 2014).

In the language proficiency domain, most participants had the assimilated profile ($n = 200$; 78%), and the other profiles included the moderately separated ($n = 52$; 20.1%), and the strongly separated ($n = 6$; 2.3%) profiles. In the social relationships domain, most participants had the assimilated profile ($n = 141$; 54.6%), and the other profiles included the integrated ($n = 59$; 22.8%), marginalized ($n = 38$; 14.7%), and strongly separated ($n = 20$; 8.5%) profiles. In the media use domain, most participants had the ambivalent profile ($n = 214$; 82.9%), and the other profiles included the integrated ($n = 23$; 8.9%), assimilated ($n = 18$; 6.9%), and strongly separated ($n = 3$; 1.2%) profiles. In the composite analysis, most participants had the assimilated profile ($n = 184$; 71.3%) and the other profiles included the moderately separated ($n = 59$; 22.9%) and integrated ($n = 14$; 5.4%) profiles. Overall, the assimilated profile was the most common profile across the domains.

Before interpreting the ANOVA results, I will discuss my rationale for using practical significance (measured by effect sizes) rather than statistical significance (measured by p-values) for my interpretations of differences among profiles. Some researchers have argued that p-values (null-hypothesis significance testing; NHST) are often misused and misinterpreted, and researchers should supplement or replace p-values with other statistical approaches such as effect sizes to interpret results (Cumming, 2013; Halsey et al., 2015; Wasserstein & Lazar, 2016). For example, Ferguson (2009) argued that the limitations of NHST include "sensitivity to sample size, inability to accept the null hypothesis, and the failure of NHST to determine the practical significance of statistical relationships" (p. 532). NHST's sensitivity to sample size can be problematic because "with a sufficiently large sample, a statistical test will almost always demonstrate a significant difference…sometimes a statistically significant result means only that a huge sample size was used" (Sullivan & Feinn, 2012, pp. 279–280). Additionally, in studies with small sample sizes, the addition of a single participant within the same study can change the p-value to above or below 0.05 without changing the effect size (Durlak, 2009), which suggests that NHST has low test-retest reliability (Halsey et al., 2015).

Given the small sample size and the small number of participants in some of the acculturation profiles in the present study, NHST's flaw of being sample size dependent is especially relevant. Furthermore, p-values do not provide information that effect sizes can convey such as the magnitude of an effect. Durlak (2009) argued that effect sizes should be calculated irrespective of their p-value. The American Psychological Association (APA) publication manual (7th edition) also stated that "NHST is but a starting point and that additional reporting elements such as effect sizes, confidence intervals, and extensive description are needed to convey the most complete meaning of the results" (p. 154). Therefore, in the subsequent sections, I will report the p-values from the ANOVAs, but my interpretation of group differences will be focused on effect sizes.

Table 5 shows the statistically and practically significant differences in participants' American and Chinese orientation by domain. The Bonferroni adjustment was used ($\alpha = 0.013$) for the post-hoc analyses. Based on Ferguson's (2009) effect size interpretation recommendations, Hedges' g values of $|0.41|$ were considered practically significant. ANOVAs revealed that there were practically significant differences in the American and Chinese orientation scores across a majority of the acculturation profiles in every domain. However, some scores were not different from each

other, specifically for participants' Chinese orientation. In the language proficiency domain, the assimilated profile did meaningfully differ in Chinese orientation from the moderately separated profile. In the social relationships domain, the strongly separated profile did not meaningfully differ from the integrated profile and the marginalized profile did not meaningfully differ from the assimilated profile. In the media use domain, the ambivalent profile did not meaningfully differ from the assimilated profile. In the composite analysis, the assimilated profile did not meaningfully differ from the moderately separated profile.

Educational Outcomes Across Acculturation Profiles

ANOVA results demonstrating the statistically and practically significant differences in participants' GPA, academic competence, and educational expectations across acculturation profiles are shown in Tables 6 through 9. Effect sizes were used for interpretation and are discussed below.

GPA

I hypothesized that participants with the integrated and assimilated profiles would report higher GPAs than participants with marginalized and separated profiles. My hypothesis was supported. In the language proficiency domain, $F(2, 255) = 2.96$, $p = 0.054$, participants with the assimilated and moderately separated profiles reported meaningfully higher GPAs than participants with the strongly separated profile (Table 6). However, the GPAs of participants with the assimilated and the moderately separated profile did not meaningfully differ. In the social relationships domain, $F(3, 254) = 5.27$, $p = 0.002$, participants with the assimilated and integrated profiles had meaningfully higher GPAs than participants with the strongly separated and marginalized profiles (Table 7). Participants with the integrated and assimilated profiles did not have meaningfully different GPAs; the marginalized and strongly separated groups also did not differ meaningfully on GPA.

In the media use domain, $F(3, 254) = 1.57$, $p = 0.20$, participants with the assimilated profile had meaningfully higher GPAs than participants with the strongly separated profile (Table 8). Participants with the integrated profile had meaningfully higher GPAs than participants with the strongly separated and ambivalent profiles. Participants with the ambivalent profile had meaningfully higher GPAs than participants with the strongly separated profile. In the composite analysis, $F(2, 254) = 1.76$, $p = 0.18$, none of the profiles meaningfully differed in GPA (Table 9).

Educational Expectations

I hypothesized that participants with the integrated and separated profiles would report higher educational expectations than participants with the assimilated and marginalized profiles. My hypothesis was partially supported. In line with my hypothesis, I found that in the language proficiency domain, $F(2, 255) = 1.48$, $p = 0.23$, participants with the assimilated and the moderately separated profiles had meaningfully lower educational expectations than participants with the strongly separated profile. In the social relationships domain, $F(3, 254) = 2.01$, $p = 0.11$, participants with the assimilated and integrated profiles had meaningfully higher expectations than participants with the marginalized profile. However, in contrast with my hypothesis, in the media use domain, participants with the ambivalent profile had meaningfully higher expectations than participants with the strongly separated profile. In the composite analysis, $F(2, 254) = 0.02$, $p = 0.98$, none of the profiles meaningfully differed in educational expectations.

Academic Competence

I hypothesized that participants with the integrated and assimilated profiles would report higher academic competence than participants with the marginalized and separated profiles. In the

language proficiency domain, $F(2, 255) = 4.12$, $p < 0.05$, participants with the assimilated profile reported meaningfully higher academic competence than participants with the moderately separated profile. Academic competence did not meaningfully differ between the assimilated and the strongly separated profiles and between the strongly separated and moderately separated profiles in this domain. In the social relationships domain, $F(3, 254) = 0.86$, $p = 0.46$, although participants with the integrated profile reported the highest academic competence, the effect sizes were < 0.40. Therefore, none the profiles meaningfully differed in academic competence in this domain. Contrary to my hypothesis, in the media use domain, $F(3, 254) = 0.78$, $p = 0.51$, participants with the assimilated, integrated, and ambivalent profiles reported meaningfully lower academic competence than participants with the strongly separated profile. In the composite analysis, $F(2, 254) = 1.47$, $p = 0.23$, participants with the integrated profile reported meaningfully higher academic competence than participants with the moderately separated profile.

Discussion

In this study, I examined whether Berry's (1997) acculturation strategies were found in a sample of Chinese American adolescents and whether these strategies were associated with educational outcomes. I ran four separate LPAs and found six profiles, but they were not all represented in every acculturation domain. I found three profiles that matched Berry's strategies (*integrated, assimilated,* and *marginalized*), two profiles that were variations of the separated strategy (*moderately separated* and *strongly separated*), and one profile that I named *ambivalent*. I found practically significant differences in GPA, educational expectations, and perceived competence among the acculturation profiles in the three acculturation domains and the composite analysis. These findings are discussed in greater detail in subsequent sections.

LPAs

I predicted that all four of Berry's (1997) proposed strategies would be found in the three acculturation domains and the composite analysis. However, my hypothesis was partially supported because I found six strategies instead of four. The findings provide support for the existence of Berry's strategies because I found profiles representing the four proposed strategies. However, the findings also suggest that there may be multiple variations of the four strategies (e.g., moderately separated and strongly separated) in different samples and acculturation domains. These findings are consistent with other studies that found more than four strategies and different variations of Berry's strategies (Jang et al., 2017; Schwartz & Zamboanga, 2008). I also found a profile that did not appear to match Berry's proposed strategies which was named the ambivalent profile. This profile may be a variation of the marginalized strategy because participants with this profile had slightly below the mean scores for both American and Chinese orientation. However, the ambivalent profile is unique from the marginalized profile because participants with the ambivalent profile had scores that were very close to the mean and their scores were not as low on American and Chinese orientation compared to participants with the marginalized profile. This finding is consistent with previous studies that have also identified the ambivalent profile in their sample (Özbek, 2015; Stevens et al., 2014).

Additionally, assimilated was the most common acculturation strategy in the language proficiency and social relationship domains and ambivalent was the most common strategy in the media use domain. This result differs from previous studies that found that the integrated strategy

was the most common acculturation strategy (Berry et al., 2006; Jang et al., 2017; Schwartz & Zamboanga. 2008). However, my results may have differed from previous studies because I examined only behavioral aspects of acculturation whereas Berry et al. (2006) and Jang et al. (2017) combined measures of acculturation that included behaviors, values, and identity. Supporters of the domain-specific acculturation strategy hypothesis theorized and found evidence that participants use different acculturation strategies across behavioral and value domains (Miller et al., 2013). My study provides support for the domain-specific acculturation strategy hypothesis because my findings are more consistent with studies that only examined behavioral acculturation (compared to studies that examined behaviors and values combined).

For example, Miller et al. (2013) found that in the behavioral domain, second-generation immigrants were more likely to use the assimilated strategy ($n = 86$) than the integrated ($n = 47$) and separated strategies ($n = 21$). First-generation immigrants were more likely to use the bicultural and separated strategy compared to the other strategies in the behavioral domain (Miller et al., 2013). In their study of behavioral acculturation, Schwartz and Zamboanga (2008, p. 281) found that overall, integrated was the most common strategy, but when comparing first and second-generation immigrants in their sample, the "second-generation immigrants were more likely to evidence a combination of assimilation and integration (either Assimilated or American-Oriented Biculturalism)." These studies are especially relevant because a majority of participants in the current study were second-generation immigrants (76.4%). Another important point to note is that acculturation is developmental and context dependent (Berry, 2017). Participants' age and ethnicity may also account for the different strategies and outcomes found when comparing the results of different studies. For example, participants in this study were in adolescence, a developmental stage in which individuals are still in the process of forming and figuring out their cultural orientations. I would interpret adolescents' cultural orientations to be less developed compared to adults' cultural orientations. Future studies could take a longitudinal approach and compare acculturation strategies in different developmental stages. Findings from the current and previous studies illustrate the importance of examining acculturation strategies in different acculturation domains, generational statuses, age groups, and ethnic groups.

Furthermore, my findings suggest that even within the same acculturation domain (e.g., behavioral domain), participants may use different acculturation strategies across different types of behaviors. For example, although the three domains examined (language proficiency, social relationships, and media use) fall under the broader umbrella of the behavioral domain, I found different types and amounts of acculturation profiles represented in each of these sub-domains (e.g., language proficiency domain consisted of three profiles whereas the social relationships and media use domains consisted of four profiles). This provides support for Berry's (2017) argument that acculturation strategies can differ based on the life domain examined. These findings demonstrate the utility of a more nuanced examination of acculturation where researchers differentiate not only the broad domains of acculturation (e.g., behavior vs. values vs. identity) but also specific types of behaviors or beliefs within these domains.

Educational Outcomes

I predicted that participants with the integrated or assimilated profiles would have higher GPAs than participants with the marginalized or separated profiles. In line with my hypothesis, I found a consistent pattern in the different acculturation domains that participants with the integrated and assimilated profiles reported higher GPAs than participants with the marginalized, ambivalent,

and separated profiles. This finding is consistent with the pattern found in previous research that the integrated and assimilated profiles are associated with higher academic performance compared to the other profiles (Kim et al., 2015; Makarova & Birman, 2015; Nguyen & Benet-Martinez, 2013). Although this finding suggests that the integrated and assimilated strategies are beneficial for Chinese American CIs' GPA, more research is needed to understand how these strategies are associated other domains of adaptation such as mental health, well-being, and relationship quality.

I predicted that participants with the integrated or separated profiles would report higher educational expectations than participants with the assimilated or marginalized profiles. The findings on the educational expectation outcomes were mixed and varied by domain. For example, in the language proficiency domain, my hypothesis was supported and participants who had greater Chinese language proficiency (represented by the strongly separated profile) had meaningfully higher expectations than participants with the assimilated and moderately separated profiles. However, in the media use domain, participants with the ambivalent profile had higher expectations than participants with the strongly separated profile. In the social relationships domain, participants with the assimilated and integrated profiles had higher expectations than participants with the marginalized profile, which is consistent with other studies that found that orientation to American culture was positively associated with expectations. Current findings on the association between acculturation and educational expectations are mixed as previous researchers found that American orientation was associated with higher expectations (Flores et al., 2006, 2008), whereas other researchers have suggested that heritage culture orientation was associated with higher expectations, and the present study found that different levels of American and Chinese orientation were associated with different levels of expectations depending on the acculturation domain examined.

Findings on the association between acculturation and academic competence were also mixed and varied by domain. I hypothesized that participants with the integrated and assimilated profiles would report higher academic competence than participants with the marginalized and separated profiles. In line with my hypothesis, in the language proficiency domain, participants with the assimilated profile reported meaningfully higher academic competence than participants with the slightly separated profile. This finding may provide support for Yeh et al.'s (2008) study that found that participants' English language proficiency was related to higher comfort and willingness to seek academic help. Studies have indicated that academic competence was positively associated with academic help seeking behavior (Marchand & Skinner, 2007; Ryan et al., 2001); thus, the assimilated strategy in the language domain (i.e., higher English proficiency) may play an important role in students' academic attitudes such as competence and willingness to seek help. Also in line with my hypothesis, in the composite domain, participants with the integrated profile reported meaningfully higher academic competence than participants with the moderately separated profile. However, in the media use domain, participants with the strongly separated profile reported higher academic competence than participants with the assimilated, integrated, and ambivalent profiles. Previous findings on acculturation and academic competence is also mixed as some researchers found that the integrated profile was associated with higher academic competence (Coatsworth et al., 2005) and other researchers found that the separated profile was associated with higher academic competence (Kim et al., 2013).

Another interesting finding in this study was that in the composite analysis, none of the profiles meaningfully differed on educational expectations and GPA. Thus, only examining acculturation as a composite score would have resulted in an incomplete understanding of acculturation and academic outcomes, and I would have missed the differences I found when comparing the profiles in each domain separately. Taken together, the findings in the present study

illustrate the utility of examining differences between profiles by domain instead of combining the domains, provide further support for the domain-specific acculturation strategy hypothesis (Berry, 2017; Miller et al., 2013), and provide directions for future acculturation research. Additionally, a general pattern found was that participants with the integrated and assimilated profile often reported the most favorable academic achievement outcomes and the other profiles were associated with different outcomes depending on the domain examined.

Limitations and Implications

A number of limitations should be considered when interpreting the results of the current study. For example, the current study only measured acculturation in the behavioral domain. The impact of acculturation on educational outcomes may be different when examining different domains and more participants may have had the integrated profile if we examined acculturation in other domains. Future studies should examine Berry's (1997) strategies in different acculturation domains (identity, behavior, values, etc.) and types of behaviors within those domains (language proficiency, educational values, relationship values, knowledge, etc.).

The sample size ($N = 258$) was small and small sample sizes may decrease statistical power in LPA (Tein et al., 2013). Additionally, due to the small sample size, some profiles consisted of a small number of participants. For example, the strongly separated profile consisted of only three participants in the media use domain and only six participants in the language proficiency domain, which may call into question the validity and existence of this acculturation profile. A larger sample may have resulted in a more accurate representation of the acculturation profiles. Additionally, the sample may have been quite homogeneous because all the participants were from a large metropolitan area in northern California that has a large Chinese population. If participants were sampled in different areas in the US, participants may have had more diverse acculturative experiences and educational outcomes. Participants' mean GPA (3.61) and educational expectations (4.52; graduate from college or higher) were also relatively high and I may have observed more differences across the profiles if I had a sample that had a larger range of GPAs and educational expectations. Future researchers should also examine other educational outcomes and outcomes related to education such as academic attainment, cognitive skills, and attitudes towards school because the present study only examined three types of educational outcomes.

Another limitation was that both the social relationships and the media use measures demonstrated low internal consistency, which brings into question the reliability of these measures in adolescent samples. Additionally, the questions in the social relationships measure had the potential to be misinterpreted by participants. The questions asked participants about their relationships with *Chinese* friends and *American* friends. It is problematic to dichotomize the labels Chinese and American. For example, it is unclear whether Chinese American friends are considered to be Chinese friends or American friends. It is unclear whether Chinese friends include only people born in China and American friends include only people born in America; or whether Chinese friends include people who consider themselves ethnically Chinese and American friends include people of other ethnicities. The social relationships measure also demonstrated a lower internal consistency score than the other domains, which may suggest some participant confusion. Future studies should consider the level of specificity in which they want to differentiate ethnic groups (e.g., Chinese and

non-Chinese; Asian and non-Asian; born in China and born in America, etc.) and clearly define the groups they choose on their questionnaire.

The ambivalent profile was found to be the most common profile in the media use domain. This is inconsistent with previous studies that found that the ambivalent profile was the least common profile (Özbek, 2015; Stevens et al., 2014) or did not find this profile in their sample (Jang et al., 2017; Schwartz & Zamboanga, 2008). Because I interpret the ambivalent profile to be a possible variation of the marginalized strategy, Miller et al.'s (2013) explanation of the marginalized strategy aids in my interpretation of this finding. Miller et al. stated that acculturation strategies may "not represent an actual zero point of cultural engagement" (p. 10) and instead represent a propensity to engage in the behaviors of one or two cultures. Therefore, a participant's low orientation to both American and Chinese cultures in the marginalized or ambivalent strategy does not mean that the participant has no cultural engagement. Miller et al. (2013) argued that "individuals who use the marginalized strategy still engage in both cultures but do so to a lesser degree than individuals who espouse a different strategy" (p. 10).

Furthermore, some questions on the media use measure may have been less relevant or practical for adolescents compared to adults. For example, some of the questions on this measure asked participants about their consumption of media such as newspapers, movies, and going to restaurants on a weekly basis. Newspapers may not be as relevant to this age group/generation (who may often read online news for example) and participants may not watch movies or eat at restaurants multiple times a week. The lack of relevance of the variable may account for the fact that many participants did not show a strong preference in either culture for the specific forms of media measured in this study. Additionally, because the media use measure assessed the frequency of behaviors, the scale could have measured adolescents' frequency or propensity to engage in leisure activities instead of acculturation, which may limit the validity of this scale. Future researchers may want to change the questions on this measure to capture the different frequencies of media use behavior (e.g., consuming music and television on a daily basis and watching movies or eating at restaurants on a monthly basis instead of weekly), make sure that the questions are relevant for the age group examined, and further examine the validity of the measure.

Despite these limitations, the current study reveals interesting patterns for Chinese American CIs' acculturation and educational outcomes as well as provides suggestions for future research. In the current study, I stressed the importance of taking a culturally responsive understanding of Chinese American CIs grounded in historical and sociocultural research and such an understanding can frame the interpretation of my results. For example, assimilated was the most common profile in the language proficiency and social relationship domains. The assimilated profile was also one of the top two profiles in which participants often reported high educational outcomes. This finding could be a reflection of the context in which these participants are raised— a system that pressures students to conform to American norms and behaviors (i.e., White middle-class values). Students may experience discrimination and institutional racism (Paterson, 2017), and the assimilated strategy could have been a way for Chinese American CIs to adapt to their context. The model minority stereotype may have also contributed to Chinese American CIs' assimilation because it "places particular expectations [e.g., from educators, peers, or society in general] on members of the group so labeled, channeling them to specific avenues of success" (Zhou, 2004). Pyke and Dang (2003) also noted that "Asian Americans face immense pressure to assimilate in order to distance themselves from the [forever foreigner] stigma associated with their racial group" (p. 151).

Future research could use a sociocultural approach to examine the connection between acculturation strategies and contextual variables such as geographic location (and the history of

Chinese American communities in those areas as well as the distribution of the Chinese population in specific locations), participants' experiences of discrimination, participants' explanations of how societal forces shaped their acculturation processes, and the barriers and opportunities that participants encountered in education. Although there were fewer participants with the integrated profile than the assimilated profile in these domains, the integrated profile was also one of the profiles that was most often associated with high educational outcomes. Therefore, I echo Worrell et al.'s (2010) argument that students do not need to give up their cultural identity to be successful. Educational stakeholders and policy-makers could consider how they might be perpetuating assimilation and how assimilation intersects with stereotypes such as the model minority stereotype. Educational stakeholders, policy-makers, and researchers could find ways to foster an educational environment that instead supports biculturalism (e.g., increasing the availability of bilingual educational programs rather than predominantly using English-only instruction, teach ethnic studies and history of various cultural groups in America rather than Eurocentric American history, etc.) and reduces bias (e.g., incorporating evidence-based professional development on race and privilege, stereotypes and institutional racism experienced by various ethnic groups, and intersectionality).

Overall, the results demonstrate the complexity of Chinese American CIs' acculturation processes and the need for more research on specific aspects of participants' acculturation such as acculturation strategies, acculturation domains, and behaviors within each domain in different populations. More acculturation research is needed on Chinese Americans of different generational statuses (e.g., beyond first and second generation), from different geographical locations, at different life stages (e.g., childhood, adulthood), and the different outcomes associated with these variables. It is hoped that the current study can bring awareness to the unique acculturative experiences and strengths of Chinese American CIs and inform future acculturation research.

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Table 1

Internal Consistency

Scale	Cronbach's α	*N* of Items in Scale
Coatsworth Academic Competence Scale	0.74	5
CSAS		
Language: Chinese	0.86	4
Language: English	0.91	4
Media Use: Chinese	0.57	7
Media Use: American	0.66	7
Social Relationships: Chinese	0.62	3
Social Relationships: American	0.60	5
Chinese Items	0.71	14
American Items	0.76	16

Table 2

Participants' Gender, Generational Status, and Educational Expectations

Variables	Category	Before Imputation		After Imputation	
		N	%	*N*	%
Gender (Wave 1)	Female	41	53.90	124	48.10
	Male	35	46.10	134	51.9
Generational Status (Wave 1)	First	15	19.70	61	23.60
	Second	61	80.30	197	76.40
Educational Expectations (Wave 3)	Graduate high school	0	0	0	0
	Technical/vocational training	0	0	0	0
	Two-year community college	1	1.30	1	0.40
	Four-year college	35	46.10	123	47.70
	Graduate/professional school	40	52.60	134	51.90

Note. *N* = 76 before multiple imputation and *N* = 258 after multiple imputation.

Table 3

Means, Standard Deviations, Skew, and Kurtosis of Variables in Study Before and After Imputation

Variables	Before Imputation		After Imputation			
	M	*SD*	*M*	*SD*	*S*	*K*
Parent income (Wave 1)	9.97	6.06	9.70	5.74	0.65	-.083
Parent income (Wave 3)	11.87	6.66	12.59	6.36	0.49	-0.99
Parent 1 Education Level (Wave 1)	13.41	2.21	13.28	2.49	0.53	0.32
Parent 1 Education Level (Wave 3)	11.36	3.89	11.13	3.39	-0.56	0.04
Grade Level (Wave 1)	1.66	0.51	1.52	0.52	0.15	-1.42
Grade Level (Wave 3)	10.69	0.65	10.79	0.62	0.08	-0.87
GPA (Wave 3)	3.72	0.39	3.61	0.41	-0.62	-0.26
Academic Competence (Wave 3)	3.46	0.51	3.37	0.52	-0.57	-0.39
Educational Expectations (Wave 3)	4.51	0.53	4.52	0.58	-0.15	-1.76
Years Lived in the US (Parents; Wave 1)	13.06	7.58	12.05	7.64	0.76	0.04

Note. $N = 76$ before data imputation and $N = 258$ after data imputation.

Table 4

Latent Profile Model Fit Statistics by Domain

Model	Fit						
	AIC	BIC	ABIC	LMR LR test P-value	ALMR LR Test P-value	BLRT P-value	REN (k)
Language Proficiency							
2-class LPA	737.010	761.881	739.688	0.0520	0.0582	0.0000	0.980
3-class LPA	**620.250**	**655.780**	**624.076**	**0.8207**	**0.8258**	**0.0000**	**0.968**
4-class LPA	528.909	575.098	533.883	0.1066	0.1075	0.0000	0.982
Social Relationships							
2-class LPA	533.759	558.630	536.437	0.0000	0.0000	0.0000	0.808
3-class LPA	523.426	558.956	527.253	0.0292	0.0355	0.0000	0.687
4-class LPA	**503.564**	**549.752**	**508.538**	**0.0059**	**0.0076**	**0.0000**	**0.785**
Media Use							
2-class LPA	-924.990	-900.119	-922.312	0.0135	0.0167	0.0000	0.857
3-class LPA	-945.586	-910.056	-941.759	0.0647	0.0735	0.0000	0.860
4-class LPA	**528.909**	**575.098**	**533.883**	**0.1066**	**0.1075**	**0.0000**	**0.982**
Composite of Chinese and American Items							
2-class LPA	631.520	656.391	634.198	0.0000	0.0000	0.0000	1.000
3-class LPA	629.861	665.391	633.688	0.0368	0.0442	0.2667	0.886
4-class LPA	**631.588**	**677.777**	**636.563**	**0.4504**	**0.4778**	**0.6667**	**0.668**

Note. The selected models are in bold.

Table 5

Differences in Acculturation Standardized Scores Among Profiles by Domain

Profiles	Language Proficiency		Social Relationships		Media Use		Composite of Chinese and American Items Across Domains	
	American	Chinese	American	Chinese	American	Chinese	American	Chinese
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
P1: Strongly Separated	-1.89 (0.71)	0.71 (0.79)	-0.66 (0.28)	0.45 (0.18)	-0.24 (0.09)	0.24 (0.02)	-	-
P2: Marginalized	-	-	-0.80 (0.26)	-0.23 (0.20)	-	-	-	-
P3: Assimilated	0.21 (0.13)	-0.06 (0.57)	0.14 (0.28)	-0.18 (0.20)	0.31 (0.09)	-0.03 (0.05)	0.16 (0.30)	-0.13 (0.37)
P4: Integrated	-	-	0.42 (0.25)	0.43 (0.19)	0.12 (0.12)	0.13 (0.05)	0.33 (0.31)	0.93 (0.27)
P5: Moderately Separated	-0.61 (0.22)	0.16 (0.57)	-	-	-	-	-0.59 (0.22)	-0.03 (0.43)
P6: Ambivalent	-	-	-	-	-0.04 (0.10)	-0.02 (0.05)	-	-
η^2	0.86	0.06	0.71	0.68	0.51	0.49	0.57	0.29
Hedges' *g*								
P1 vs. P2	-	-	**0.54**	**3.47***	-	-	-	-
P1 vs. P3	**-12.32***	**1.33***	**-2.83***	**3.17***	**-5.87***	**5.42***	-	-
P1 vs. P4	-	-	**-4.16***	0.11	**-2.96***	**2.21***	-	-
P1 vs. P5	**-4.23***	**0.92**	-	-	-	-	-	-
P1 vs. P6	-	-	-	-	**-1.99***	**5.20***	-	-
P2 vs. P3	-	-	**-3.40***	-0.25	-	-	-	-
P2 vs. P4	-	-	**-4.79***	**-3.38***	-	-	-	-
P3 vs. P4	-	-	**-1.03***	**-3.08***	**1.73***	**-3.14***	-0.56	**2.90***
P3 vs. P5	**5.35***	-0.38	-	-	-	-	**2.64***	-0.26
P4 vs. P5	-	-	-	-	-	-	**3.81***	**2.34***
P6 vs. P3	-	-	-	-	**-3.51***	0.20	-	-
P6 vs. P4	-	-	-	-	**-1.56***	**-2.99***	-	-

Note. Means, standard deviations, η^2, and *Hedges' g* are displayed by domain, cultural orientation, and profile. Comparisons indicating a practically significant effect size are bolded.
*$p < 0.013$.

Table 6

Differences in Educational Outcomes Across Acculturation Profiles (Language Proficiency Domain)

	GPA		Educational Expectations		Academic Competence	
	M	*SD*	*M*	*SD*	*M*	*SD*
P1: Strongly Separated	3.25	0.34	4.83	0.41	3.37	0.37
P3: Assimilated	3.67	0.41	4.52	0.50	3.42	0.50
P5: Moderately Separated	3.57	0.43	4.46	0.54	3.20	0.55
η^2	0.02		0.01		0.03	
Hedges' *g*						
P3 vs. P1	**1.02**		**-0.62**		0.10	
P3 vs. P5	0.24		0.12		**0.43***	
P5 vs. P1	**0.75**		**-0.69**		-0.31	

Note. Comparisons indicating a practically significant effect size are bolded.
*$p < 0.013$.

Table 7

Differences in Educational Outcomes Across Acculturation Profiles (Social Relationships Domain)

	GPA		Educational Expectations		Academic Competence	
	M	*SD*	*M*	*SD*	*M*	*SD*
P1: Strongly Separated	3.41	0.47	4.45	0.60	3.31	0.50
P2: Marginalized	3.45	0.40	4.34	0.48	3.28	0.51
P3: Assimilated	3.68	0.39	4.55	0.50	3.38	0.52
P4: Integrated	3.63	0.41	4.56	0.50	3.44	0.51
η^2	0.06		0.02		0.01	
Hedges' *g*						
P1 vs. P2	-0.09		0.21		0.06	
P3 vs. P1	**0.67***		0.19		0.13	
P3 vs. P2	**0.58***		**0.42**		0.19	
P3 vs. P4	0.13		-0.02		-0.12	
P4 vs. P1	**0.51**		0.21		0.25	
P4 vs. P2	**0.44**		**0.44**		0.31	

Note. Comparisons indicating a practically significant effect size are bolded.
*p < 0.013.

Table 8

Differences in Educational Outcomes Across Acculturation Profiles (Media Use Domain)

|	GPA		Educational Expectations		Academic Competence	
	M	*SD*	*M*	*SD*	*M*	*SD*
P1: Strongly Separated	3.38	0.49	4.33	0.58	3.73	0.31
P3: Assimilated	3.71	0.40	4.39	0.50	3.37	0.53
P4: Integrated	3.75	0.26	4.39	0.50	3.47	0.51
P6: Ambivalent	3.58	0.42	4.54	0.51	3.36	0.52
η^2	0.02		0.01		0.01	
Hedges' *g*						
P3 vs. P1	**0.82**		0.11		**-0.68**	
P3 vs. P4	-0.12		0.00		-0.19	
P3 vs. P6	0.31		-0.29		0.02	
P4 vs. P1	**1.25**		0.11		**-0.51**	
P4 vs. P6	**0.42**		-0.29		0.21	
P6 vs. P1	**0.48**		**0.41**		**-0.71**	

Note. Comparisons indicating a practically significant effect size are bolded.

Table 9

Differences in Educational Outcomes Across Acculturation Profiles (Composite of Chinese and American Items)

|	GPA		Educational Expectations		Academic Competence	
	M	*SD*	*M*	*SD*	*M*	*SD*
P3: Assimilated	3.65	0.40	4.51	0.50	3.38	0.51
P4: Integrated	3.63	0.42	4.50	0.52	3.57	0.46
P5: Moderately Separated	3.53	0.45	4.53	0.54	3.31	0.53
η^2	0.01		0.05		0.01	
Hedges' *g*						
P3 vs. P4	0.05		0.02		-0.37	
P3 vs. P5	0.29		-0.04		0.14	
P4 vs. P5	0.22		-0.06		**0.50**	

Note. Comparisons indicating a practically significant effect size are bolded.

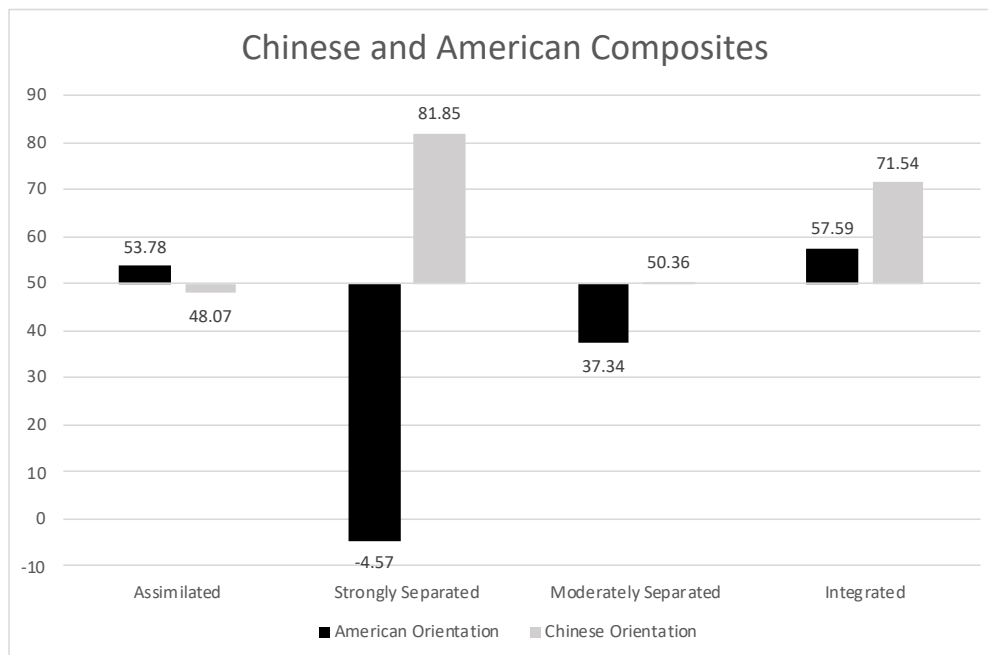**Figure 1**

Acculturation Profiles (T-scores) by Domain
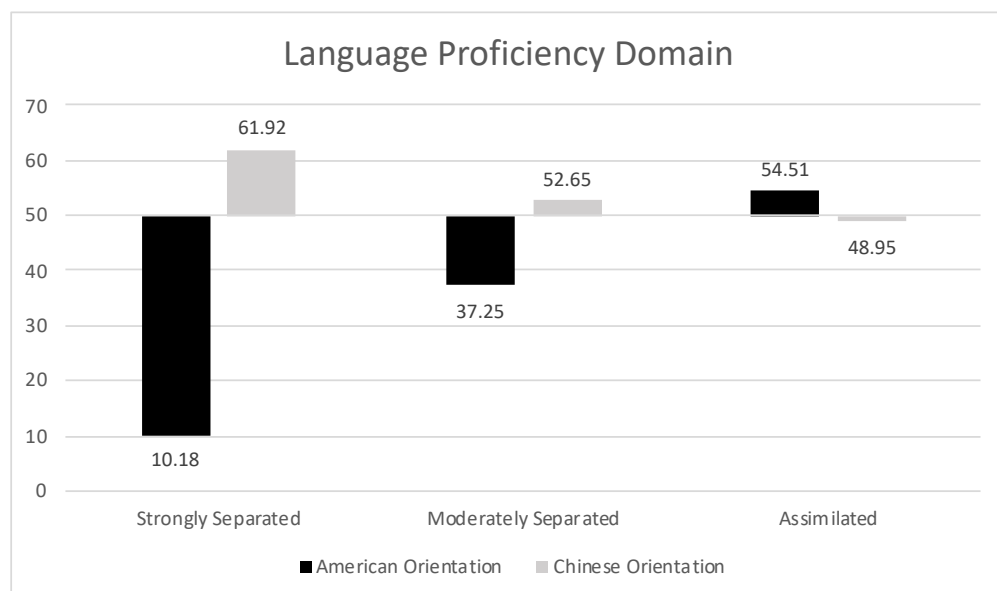
Language Proficiency Domain: Strongly Separated (*n* = 6); Moderately Separated (*n* = 52); Assimilated (*n* = 200)
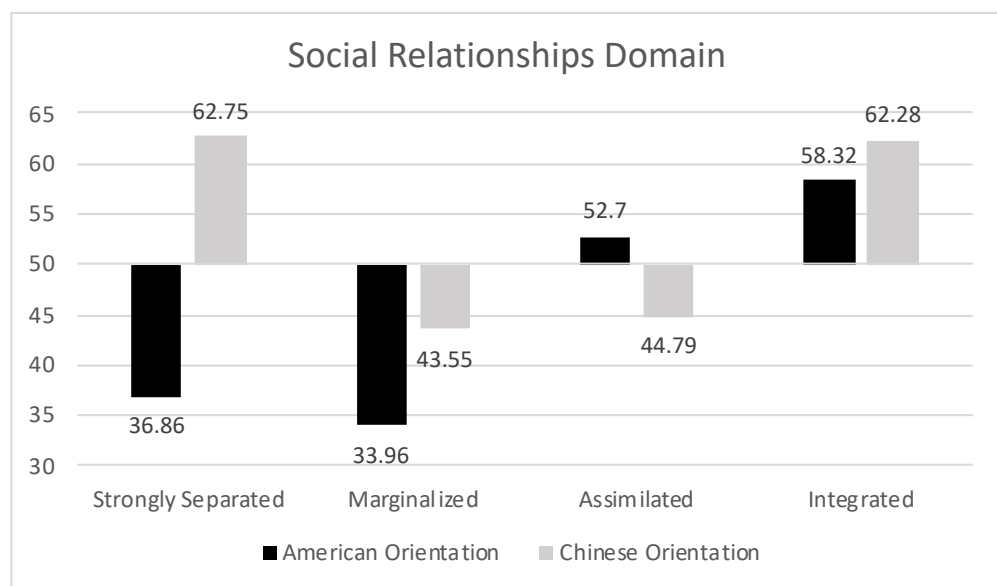
Social Relationships Domain: Strongly Separated (*n* = 20); Marginalized (*n* = 38); Assimilated (*n* = 141); Integrated (*n* = 59)
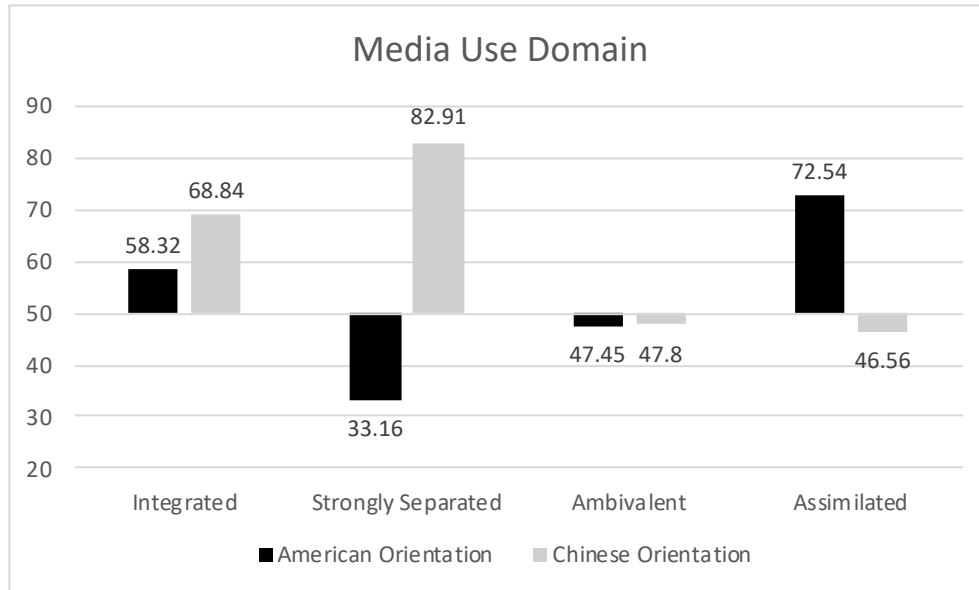
Media Use Domain: Integrated (n = 23); Strongly Separated (n = 3); Ambivalent (n = 214); Assimilated (n = 18)

Composite Analysis: Assimilated (n = 184); [a]Strongly Separated (n = 1); Moderately Separated (n = 59); Integrated (n = 14)
[a]Profile was not included in subsequent analyses due to small sample size.