

RESEARCH ARTICLE

Longitudinal profiles of acculturation and developmental outcomes among Mexican-origin adolescents from immigrant families

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Abstract

Prior studies investigating the association between acculturation and adolescent adjustment have often focused on specific acculturation domains rather than examining these domains collectively in a profile typology. Here, we investigate stability and change patterns in Mexican American adolescent acculturation profiles over time, using a two-wave longitudinal dataset spanning 5 years. Using latent profile analysis, three adolescent acculturation profiles were identified at Waves 1 and 2: *integrated*; *moderately integrated*; and *moderately assimilated*. Using latent transition analysis, four acculturation transition profiles were identified across time: *stable integrated*; *stable moderately integrated*; *progressive*; and *regressive*. Over half of all adolescents were identified as belonging to the *stable integrated* and *stable moderately integrated* transition profiles. Adolescents classified in the *stable integrated* profile reported the highest levels of adjustment (academic competence and socioemotional well-being) relative to those with other transition profiles. Findings

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from this study contribute to a comprehensive understanding of the dynamic process of acculturation among Mexican American adolescents, and provide useful insights to inform interventions and policies aimed at improving Mexican-origin adolescents' adaption to US culture while maintaining their heritage Mexican culture.

KEYWORDS

acculturation, developmental outcomes, latent profile analysis, latent transition analysis, Mexican American adolescent

INTRODUCTION

Immigrants currently make up 13.7% of the US population, and those from Mexico constitute the largest proportion of immigrants in the country (Pew Research Center, 2020). When Mexican immigrants arrive in the United States, they bring with them traditional Mexican values that emphasize cultural collectivism and a greater reliance on relationship interdependence (Knight et al., 2010). In contrast, individualism is highly valued in the United States, and a premium is placed on being independent and achieving one's personal desires (Hofstede, 2015). Therefore, two cultural values (i.e., collectivism vs individualism), once separated by a cultural divide, may come into collision when Mexican immigrants settle in the United States. This clash in values may impact Mexican adolescent immigrants' adaptation to US culture at a critical stage of their development, resulting in poorer academic performance, higher rates of substance use, and more depressive symptoms (Kann et al., 2018; McLaughlin, Hilt, & Nolen-Hoeksema, 2007; Telzer, Gonzales, & Fuligni, 2014). Therefore, it is crucial to understand how the dynamic process of acculturation is associated with various cultural adaptation domains that converge to influence Mexican-origin adolescents' developmental outcomes. Such an understanding can inform policies and interventions aimed at improving Mexican adolescents' adaption to US culture while encouraging them to maintain their Mexican heritage culture.

Acculturation is defined as a process of psychological and cultural change through which immigrants adjust to the destination culture, while maintaining the practices and values of their heritage culture¹ (Berry, 1983). Although prior studies have investigated the association between the acculturation process and adolescent adjustment (see Alamilla, Kim, & Lam, 2010; Juang & Syed, 2019; Schwartz et al., 2011), several limitations of prior studies need to be addressed. First, previous studies tended to focus on the acculturation of adolescents at only one time point, ignoring cultural adaptations and shifts that occur over time (Berry, 1983; Schwartz et al., 2013). Cross-sectional assessments of acculturation fail to acknowledge cultural adaptation as a dynamic process that changes across time, even though several domains of cultural adaptation (e.g., values, practices, beliefs) have been shown to vary at different rates across time (Lee et al., 2020). Especially in adolescence, shifts in acculturation may reflect cultural identity development, as adolescents negotiate their dual US and Mexican cultural orientations. Although there are some longitudinal studies focusing on the dynamic nature of the acculturation process, few of them

¹ We adopted this definition in our study because acculturation is predominantly associated with immigrants' cultural adaptation process and because our study is focused on Mexican-origin adolescents from immigrant families; however, it is important to point out that acculturation can occur in non-immigrant populations as well.

have incorporated multiple domains and dimensions of cultural adaptation in a profile typology (Lee et al., 2020; Schwartz et al., 2015). Second, prior studies that have examined acculturation profiles have examined them across short periods of time (i.e., 1 or 2 years) (Schwartz et al., 2015). The lack of empirical work on the dynamic nature of acculturation profiles over long periods (i.e., beyond 2 years), and the ways in which these profiles correlate with adolescent developmental outcomes, severely limits our understanding of Mexican-adolescents' acculturation experiences. To fill these gaps, this study aims to examine Mexican-origin adolescents' concurrent and transitional acculturation profiles using data at two time points spanning 5 years (from early to late adolescence) in order to analyze their associations with adolescents' academic competence and socioemotional well-being.

1 | ACCULTURATION: A MULTIFACETED AND DYNAMIC PROCESS

Historically, acculturation has been conceptualized as a unilinear construct indexing the degree to which immigrants adopt the destination culture as their own (Berry, 1983). A key assumption within such unidimensional models is "culture shedding"—that is, as immigrants adopt the ways of their destination culture, they simultaneously relinquish their cultural heritage. More recently, however, acculturation has been conceptualized as a bi-dimensional construct, encompassing both adaptation to the destination culture and maintenance of one's cultural heritage (Schwartz, Unger, Zamboanga, & Szapocznik, 2010). Berry (2017) crossed these two dimensions to create four distinct categories: (1) integrated (acquiring the destination culture and maintaining the heritage culture), (2) assimilated (acquiring the destination culture and rejecting the heritage culture), (3) separated (rejecting the destination culture and retaining the heritage culture), and (4) marginalized (rejecting both destination and heritage cultures).

Based on Berry's acculturation theory, various empirical studies have explored Mexican-origin adolescents' acculturation process. These studies have emphasized several acculturation domains that are thought to affect immigrants' developmental outcomes (e.g., Jang, Park, Chiriboga, & Kim, 2017; Nieri, Lee, Kulis, & Marsiglia, 2011; Salas-Wright, Clark, Vaughn, & Córdova, 2015). These domains include practices, values, and identifications (Schwartz et al., 2010), with each domain encompassing a wide spectrum of factors that affect Mexican-origin immigrants' cultural adaptation. In the present study, we operationalize cultural practices through immigrants' cultural orientation (i.e., US and Mexican) and language proficiency (English and Spanish), common indicators used to measure behavioral acculturation (Kim, Wang, Chen, Shen, & Hou, 2015; Knight et al., 2009). For cultural values, we utilize those typical of Mexican and US cultural streams. Specifically, *independence* is considered to be one of the most essential US cultural values (Hofstede, 2001; Knight et al., 2010; Schwartz et al., 2011), whereas *family obligation* is regarded as an important traditional cultural value in Mexican families (Fuligni, Tseng, & Lam, 1999). In the identification domain, we assess ethnic centrality, or the extent to which individuals define themselves relative to their ethnicity (Sellers, Rowley, Chavous, Shelton, & Smith, 1997); ethnic exploration, or the degree to which individuals examine and explore what their ethnic identity means to them; and ethnic resolution, or the extent to which an individual has a commitment to his/her ethnic identity (Umaña-Taylor, Yazedjian, & Bámaca-Gómez, 2004). Prior research has also demonstrated that different domains of acculturation change over time (Schwartz et al., 2015). For example, language use has been found to change, as people are more likely to practice their language skills when communicating with others in the mainstream culture (Lee et al., 2020),

while cultural orientation may shift toward or away from being enculturated (Matsunaga, Hecht, Elek, & Ndiaye, 2010). However, these studies focused solely on how individual components of acculturation may change across time (a variable-centered approach), and thus failed to demonstrate the complexity of the acculturation process and explain how different domains and subdomains of acculturation can come together to influence individuals' developmental outcomes (Bergman & Magnusson, 1997).

We suggest that a person-centered approach is optimal when examining cultural adaptation, as it allows researchers to identify empirically derived groups with varying levels of acculturation components to understand how acculturation holistically affects the individual. Guided by Berry's acculturation theory (Berry, 2017), prior studies using a person-centered approach have identified different acculturation profiles. Partially consistent with Berry's model, these previously-identified acculturation profiles include moderately integrated/integrated (i.e., relatively high levels of both destination and ethnic cultural orientations) and moderately assimilated/assimilated (i.e., a relatively high level of US culture and a relatively low level of Mexican culture) (see Jang et al., 2017; Salas-Wright et al., 2015; Salas-Wright, Lee, Vaughn, Jang, & Sanglang, 2015). Although Schwartz et al. (2013, 2015) also investigated developmental trajectories of acculturation profiles, few studies have included all three acculturation domains (i.e., practices, values, identifications) to examine how acculturation profiles change across time. For example, an adolescent can lack Spanish fluency but still strongly value connectedness to family and identify as a Mexican. Thus, in explicating the role of acculturation, the current study utilized a person-centered approach to investigate the variability of multiple components (i.e., practices, values, identifications) in acculturation profiles across time.

2 | ACCULTURATION AND ADOLESCENT DEVELOPMENT

Prior studies have investigated the associations between acculturation profiles and a number of important adjustment indicators, such as substance use disorders, personality disorders, health, alcohol use, and discrimination (see Jang et al., 2017; Salas-Wright et al., 2015; Salas-Wright et al., 2015). For example, Jang et al. (2017) found that their fully "bicultural" group (i.e., akin to Berry's conceptualization of the integrated group; those with higher levels of both destination and ethnic cultural orientations) reported better health, relative to other acculturation groups (i.e., moderately bicultural, alienated from the destination culture, and alienated from the heritage culture). Similarly, Salas-Wright et al. (2015) found that adolescents in their assimilated category reported the highest prevalence of substance use disorders, whereas those in the bicultural group were less likely to report substance use disorders. However, most of these studies focused on acculturation profiles at only one specific time point and/or studied adults rather than adolescents. Thus, less is known about how transitional acculturation profiles are related to developmental outcomes among Mexican-origin adolescents. Adolescence has been identified as a period during which individuals are particularly sensitive to their environment and to the impact of stress, as it marks an essential stage of biological and social transition (Blakemore & Mills, 2014). Thus, adolescents may experience changes in their ethnic identity, practices, language use, and values (Cheung, Chudek, & Heine, 2011; Schwartz et al., 2010).

In line with calls for more research using strength-based models that study and promote thriving among youth (Lerner, 2017), we examined two primary adolescent developmental outcome domains: academic competence (i.e., school engagement, school connectedness, learning goals, and effortful control) and socioemotional well-being (i.e., meaning in life, resilience) that are often linked with Mexican-origin adolescents' adjustment

(Guerra et al., 2019; Moní, Mealy, Del Ama, & Conway, 2018; Suinn, 2010; Vedder, Sam, & Liebkind, 2007). Indeed, the acculturation process may influence adolescents' academic competence and socioemotional well-being. For example, as individuals get more acculturated to the US society by making friends and interacting with American peers, they are likely to feel more socially integrated with Americans, resulting in higher levels of socioemotional well-being. At the same time, individuals may get more enculturated to their heritage culture by internalizing more family obligation values, which may result in adolescents perceiving more family support and family resources in the face of adversity, allowing them to have a stronger sense of resilience and more positive attitudes about their life meaning. Additionally, as individuals acquire proficiency in the dominant language of US society (i.e., English), their academic competence may improve via a better understanding of the English language through education at school. As previous studies demonstrating the association between acculturation and adolescent academic outcomes and socioemotional well-being have not considered acculturation as a dynamic process with multiple dimensions, we leveraged a positive youth development perspective to examine both concurrent and transitional acculturation profiles, to examine how these acculturation profiles are related to adolescent outcomes over time.

3 | CURRENT STUDY

Using two waves of data spaced 5 years apart, we identified adolescent acculturation profiles at two time points to address three specific research questions. First, what are acculturation profiles at each time point among Mexican-origin adolescents? Second, what are the transitional acculturation profiles among Mexican-origin adolescents? Third, are concurrent and transitional acculturation profiles significantly related to adolescents' developmental outcomes? To address these three questions, we expand on previous findings from the current dataset (Zhang et al., 2020) by examining adolescent acculturation profiles at Wave 2, the acculturation transition profiles across time from Waves 1 to 2, and their associations with adolescents' academic and socioemotional well-being.

Given findings from the current dataset (Zhang et al., 2020), we expected to replicate past findings and identify three adolescent acculturation profiles at Wave 1 and extend these three profile typologies to Wave 2: integrated (high levels of both American and Mexican cultures); moderately integrated (relatively high levels of both American and Mexican cultures; the moderately integrated profile can be considered one subtype of Berry's integration group) (see Salas-Wright et al., 2015; Schwartz & Zamboanga, 2008); and moderately assimilated (a relatively high level of US culture and a relatively low level of Mexican culture) (see Zhang, Kim, Hou, & Shen, 2020). Among these profiles, we expected that the integrated and moderately integrated profiles would be the most prevalent (Jang et al., 2017; Zhang et al., 2020), given that children from immigrant families living in ethnic enclaves are more likely to endorse high levels of both Mexican and American orientations (i.e., integrated) (Schwartz & Zamboanga, 2008) because they are exposed to both cultural streams and may be good at integrating tenets from both cultures over time (Benet-Martinez & Haritatos, 2005). We also expected that separated and marginalized profiles would be less likely to emerge, as most of the adolescents in the current study were born in the United States and have had to navigate between the two cultures from a very young age (Del Pilar & Udasco, 2004; Schwartz & Zamboanga, 2008; Schwartz et al., 2010).

Second, given the concurrent acculturation profiles proposed above, we expected several stability and change transitional profiles of acculturation to emerge across the two time-points: stable integrated; stable moderately integrated; stable moderately

assimilated; change to integrated; change to moderately integrated; and change to moderately assimilated. We hypothesized that, among these various profiles, stable integrated and stable moderately integrated would be most prevalent, as previous studies have shown that both integrated and moderately integrated profiles are the most common across time (Jang et al., 2017; Salas-Wright et al., 2015; Schwartz & Zamboanga, 2008; Zhang et al., 2020). Third, we hypothesized that academic competence and socioemotional well-being would be positively associated with stability in, or transition to, integrated profiles, but negatively related to stability in, or transition to, the moderately assimilated and moderately integrated profiles (Jang et al., 2017).

4 | METHOD

4.1 | Participants

The current study drew from a two-wave longitudinal dataset. Data for Wave 1 were collected from 2012 to 2015, and data for Wave 2 were collected from 2017 to 2020. The average time interval between W1 and W2 was 4.82 years. This approximate 5-year interval allowed for sufficient time to identify potential changes in the acculturation process from early to late adolescence, as compared to what was possible in relatively short-term longitudinal studies (i.e., those with gaps of 6 months to 1 year). Mexican-origin adolescents recruited in and around a metropolitan city in central Texas participated in the study. There were 604 Mexican-origin adolescents participating at Wave 1, and 334 adolescents who continued participating at Wave 2. In order to understand the changes in acculturation profiles over time within the same sample, this study used the 334 participants who stayed in the study across both waves. Participating adolescents were in sixth to eighth grades at Wave 1, and their ages ranged from 11.08 to 15.29 ($M_{\text{age}} = 12.80$, $SD = .87$). The sample is 44.3% female ($N = 148$), and approximately 76% of adolescent participants ($N = 254$) were born in the United States. Ninety-nine percent of participants' parents were born in Mexico. The median and mean household income was between \$20,001 and \$30,000, and the median highest parent education level was some middle/junior high school.

4.2 | Procedure

The current data were drawn from a larger project examining adolescent language brokering in Mexican immigrant families; families qualified for participation if parents were of Mexican origin and had a child in middle school who translated for at least one parent. Target families were initially recruited via public records, school presentations, and community recruitment in and around a metropolitan area in central Texas from 2012 to 2015. Family visits were scheduled for those families who decided to participate. Parents provided informed consent, and adolescents provided informed assent, before completing questionnaires. Bilingual interviewers then administered the questionnaires, reading questions aloud to participants and recording their responses on a laptop computer. Questionnaires were prepared in both English and Spanish. The second wave was collected following the same procedures as in Wave 1, with an approximately 5-year interval between the two time points. Mexican-origin immigrant families were compensated \$60 at Wave 1 and \$90 at Wave 2. We also conducted attrition analyses to examine if there were any differences in the nine indicators between retained participants and families that left the project at Wave 2. No significant differences were found between Wave 1 and Wave 2.

4.3 | Measures

Nine indicator scales from adolescents' self-reports were used in latent profile analysis at Wave 1 and Wave 2: Mexican orientation and American orientation, Spanish proficiency and English proficiency, cultural values (i.e., family obligation and independence), and ethnic identity (i.e., centrality, resolution, and exploration). All indicator variables have been validated for use with Mexican-origin adolescents (Zhang et al., 2020).

4.3.1 | Mexican and US orientations

Adolescents' perceived orientations toward Mexican and US culture (i.e., cultural behaviors, attitudes, and beliefs) were measured using 20 items from the Vancouver Index of Acculturation (VIA; Ryder, Alden, & Paulhus, 2000). Mexican and US cultural orientations (10 items for each cultural orientation) were assessed using a 5-point Likert scale, ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Sample items for Mexican/US culture orientation include, "I often follow traditions of the Mexican/US culture" and "I believe in mainstream Mexican/American values." Higher mean scores reflect a higher endorsement of the specific cultural orientation. Cronbach's alphas for both Mexican (.88 and .71 at W1 and W2, respectively) and American (.85 and .84 at W1 and W2, respectively) cultural orientations were high.

4.3.2 | Spanish and English proficiency

Adolescents rated how proficient they are in Spanish and English using a 5-point Likert scale (1 = *not well* to 5 = *extremely well*) by evaluating their performance in speaking and understanding, reading, and writing. Higher mean scores indicate higher language proficiency. Cronbach's alphas for adolescent-reported Spanish proficiency were .80 and .81 for W1 and W2, respectively. Cronbach's alphas for adolescent-reported English proficiency were .82 and .84 for W1 and W2, respectively.

4.3.3 | Independence

Adolescents' endorsement of the cultural value of independence was assessed using two items adapted from the independence and self-reliance subscale in the Mexican American Cultural Values Scale (Knight et al., 2010). Adolescents reported on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*), with higher mean scores reflecting a higher level of independence. The two items are: "People should be allowed to make their own decisions" and "People should learn how to take care of themselves and not depend on others." The two items were positively correlated at W1 ($r = 0.33, p < 0.01$) and at W2 ($r = 0.39, p < 0.01$).

4.3.4 | Family obligation

Adolescents' family obligation was assessed using Fuligni et al. (1999)'s familial obligation measure. On a response scale ranging from 1 (*not at all important*) to 5 (*very important*), participants responded to 13 items about their attitudes and behaviors toward their families. A sample item for adolescent-reported family obligation is, "Treat your parents with

respect.” Higher mean scores indicate a higher sense of family obligation. The familial obligation measure has demonstrated good reliability and validity. Adolescents’ responses on the familial obligation measure in the current study yielded Cronbach’s alphas of .87 for W1 and .88 for W2.

4.3.5 | Ethnic identity centrality, exploration, and resolution

Three measures of ethnic identity were assessed using a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). Adolescents’ ethnic identity centrality was measured with three items adapted from the centrality subscale in the Multidimensional Inventory of Black Identity Scale (MIBIS; Sellers et al., 1997). A sample item is, “Being Mexican is an important part of who I am.” Adolescents’ exploration and resolution were assessed with 3-item exploration and 3-item resolution measures adapted from corresponding subscales in the Ethnic Identity Scale (EIS; Umaña-Taylor et al., 2004). A sample item for exploration is, “I have often done things that will help me understand my Mexican background better,” and a sample item for resolution is, “I know what being Mexican means to me.” Higher mean scores indicate strong ethnic identity ($\alpha = 0.63$ and 0.61 for centrality; $\alpha = 0.85$ and 0.85 for exploration; $\alpha = 0.85$ and 0.87 for resolution for W1 and W2, separately).

4.3.6 | Academic competence

Adolescents’ reports of effortful control, school engagement, school connectedness, and learning goals were measured at W1 and W2. All four measures of academic competence were assessed on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher mean scores reflecting a higher level of academic competence. Adolescents’ effortful control (e.g., I am good at self-discipline) was assessed using a 4-item subscale (Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008). Adolescents’ school engagement (e.g., I am motivated to get good grades in school) was assessed using a 5-item subscale (Hou, Kim, & Benner, 2018). Adolescents’ school connectedness (e.g., I feel like I am part of my school) was measured using a 4-item subscale (Loukas, Ripperger-Suhler, & Horton, 2009). Adolescents’ learning goal was measured with two items adopted from Grant and Dweck (2003): “I strive to constantly learn and improve in classes” and “In my classes I focus on developing my abilities and acquiring new ones.” The two items were positively correlated at W1 ($r = .52, p < .001$) and at W2 ($r = .59, p < .001$). Cronbach’s alphas ranged from .72 to .82 across the four measures at Wave 1 and ranged from .74 to .82 at Wave 2. These measures have been validated in a prior study (Kim et al., 2020) with a Mexican-origin adolescent sample in the United States.

4.3.7 | Socioemotional well-being

Adolescents’ sense of life meaning was measured using three items from the Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006). A sample item is, “I understand my life’s meaning,” rated on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). These items were selected because of their relatively high item-scale correlations and their good face validity (Steger et al., 2006). Higher mean scores reflect a greater sense of life meaning ($\alpha = .87$, and $.90$ at Waves 1 and 2, respectively). Adolescents’ sense of resilience was measured using three items from the Connor-Davidson Resilience Scale (Connor & Davidson, 2003).

A sample item is, "I tend to recover easily after an illness or hardship." Prior research has validated this scale for use with Mexican-origin adolescents (Kim, Hou, & Gonzalez, 2017). Adolescents reported on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores reflecting a greater sense of resilience ($\alpha = .64$ and $.73$ at Waves 1 and 2, respectively).

4.3.8 | Covariates

Covariates included a set of demographic variables measured at Wave 1, including adolescent age, gender, and nativity (i.e., whether born in the United States or not), and maternal education.

4.4 | Analytical Plan

All analyses were conducted using Mplus 8.4 with the full information maximum likelihood (FIML) estimation method of handling missing data (1998–2017). We conducted the analyses in four steps. First, two sets of latent profile analyses (LPA) were estimated to identify adolescent acculturation profiles at Waves 1 and 2. LPA models were fit in a sequential process, starting with the specification of a one-class model and increasing the number of classes until there was no further significant improvement in model fit. In the current study, two sets of LPA models (i.e., 1 class to 5 classes) were specified to examine the optimal number of latent classes at each study time-point (i.e., Waves 1 and 2). Several statistical indicators were compared between the k-class model and the k-1-class model to determine the optimal solution (Nylund, Asparouhov, & Muthén, 2007): (1) the Bayesian information criterion (BIC) and adjusted Bayesian information criterion (ABIC) statistics were used, with lower values indicating better model fit; (2) the Lo-Mendell-Rubin (LMR) test and the Vuong-Lo-Mendell-Rubin adjusted likelihood ratio test (VLMR) were also used, with a nonsignificant ($p > .05$) VLMR and LMR p-value suggesting that there is no difference in fit between the k and k-1-class model. As suggested by Nylund et al. (2007), the most optimal class solution is characterized by smaller BIC and ABIC values and by significant VLMR and LMR adjusted Likelihood Ratio tests. Additionally, the number of participants in each profile (more than 5% of the sample size) and the theoretical meaning of each profile are both important criteria for selecting the best solution.

Second, mover-stayer latent transition analyses (LTA) were employed to classify individuals into a *mover* profile (participants who changed classes across time) or a *stayer* profile (participants who remained stable across time) (Nylund, Muthén, Nishina, Bellmore, & Graham, 2006). A higher-order latent variable captures an individual's likelihood of moving from one profile to another between waves. Transition acculturation profiles of Mexican-origin adolescents were classified into meaningful stable profiles (adolescents in the *stable* profiles remained in the same group across waves) and change profiles (adolescents in the *change* profiles transitioned to a different class) across Waves 1 and 2.

Last, Wald tests were utilized to compare mean differences of adolescent academic competence and socioemotional well-being across adolescent acculturation profiles identified in the first and second steps (Nylund et al., 2006). Specifically, the profile-distal outcome tests were conducted with three types of models (concurrent effects: W1 LPA → W1 adolescent academic competence and socioemotional well-being; longitudinal effects: W1 LPA → W2 adolescent outcomes; and cumulative effects: stable/change acculturation profiles (higher order LTA → W2 outcomes)).



FIGURE 1 Three-class LPA solution of adolescent acculturation status at Wave 1 and Wave 2. On the left panel, adolescents' acculturation status at each wave is presented by an average of eight indicators

5 | RESULTS

5.1 | Descriptive Information and Correlations

Descriptive statistics and bivariate correlations among the study variables are presented in Table S1, Supporting Information. Results indicate that correlations among indicators of acculturation profiles at each wave were in the expected directions. For example, adolescent-report of family obligation was positively associated with ethnic identity and Mexican orientation. Some of the indicators at each wave (e.g., family obligation, ethnic identity, Mexican and American orientation) were also significantly related to adolescent developmental outcomes (e.g., life meaning, resilience, school connectedness). For instance, family obligation and ethnic exploration were positively related to adolescents' outcomes.

5.2 | Adolescent acculturation profiles

Separate LPA's were conducted for adolescent acculturation status at W1 and W2. According to the fit indices presented in Table S2, Supporting Information, the 3-class solution was identified as the optimal solution for acculturation profiles at W1. Specifically, BIC and ABIC values leveled off after the 3-class solution. The 3-profile solution yielded interpretable profiles that were consistent with prior work (Zhang et al. 2020). For Wave 2, the 3-class solution was also identified as the optimal solution; the BIC and ABIC again leveled off after the 3-class solution.

The patterns within the three adolescent acculturation profiles were generally consistent across waves (See Figure 1): *Integrated* ($N_1 = 74, 22\%$; $N_2 = 93, 28\%$); *moderately integrated* ($N_1 = 216, 65\%$; $N_2 = 213, 64\%$) and *moderately assimilated* ($N_1 = 44, 13\%$; $N_2 = 28, 8\%$). The *integrated* profile was characterized by the highest scores on both Mexican (i.e., Mexican orientation, Spanish proficiency, ethnic identity, family obligation) and US (i.e., US orientation, English proficiency, individualism) indicators. The largest profile, the *moderately integrated* profile, was characterized by relatively moderate scores on indicators for

Mexican culture and US culture. The *moderately assimilated* profile was characterized by relatively lower scores on Mexican culture but relatively higher scores on US culture.

5.3 | Adolescent acculturation transition profiles

According to the stable/change patterns of adolescent acculturation status across the two study waves, we identified stable and change profiles in the higher-order LTA analyses: *stable integrated* (10.78%, $n = 36$), *stable moderately integrated* (42.51%, $n = 142$), *progressive* (26.94%, $n = 90$), and *regressive* (19.76%, $n = 66$). Latent transition probabilities are presented in Table S3, Supporting Information. Adolescents in the *stable integrated* and *stable moderately integrated* groups remained in the same group across time. The *progressive* group included those who changed from the *moderately integrated* group to the *integrated* group, from the *moderately assimilated* group to the *integrated* group, or from the *moderately assimilated* group to the *moderately integrated* group. The *regressive* group included those who changed from the *moderately integrated* group to the *moderately assimilated* group; changed from the *integrated* group to the *moderately integrated* group; or changed from the *moderately integrated* group to the *moderately assimilated* group; and those who remained stable in the *moderately assimilated* group across time. The *stable moderately assimilated* group was included in the *regressive* group because of small sample size ($N = 13$).

5.4 | Adolescent acculturation profiles and concurrent and longitudinal developmental outcomes at wave 2

As shown in Figure 2, there were differences in adolescent academic competence (i.e., school engagement, school connectedness, learning goal, and effortful control) and socioemotional well-being (i.e., sense of resilience and meaning in life) across acculturation profiles at Wave 1 (concurrently) and Wave 2 (longitudinally at the second wave). Cross-sectionally at Wave 1, adolescents classified into the *integrated* profile reported the most favorable adjustment across all domains, including the highest levels of school engagement, connectedness, learning goal, effortful control, sense of resilience, and meaning in life, relative to the *moderately assimilated* and *moderately integrated* profiles. There were no significant differences between the *moderately assimilated* and *moderately integrated* profiles except that adolescents in the *moderately integrated* profile reported higher levels of meaning in life. At the second wave, adolescents classified into the *integrated* profile at Wave 1 reported the highest levels of effortful control, learning goal, meaning in life, and resilience at W2, after controlling for their adjustment at W1, relative to the *moderately assimilated* and *moderately integrated* profiles. There were no significant differences between the *moderately assimilated* and *moderately integrated* profiles; additionally, there were no significant differences in school engagement and connectedness at Wave 2 across all Wave 1 acculturation profiles.

5.5 | Adolescent stable/change acculturation profiles and developmental outcomes

Figure 3 displays the associations between transition profiles and adolescent outcomes. Our results indicate that the *stable integrated* profile was associated with the highest levels,

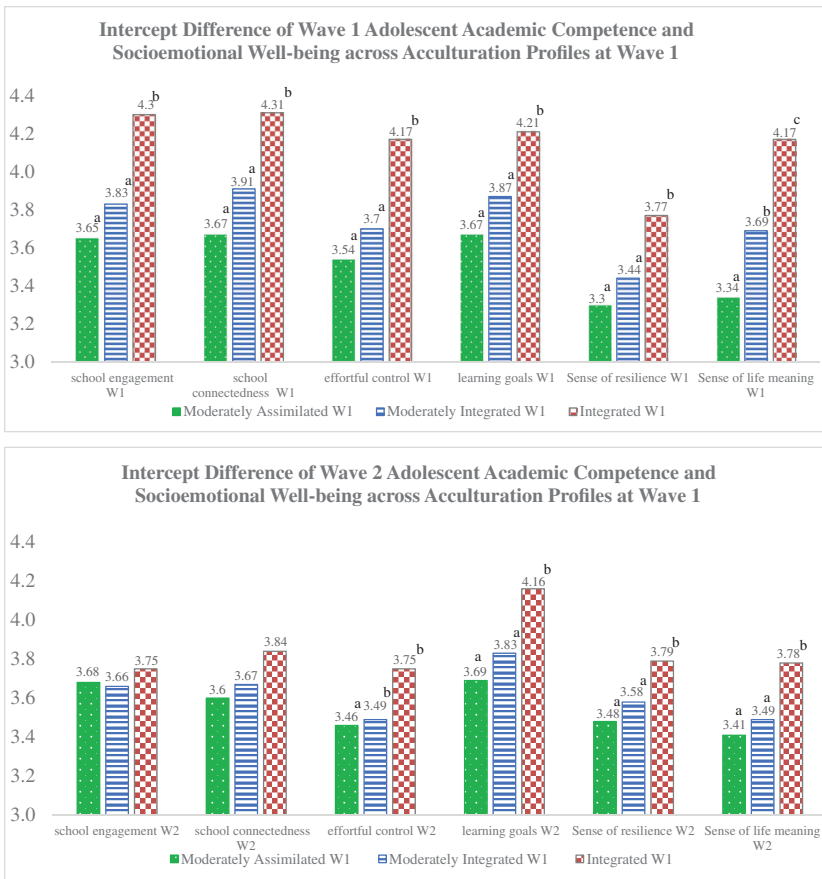


FIGURE 2 Significant concurrent effects: intercept difference of Wave 1 adolescent academic competence and socioemotional well-being by Wave 1 acculturation profiles (Panel A). Significant longitudinal effects: intercept difference of Wave 2 adolescent academic competence and socioemotional well-being by Wave 1 acculturation profiles (Panel B). For each academic competence and socioemotional well-being variable, intercepts with different subscripts were significantly different from each other. Covariates, including adolescent outcomes at Wave 1, age, gender, nativity, family income, maternal educational level, were all grand mean centered

while the *regressive* profile was linked with the lowest levels, of adjustment across all of the academic competence (i.e., school engagement, school connectedness, learning goal, effortful control) and socioemotional well-being indicators (i.e., sense of resilience, sense of life meaning). Adolescents in the *progressive* profile did not score significantly differently vis-à-vis the other three transition profiles, except that they reported lower levels of learning goal compared to adolescents in the *stable integrated* profile. Adolescents in the *stable moderately integrated* profile reported significantly lower levels of all adjustment indicators compared to those in the *stable integrated* profile, but no differences were observed between the *stable moderately integrated* profile and the *progressive* or *regressive* profiles.

6 | DISCUSSION

The current study explored the dynamic process of acculturation by identifying different profiles of acculturation at two time points, and assessing (1) stability and change in these

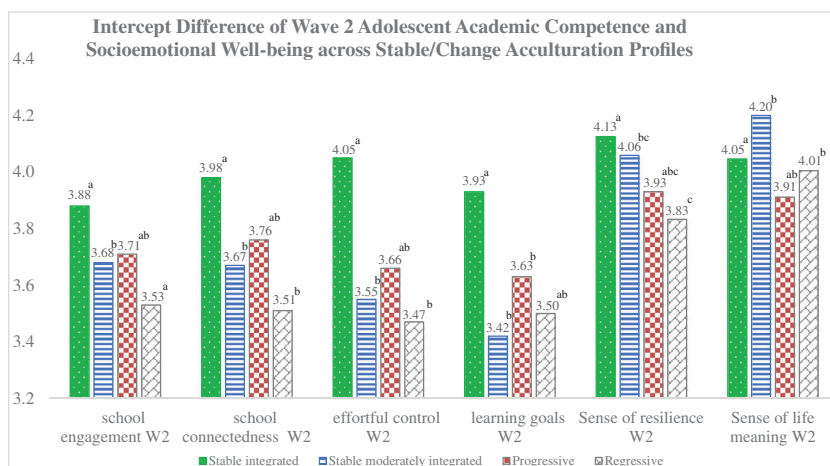


FIGURE 3 Significant cumulative effects: Intercept difference of Wave 2 adolescent academic competence and socioemotional well-being by stable/change acculturation profiles. For each academic competence and socioemotional well-being variable, intercepts with different subscripts were significantly different from each other. Covariates, including adolescent outcomes at Wave 1, age, gender, nativity, family income, maternal educational level, were all grand mean centered

acculturation profiles and (2) their cross-sectional and longitudinal associations with adolescent developmental outcomes at the second wave. The results of our study offer three important contributions to the literature. First, they add to existing knowledge regarding the heterogeneity of Mexican-origin adolescents' acculturation by demonstrating several acculturation profiles at a specific time point. Second, our findings reinforce prior work (e.g., Knight et al., 2009; Schwartz et al., 2016) suggesting that acculturation is a dynamic process: Consistent with findings from Lee et al. (2020), adolescents' acculturation profiles may remain the same or change across time. Third, we found that concurrent and transitional acculturation profiles are associated with adolescent outcomes.

Based on Berry's (1997) acculturation theory, acculturation has traditionally been classified into four major categories: integrated, assimilated, separated and marginalized. The integrated strategy is typically viewed as most optimal for adolescents' development (Schwartz et al., 2010), as it is positively related to psychological adjustment, well-being, and school achievement, among other indicators (Gonzales et al., 2008; Nguyen & Benet-Martínez, 2013). Partially consistent with Berry's model, three acculturation profiles (i.e., integrated, moderately integrated and moderately assimilated) emerged in the current study. Adolescents in the integrated and moderately integrated profiles generally reported relatively high endorsement of both Mexican and US cultures. More than half of all Mexican-origin adolescents in this study were classified into the highly adaptive integrated and moderately integrated profiles at both W1 and W2, and they reported the most favorable adjustment among the identified profile typologies. Adolescents in this study were recruited from central Texas, which is home to a large population of Mexican-origin individuals. Mexican-origin adolescents who were born in the United States or who migrated at an early age, and who are in frequent contact with Mexican-origin communities, are more likely to identify as both American and Mexican (i.e., bicultural Mexican-origin individuals adopting an acculturation strategy of integration) (Fox, Merz, Solórzano, & Roesch, 2013; Schwartz & Zamboanga, 2008); understandably, we saw a significant proportion of Mexican-origin adolescents in these integrated profile typologies in our study. Adolescents in the *moderately assimilated* profile generally reported high endorsement of US culture

but lower endorsement of Mexican culture; and they reported the lowest levels of both academic competence and socioemotional well-being in our study. The number of adolescents in this profile was low ($N_{W1} = 44$, 13% and $N_{W2} = 28$, 8%), suggesting that only a small proportion of Mexican-origin adolescents endorsed an assimilated strategy. Consistent with previous literature as well, we did not find strong evidence for separated (rejecting US culture and retaining Mexican culture) or marginalized profiles (rejecting both US culture and Mexican culture) in our sample (e.g., Kim et al., 2015; Nieri et al., 2011; Salas-Wright et al., 2015). Perhaps a larger sample, or participants recruited from a different geographical location, would be necessary to detect separated or marginalized profiles. Nevertheless, our study provided some support for Berry's model, and our results are generally consistent with past research concerning the heterogeneity of Mexican-origin adolescents' acculturation approaches; importantly, we found that a majority of adolescents identified with a relatively adaptive strategy.

A notable strength of the current study is that we extended previous research by exploring the stability and change of adolescents' acculturation profiles across two time points spaced 5 years apart. Different domains of cultural adaptation have been shown to change at different rates over time (Knight et al., 2009; Lee et al., 2020; Schwartz et al., 2015). Surprisingly, few studies on acculturation profiles have accounted for acculturation's dynamic nature in their research designs. Although more than half (53.3%) of all participants in our study stayed in the same acculturation profile over time (*stable moderately integrated*, 41.2%; *stable integrated*, 10.8%)—and this is consistent with previous research, which showed relative stability in adolescents' acculturation profile membership (Lee et al., 2020)—in our study, close to half (46.7%) of all our participants changed profile membership towards a more adaptive or less adaptive acculturation status across time (i.e., *progressive* or *regressive*). The progressive transition profile (26.9%) consisted of adolescents who switched from a less adaptive acculturation profile to a more adaptive profile (e.g., from moderately integrated to integrated). We reason that increasing familiarity with US culture (e.g., improvements in English language competency, interactions with peer groups, and understanding of US cultural norms for the 33% of adolescents in the study who were not born in the United States) along with greater identification with Mexican culture (e.g., ethnic identity development, internalization of Mexican values and practices, and contact with Mexican communities) might play a vital role in helping adolescents transition to a more adaptive acculturation profile (Torres, Driscoll, & Voell, 2012). Indeed, Mexican-origin adolescents in the progressive transition profile reported relatively high levels of academic competence and socioemotional well-being—second only to those in the stable integrated profile, which was associated with the highest levels of adjustment. Our present study expands on an understudied area of Berry's acculturation model, as it moves away from the traditional perspective that acculturation is a static process; instead, we examine the fluidity of adolescents' acculturation profile trajectories and we demonstrate how these transition profiles may serve as a critical alternative predictor of adolescents' adjustment. We strongly encourage researchers to adopt this dynamic perspective of acculturation in future research.

It is critical to note that changes in acculturation profile membership are not always ideal. A sizable number of adolescents were classified into the *regressive* transition profile (19.8%). These adolescents switched from a more adaptive profile to a less adaptive profile over time (e.g., from integrated to moderately assimilated). Similar findings have been reported in prior work (e.g., Lee et al., 2020), which found that Hispanic adolescents who changed their acculturation profile membership typically transitioned from a more integrated profile to a less integrated profile (from more adaptive to less adaptive). Mexican-origin adolescents in the *regressive* transition profile reported the lowest levels of

adjustment in terms of their academic competence and socioemotional well-being. Considering that second-generation immigrants tend to experience more mental health challenges than first-generation immigrants, coupled with the fact that almost three-quarters of our sample were born in the United States, our results might capture this increased mental health risk in acculturating Mexican-origin adolescents (Platt et al., 2020). Lowered levels of adjustment might also reflect acculturation-related stressors that adolescents experience during their adjustment to the United States (Alamilla et al., 2010; Baldwin-White, Kiehne, Umaña-Taylor, & Marsiglia, 2017; Salas-Wright et al., 2015). Considering the sociopolitical environment at the time of our study (i.e., high anti-immigrant sentiment, deportations, child separation etc.), negative events may also have played a role in shaping adolescents' Mexican and US orientations (Matsunaga et al., 2010; Schwartz et al., 2011).

We included adolescents who stayed in the *moderately assimilated* profile in the *regressive* transition profile because there were so few of them, partly for the sake of parsimony and partly because, at a conceptual level, adoption of an assimilation strategy is typically perceived as less ideal for acculturating adolescents and their adjustment (as compared to integration strategies) (Sullivan, Farrell, Kliever, Vulin-Reynolds, & Valois, 2007). Mexican-origin adolescents may adopt an assimilation strategy early on, due to class differences or phenotypical differences, or as a strategy to minimize cultural and social differences with mainstream US culture. However, for Mexican-origin adolescents who maintain high levels of their US orientation and low levels of Mexican orientation (i.e., are assimilated), continually rejecting their Mexican heritage may indicate an inability to manage their different cultural identities. All in all, we stress that at a time when anti-immigrant sentiments are high, our study offers policymakers a glimpse into the lives and struggles of Mexican-origin adolescents. By understanding which groups of adolescents in particular are at risk of transitioning to a more regressive, or risky, acculturation profile, which is in turn associated with worse adjustment, suitable interventions and remedies can be implemented early on to help Mexican-origin adolescents overcome relevant cultural adaptation challenges. Our findings also add to existing knowledge concerning important adolescent developmental milestones—in particular, the development of adolescents' cultural and personal identities. Acculturation is a cultural identity process (Schwartz et al., 2010) that involves adolescents' national, ethnic and cultural identities. As Mexican-origin adolescents immerse themselves in the US environment, their interactions with the people around them, their contact with families and ethnic communities, and their lived experiences all provide them with important feedback that ultimately informs their sense of self (personal identity) (Schwartz, Montgomery, & Briones, 2006). Our study is important because we examined adolescents' acculturation profile trajectories (i.e., cultural identity development) over 5 years (between early adolescence and late adolescence). Changes in acculturation profiles over that period of time may be capturing these identity shifts as adolescents negotiate and come to identify with their dual Mexican and US orientations. In fact, from an identity theory perspective (Crocetti, 2017), the large proportion of adolescents in the *moderately integrated* group may reflect an identity moratorium—a period of time during which adolescents are actively searching and exploring alternatives to their identity questions.

Moderately integrated adolescents are in an identity development period where they are constantly managing, understanding, and renegotiating what it means to be Mexican-origin, and this acculturation profile, though adaptive, still offers them the opportunity and room to explore and affirm their identities (Crocetti, 2017). Although our study examined adolescents' acculturation profile transitions in a time period that is arguably the most important for their identity development, it is likely that we did not capture the entirety

of the identity development process. More specifically, the young adult years represent the time when the greatest amount of identity work takes place (Schwartz et al., 2013). As a result, extending our two-wave longitudinal design into the late teens and 20s would allow us to see a greater proportion of participants in the *integrated* profile, as Mexican-origin adolescents eventually come to terms with their cultural identities and transition to an acculturation profile in which they fully endorse both their American and Mexican orientations. Future studies should consider incorporating longer time frames to track the stability of acculturation profiles among Mexican-origin adolescents to deepen our knowledge of identity development in children from immigrant families.

Our two-wave longitudinal design allowed us to assess whether changes in acculturation profiles are related to adolescents' academic competence and socio-emotional well-being, above and beyond their cross-sectional (i.e., W1 profiles → W1 outcomes) and longitudinal associations at the second wave (i.e., W1 profiles → W2 outcomes). Cross-sectionally, and longitudinally at the second wave, our findings were generally consistent with previous work showing that integrated adolescents enjoy more favorable adjustment (Nguyen & Benet-Martinez, 2013). However, the transition profiles also provided unique explanations for variations in adolescent adjustment: Although adolescents in the *stable integrated* profile reported the highest levels of, while adolescents in the *regressive* transition profile showed the lowest levels of, academic competence and socioemotional well-being, we also found that adolescents in the *progressive* transition profile reported relatively high levels of adjustment. These adolescents' adjustment appeared to be more favorable compared to that of adolescents in the *moderately integrated* profile. In fact, the *progressive* transition group was second only to the *stable integrated* group in terms of their adjustment.

Thus, we echo Meca & Schwartz's (2016) postulation that reliance on cross-sectional assessments remains a challenge in furthering acculturation science. Although acculturation has often been implicated as a predictor of Mexican-origin adolescents' developmental outcomes, most researchers treat acculturation as a static variable (e.g., acculturation at an early wave predicting an outcome in a later wave, acculturation at one time point as a moderator, or acculturation as an outcome variable). Treating acculturation as a dynamic construct may help further our understanding of how adolescents from immigrant families improve in their adjustment and come to terms with their cultural identities (Lee et al., 2020). Our present findings suggest that acculturation is a fluid process because we identified not only two stable transition profiles (i.e., *stable integrated* and *stable moderately integrated*), but more crucially, two change profiles (i.e., *progressive* and *regressive*). More generally, our longitudinal findings at the second wave contribute to a growing body of work suggesting that changes in, as well as cross-sectional assessments of, profile membership are associated with adolescents' adjustment outcomes.

6.1 | Limitations and suggestions for future research

Although the current study makes significant contributions by identifying Mexican-origin adolescents' acculturation profiles concurrently and longitudinally at the second wave, some limitations should be noted. First, the participants were from central Texas, an area with a large Mexican-origin population. Living in an area with a high concentration of co-ethnics may influence Mexican-origin adolescents' acculturation patterns. Recent research suggests that Mexican-origin individuals living in Texas are more likely to claim White racial identifications than their counterparts in other states (e.g., California; Ballinas & Bachmeier, 2020), which could mean that the prevalence of the different cultural

adaptation profiles we observed in our study may be unique to Mexican-origin immigrants in Texas. Perhaps Mexican-origin immigrants from different geographical spaces (i.e., different states) may also encounter varying cultural adaptation experiences, which may require individually catered integration policies and systems to accommodate Mexican-origin adolescents' integration needs. It is important to point out that acculturation can also occur with nonimmigrant groups, and thus it may be helpful to investigate if the acculturation profiles and transition profiles, and the associations with immigrant adolescents' developmental outcomes seen in our study, also hold for nonimmigrant populations. Future studies are needed to explore the generalizability of the current findings to communities with fewer Mexican-origin families, to Mexico-origin immigrant families outside of Texas, and to nonimmigrant samples.

Second, it is important to note that adolescents in the current study were recruited as part of a larger study that examined familial dynamics in Mexico-origin immigrant families in which adolescents serve as language brokers (i.e., language translators and cultural mediators) for their families. Past studies have demonstrated that translating is associated with not only adolescents' language proficiency, but also with adolescents' socioemotional adjustment and academic outcomes (Morales & Hanson, 2005; Kim, Schwartz, Perreira, & Juang, 2018; Weisskirch, 2007), which suggests that our findings regarding adolescents' acculturation profile typologies and their associated socioemotional and academic outcomes are likely to reflect adolescents' experience of language brokering. It is possible that our results are specific to Mexican-origin adolescents who engage in language brokering. Thus, future studies should include nonlanguage brokering adolescents from immigrant families in their studies to ascertain whether the acculturation profile typologies, their stability and change, and their associations with adolescents' adjustment in the current study are generalizable.

Third, the current study did not include adolescents' subjective feelings and lived experiences (e.g., discrimination) as predictors of stability and change in their acculturation profiles and psychosocial outcomes across time. As we have discussed earlier in this section, acculturating individuals' lived experiences affect how they eventually assimilate and/or integrate into the destination society under conditions of discrimination and rejection (Juang & Cookston, 2009). Therefore, we suggest that future studies should include cultural stressors (e.g., discrimination) to explore the possible moderating role these stressors might play in relation to adolescents' acculturation profiles.

Fourth, the current study examined only three aspects of ethnic identity (centrality, exploration, and resolution), and did not include other subdomains of ethnic identity (e.g., public or private regard; Sellers et al., 1998). We chose to limit the number of domains to reduce participant burden, in light of the large number of items in our questionnaire. However, we acknowledge that a more holistic understanding of adolescents' identity could be achieved by including multiple aspects of ethnic identity.

Finally, despite the longitudinal design of our study, we explored adolescent acculturation profiles across only two waves, and the interval between the two time points was relatively large (5 years). The two waves captured early and late adolescence, which are relatively common time points used by researchers to understand adolescents' acculturation. Although a two-wave investigation is a significant improvement over a cross-sectional investigation with only one wave of data, we acknowledge that few time points and large intervals might fail to capture nuances that reflect the fluidity of the acculturation process. Since adolescence is a crucial stage of biological and social transition (Blakemore & Mills, 2014), we propose that future studies utilize longer-term longitudinal designs that include more frequent measurements, so as to capture the trajectories of adolescent acculturation in ways that accurately reflect adolescents' development.

7 | CONCLUSION

In the current study, we examined multifaceted aspects of acculturation from a bi-dimensional perspective to identify adolescent acculturation profiles at two time points, and explored their stability and change over time. Mexican-origin adolescents were identified as *integrated*, *moderately integrated*, or *moderately assimilated* at Waves 1 and 2. Across two waves, a majority of Mexican-origin adolescents stayed in either the *integrated* or *moderately integrated* group over time. Of those who switched profiles over time, one group moved to a more adaptive profile, and another switched to a less adaptive profile. Critically, we also found that, both cross-sectionally and longitudinally at the second wave, adolescents in the *integrated* and *stable integrated* profiles enjoyed the highest level of academic competence and socioemotional well-being. Cumulatively, adolescents with a *stable integrated* profile reported the highest levels of developmental outcomes. In closing, our findings emphasize the importance of treating acculturation not as a static task, but as a fluid and dynamic process that implicates immigrant adolescents' cultural adaptation and adjustment. The present findings provide a deeper understanding of Mexican-origin adolescents' acculturation, and provide useful insights that can inform relevant acculturation programs, interventions and policies that aim to accommodate Mexican-origin adolescents and their families' integration needs.

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SUPPORTING INFORMATION

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