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## U.S. Mexican-origin Adolescents' Bicultural Competence and Mental Health in Context

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### Abstract

**Objectives:** We examined the prospective association (from  $\bar{x}$  age = 15.84 to 17.38 years) between bicultural competence and mental health among U.S. Mexican-origin adolescents relative to multiple (a) developmental niches, (b) components of bicultural competence, and (c) indicators of mental health.

**Method:** Participants included 749 adolescents (49% female, 29.7% Mexico-born) recruited during late childhood and followed through late adolescence. We used latent profile analyses to identify adolescents' developmental niches based on sociocultural characteristics of the family, school, and neighborhood contexts and multiple-group structural equation modeling to examine whether these niches moderated the association between bicultural competence and mental health.

**Results:** We identified five distinct adolescents' developmental niches. We found no association between bicultural competence and internalizing symptoms across niches; bicultural facility predicted lower externalizing symptoms among adolescents developing in niches characterized by immigrant families and predominantly Latino schools and neighborhoods.

**Conclusions:** The diversity found among U.S. Mexican-origin adolescents' niches underscores the need to assess context broadly by including a range of settings. Studying multiple components of bicultural competence across numerous cultural domains may provide a better understanding of any mental health benefits of biculturalism.

### Keywords

biculturalism; mental-health; neighborhood; school; adolescence

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Individuals who internalize two cultural-knowledge systems (Benet-Martinez, Leu, Lee, & Morris, 2002) and develop *bicultural competence*, or the ability to live effectively within two cultural systems, are referred to as *bicultural* (LaFromboise, Coleman, & Gerton, 1993). Although, biculturalism is described as a desirable outcome that should be

associated with positive adjustment (Nguyen & Benet-Martinez, 2007), especially during adolescence (Umaña -Taylor & Updegraff, 2007), the empirical support for this hypothesis is inconsistent (Nguyen & Benet-Martinez, 2013). Mixed findings may reflect methodological and conceptual shortcomings, including indirect assessments of biculturalism (Nguyen & Benet-Martinez, 2013) and lack of attention to variability in developmental contexts (e.g., Gonzales, Knight, Morgan-Lopez, Saenz, & Sirolli, 2002).

The current study addresses limitations of prior research by examining the prospective associations between bicultural competence and mental health, including internalizing (e.g., depression) and externalizing (e.g., conduct disorder) symptoms, among U.S. Mexican-origin adolescents across diverse developmental contexts, or niches (Super & Harkness, 1986). First, we identified adolescents' developmental niches, defined by immigrant composition of families, and ethnic composition of schools, and neighborhoods. We relied on direct assessments of two *components* of bicultural competence: *comfort* (affective bicultural competence) and *facility* (behavioral bicultural competence). Both *components* spanned multiple *cultural domains* (i.e., *affiliations, attitudes, behaviors, knowledge, and values*; Table 1). Next, we examined whether the prospective link between bicultural competence and mental health during adolescence was qualified by adolescents' developmental niches. We focused on Mexican-origin individuals, the largest U.S. immigrant group (Migration Policy Institute, 2016).

## Bicultural Competence and Adjustment

Biculturalism embodies the degree to which individuals internalize affiliations, attitudes, behaviors, knowledge, and values from two cultural systems and *develop the competence* needed to successfully respond to demands from each (Basilio et al., 2014; Nguyen & Benet-Martinez, 2007). It includes individuals' abilities to *jointly* navigate heritage and host cultural domains (i.e., affiliation, attitudes, behaviors, knowledge, values), to move between cultural frames of reference (e.g., frame-switching; Benet-Martinez et al., 2002), to integrate heritage and host culture affiliations (i.e., identity integration; Benet-Martinez & Haritatos, 2005), and to access and combine different perspectives (i.e., integrative complexity; Tadmor & Tetlock, 2006).

Because bicultural competence is associated with frame-switching, identity integration, and integrative complexity (Benet-Martinez et al., 2002; Benet-Martinez & Haritatos, 2005; Tadmor & Tetlock, 2006), it is expected to be beneficial for adjustment and mental health (Nguyen & Benet-Martinez, 2007). Empirical findings, however, show mixed support depending on the type of measure used (see Nguyen & Benet-Martinez, 2013 for a meta-analysis). Many measures are indirect, assessing dual-cultural orientation (i.e., individuals' degrees of orientation to heritage and to host cultures, often termed dual-cultural adaptation; Dumka, Gonzales, Bonds, & Millsap, 2009) or dual-cultural identity (i.e., individuals' degree of affiliation with heritage and with host cultures; Fleischmann & Verkuyten, 2016) instead of bicultural competence. A focus on bicultural competence across cultural domains, however, may be especially important in the prediction of migrant and ethnic minority adolescents' mental health. Failure to function appropriately in different cultural domains and across sociocultural contexts has been theorized to put individuals exposed to two

cultures at increased risk of psychological problems (Nguyen & Benet-Martinez, 2007). Perceived competence in tasks that are deemed valued and significant has been associated with positive mental health (e.g., Bandura, Pastorelli, Barbaranelli, & Caprara, 1999; DeWitz & Walsh, 2002). Moreover, the ability to navigate multiple sociocultural contexts may be especially critical in adolescence, as it is a period in which youth are becoming more autonomous and accessing numerous contexts (Leventhal, Dupéré, & Brooks-Gunn, 2009).

Bicultural competence encompasses individuals' degree of comfort and proficiency in responding to bicultural demands across cultural domains (Basilio et al., 2014; LaFromboise et al., 1993; Schwartz & Unger, 2010). Behavioral bicultural competence involves individuals' degree of *facility* while navigating bicultural demands and behaving in a manner consistent with heritage or host cultures when the context warrants it (e.g., the ability to switch easily between the host and heritage languages; David, Okazaki, & Saw, 2009). Affective bicultural competence involves individuals' degree of *comfort* while switching between culturally-appropriate behaviors and participating in contexts associated with heritage or host cultures (e.g., feeling comfortable about switching between the host or heritage languages; Basilio et al., 2014). Though bicultural facility and comfort are positively correlated (Carlo, Basilio, & Knight, 2016), it is possible for individuals to exhibit high degrees of bicultural facility (e.g., have high bicultural skills) but exhibit low degrees of bicultural comfort (e.g., feel uncomfortable with the need to use one's bicultural skills). Still, adolescents with higher degrees of affective and behavioral bicultural competence may be better equipped to remain on positive trajectories and manage multiple possible threats to their well-being as they begin to explore future options in life. There is evidence that indirect assessments of bicultural competence (e.g., measures of *dual-cultural orientations or dual-cultural identities*) are associated with less maladjustment, including internalizing (e.g., de Domanico, Crawford, & Wolfe, 1994; Smokowski & Bacallao, 2007) and externalizing symptoms (e.g., Coatsworth, Maldonado-Molina, Pantin, & Szapocznik, 2005; Kulis, Napoli, & Marsiglia, 2002). These studies, however, did not directly assess behavioral or affective components of bicultural competence.

Research specifically on *bicultural competence* (predominantly behavioral) shows that greater competence is associated with higher levels of life-satisfaction (David et al., 2009), general self-efficacy (Carlo et al., 2016; David et al., 2009), prosocial tendencies, and self-esteem (Carlo et al., 2016), and with lower levels of anxiety (David et al., 2009) and depressive (Carrera & Wei, 2014; David et al., 2009; Wei et al., 2010) symptoms. Although, higher *behavioral* bicultural competence may be especially relevant for externalizing symptoms because both constructs involve individuals' abilities to regulate their own behavior (David et al., 2009; Eisenberg et al., 2001), no prior work has examined their association. Additional limitations of bicultural competence scholarship include the use of measures that are not culture-specific, but rather developed for multiple ethnic groups; reliance on non-representative college samples; lack of distinction between adolescent and adult participants (Carrera & Wei, 2014; David et al., 2009; Wei et al., 2010), use of cross-sectional data (David et al., 2009; Wei et al., 2010), and lack of attention to variability in developmental contexts (Carlo et al., 2016; Carrera & Wei, 2014; David et al., 2009; Wei et al., 2010).

## Bicultural Competence and Adjustment in Context

The role of context has been understudied in biculturalism research (Yoon, Langrehr, & Ong, 2011). Theoretically, different physical and social settings support different developmental affordances (“psychologically meaningful social and physical attributes;” White, Nair, & Bradley, 2018, p.7), which work to define the costs or benefits of a given developmental competency (Garcia Coll et al., 1996; White et al., 2018). Though no work has examined the ways in which sociocultural contexts qualify the association between bicultural competence and adjustment, two existing literatures inform this exploratory work. First, empiricism on dual-cultural orientations and dual-cultural identities indicates that sociocultural contexts *do* work to define the costs or benefits of developmental competencies for adjustment, including mental health problems. Parents’ immigrant status qualified the association between dual-cultural orientation and adjustment problems among U.S. Asian and Latino adolescents (Portes & Rumbaut, 2001; Rumbaut, 2004). Neighborhood Latino concentration qualified the association between physical maturation and U.S. Mexican-origin adolescents’ mental health problems (White, Deardorff, & Gonzales, 2012; White, Deardorff, Liu, & Gonzales, 2013), and school Latino concentration qualified the association between identity achievement and mental health problems (Umaña -Taylor et al., 2014) among U.S. Mexican-origin adolescents.

Second, prior work highlights that U.S. Mexican-origin populations demonstrate considerable diversity relative to sociocultural characteristics of family, school, and neighborhood contexts. U.S. Mexican-origin adolescents come from both immigrant and non-immigrant households, and live in neighborhoods and attend schools that span a wide range of Latino concentration (White et al., 2017b). Relatedly, across these contexts, adolescents may experience different types of sociocultural similarity or dissimilarity and different degrees of integration (Roosa et al., 2009). Integration occurs when sizable proportions of minority group members (e.g., Mexican-origin Latinos) are in settings (e.g., schools and neighborhoods) alongside the majority group (Alba, Logan, & Stults, 2000). For example, adolescents may be from immigrant families, and predominantly Latino neighborhoods and schools (sociocultural cross-setting similarity) or from immigrant families, integrated schools, and predominantly non-Latino White neighborhoods (sociocultural cross-setting dissimilarity). Consequently, an individual’s *set of settings*, or “activity space,” may be critical for sociocultural exposures generally (Schonfelder & Axhausen, 2003), and adolescent development specifically (Browning & Soller, 2014). Activity space frameworks, along with developmental theory emphasizing the family, school, and neighborhood settings as critical aspects of the adolescent niche (Eccles et al., 1993), urge researchers to consider a broader view than a focus on any single setting affords (Browning & Soller, 2014). This broader view of the adolescent niche may be particularly important for the current examination, because bicultural competence involves facility and comfort navigating across sociocultural settings (Basilio et al., 2014; Schwartz & Unger, 2010).

Given the limited state of knowledge regarding the role of sociocultural context in the bicultural competence-adjustment link, research addressing the ways in which context may qualify this association is critical and exploratory. Multiple perspectives inform two

exploratory hypotheses (EH1 & EH2). According to the cultural learning environment model, families, neighborhoods, and schools are contexts in which the social processes of development take place (Super & Harkness, 1986; Tseng & Seidman, 2007). These contexts influence the kinds of transactions adolescents have the need to negotiate (Super & Harkness, 1986). For example, in niches characterized by cross-setting dissimilarity, or by integration, adolescents may encounter frequent needs to rely upon bicultural skills and benefit more from them. Conversely, a U.S. Mexican-origin adolescent in a family with U.S. born parents and neighborhood and school contexts that are predominantly non-Latino White (e.g., a cross-setting similarly mainstream, European American niche), may not benefit, in terms of fewer adjustment problems, from developing bicultural competence because such skills are not as necessary in that developmental niche (though developing host culture skills may be critical). Stage-environment fit perspectives, on the other hand, emphasize the importance of practicing developmental competencies in safe, supportive, and culturally relevant contexts with inclusive social networks (Eccles et al., 1993). Thus, for example, it may be that the benefits of bicultural competence are highest when U.S. Mexican-origin adolescents have the psychological safety and support from immigrant family contexts along with the more inclusive social networks encountered in predominantly co-ethnic, Latino neighborhoods and schools (e.g., a cross-setting consistently Latino niche; White et al., 2012; 2013; White, Zeiders, Knight, Roosa, & Tein, 2014). Both perspectives highlight that the adjustment-related benefits of bicultural competence may not be universal. According to cultural learning environmental models, those who encounter bicultural demands and affordances will benefit most from bicultural competence (EH1). According to stage-environment fit perspectives, those who practice bicultural skills in safe, supportive, and culturally relevant environments will benefit most from bicultural competence (EH2).

## The Current Study

This is the first study to examine the prospective association between bicultural competence and mental health across developmental niches. Methodologically, and consistent with recommendations made elsewhere (Noah, 2015), we used a person-centered approach to identify adolescents' developmental niches, defined by the immigrant composition of families, and ethnic composition of schools, and neighborhoods. We hypothesized that U.S. Mexican-origin adolescents would display diversity in their developmental niches. We also used a direct assessment of two components of U.S. Mexican-origin adolescents' bicultural competence including their ability to respond to demands from Mexican and mainstream cultural systems with facility (*bicultural facility*) and comfort (*bicultural comfort*). Contextually, we explored whether developmental niches qualified the associations between bicultural competence and mental health (EH1-EH2). We tested associations prospectively, from middle (10<sup>th</sup> grade) to late adolescence (12<sup>th</sup> grade), because this is period wherein youth are developing a clearer identity (Umaña -Taylor et al., 2014) and exploring more independently their schools, neighborhoods, and familial relationships (Leventhal et al., 2009; Steinberg, 2008).

## Method

Data were from a longitudinal study of contextual influences in the lives of U.S. Mexican-origin families (Roosa et al., 2008). Participants included 749 adolescents (49% female) and their parents selected from schools in the Phoenix metropolitan area. Families were eligible if they had a 5<sup>th</sup> grader attending a sampled school; the participating mother was the biological mother, lived with the child, and was Mexican origin; the child's biological father was Mexican origin; the child was not learning disabled; and no stepfather figure was living with the child. Out of the 749 families, 579 were two-parent families. Both parents participated in 467 (81%) families out of the two-parent families.

The current study used data from the third (10<sup>th</sup> grade) and fourth (12<sup>th</sup> grade) waves, fielded fall 2009 - spring 2011 and fall 2011 - spring 2013, respectively. In the initial wave (5<sup>th</sup> grade), 30.2% of mothers, 23.2% of fathers, and 82.5% of adolescents chose to be interviewed in English and the remaining in Spanish. A majority of mothers (74.3%) and fathers (79.9%) were born in Mexico and a majority (70.3%) of adolescents were born in the U.S. Mean age was 35.9 years ( $SD = 5.81$ ) for mothers, 38.1 years ( $SD = 6.26$ ) for fathers, and 10.42 years ( $SD = .55$ ) for adolescents. Both parents reported about 10 years of education ( $SD_M = 3.67$ ;  $SD_F = 3.94$ ). Annual family incomes ranged from less than \$5,000 to more than \$95,000 ( $M = \$30,000$ - $\$35,000$ ). Families came from 154 diverse neighborhoods, where the mean level of neighborhood Latino concentration was 52.9% ( $SD = 22.8$ ). A total of 109 (14.6%) and 129 (17.2%) families did not participate in 10<sup>th</sup> and 12<sup>th</sup> grades, respectively.

This study was conducted in Arizona where the population was comprised of primarily non-Latino Whites (59%) and Latinos (30%), and 89% of Latinos were of Mexican origin (Diaz McConnell & Skeen, 2009). Study procedures were approved by the institutional review board at Arizona State University. Complete research procedures are published elsewhere (Roosa et al., 2008). Adult participants provided written consent and adolescent participants provided written assent. All participants completed computer assisted personal interviews (approximately 2.5 hours) at their home, in their preferred language, and were compensated \$55 and \$60 at respective waves.

## Measures

**Demographics and covariates.**—Parents and adolescents reported on demographic characteristics including their age, gender (0 = male, 1 = female), and nativity (0 = Mexico, 1 = U.S.). When fathers did not participate, or were absent from the home, mothers reported on the nativity of the adolescents' biological father. Mothers reported on annual family income (1 = \$0,000-\$5,000 to 20 = \$95,001+) and economic hardship (10<sup>th</sup> grade) using a measure with high construct validity and reliability among diverse ethnic-racial groups (Barrera, Caples, & Tein, 2001). This measure includes four subscales reflecting (a) an inability to make ends meet, (b) not enough money for necessities, (c) financial strain, and (d) economic adjustments/cutbacks. An average score was calculated from the total *Z* scores from each subscale, with higher scores reflecting greater economic hardship. Cronbach's  $\alpha$  were .92 (English) and .90 (Spanish).



**Neighborhood ethnic concentration (10<sup>th</sup> grade).**—Parents provided residential addresses that were geo-coded and assigned to census tracts. Data on the percentage of Latino residents in each census tract were obtained from the U.S. Census Bureau (2011). Specifically, we used 2006–2010 American Community Survey period estimates (ACS; U.S. Census Bureau, 2011), the preferred estimates for inter-census use in small areas (U.S. Census Bureau, 2009), that closely aligned with 10<sup>th</sup> grade data collection. This variable ranged from 1.85% to 95.42% ( $M = 55.24\%$ ,  $SD = 23.78$ ) and was  $-.94$  ( $p < .001$ ) correlated with the percentage of non-Latino Whites in the neighborhood.

**School ethnic concentration (10<sup>th</sup> grade).**—Adolescents provided the names and locations of their schools and that information was used to obtain data on school ethnic concentration from state archives ([www.azed.gov](http://www.azed.gov)). Data represent the percentage of Latino students in adolescents' schools during the tenth-grade year. This variable ranged from 0.01% to 94.10% ( $M = 58.14\%$ ,  $SD = 24.96$ ) and was  $-0.95$  ( $p < .001$ ) correlated with the percentage of non-Latino Whites in the school.

**Bicultural competence (10<sup>th</sup> grade).**—Adolescents reported on behavioral and affective components of their bicultural competence (i.e., facility and comfort, respectively) using the Mexican American Biculturalism Scale (MABS; Basilio et al., 2014). These components emerged from focus groups conducted with U.S. Mexican-origin participants. Previous work supported the construct validity and reliability of the measure across genders and language-preference (Basilio et al., 2014). Both subscales included 9 items. The facility subscale (e.g., “Being obligated to satisfy my family’s needs sometimes, and satisfying my own needs other times is \_\_\_”) response scale ranged from 1 (*very easy*) to 5 (*very difficult*). The comfort subscale (e.g., “Sometimes you may need to make an important decision on your own, and other times you may need to ask your family for advice. Which of the following best describes you?”) response scale ranged from 1 (e.g., *I am only comfortable when: I need to ask my family for advice/make decisions on my own*) to 5 (e.g., *I am always comfortable in both of these situations*). Means were calculated for each subscale, with higher scores indicating higher levels of bicultural comfort or facility. For comfort, Cronbach’s  $\alpha$  were .86 (English) and .80 (Spanish). For facility, Cronbach’s  $\alpha$  were .81 for both languages.

**Mental health (10<sup>th</sup> grade and 12<sup>th</sup> grade).**—Adolescents’ internalizing and externalizing symptoms were measured using the Diagnostic Interview Schedule for Children (C-DISC; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). The scale was administered independently to mothers and adolescents. Maternal and adolescent reports were aggregated using standard scoring algorithms provided by developers to maximize test-retest reliability and criterion validity (Shaffer Fisher, Lucas, Hilsenroth, & Segal, 2004) and reduce shared method variance. Internalizing symptoms were defined as the sum of the symptom counts for generalized anxiety, major depression, and social phobia; externalizing symptoms were defined as the sum of the symptom counts for oppositional defiance disorder, conduct disorder, and attention deficit hyperactivity disorder (Cosgrove et al., 2011). The correlations between 10<sup>th</sup> and 12<sup>th</sup> grade externalizing ( $r = .558$ ), and 10<sup>th</sup> and 12<sup>th</sup> grade internalizing ( $r = .574$ ), are essentially predictive test-retest reliability coefficients

albeit over a substantial time frame during which there are changes in these mental health scores.

## Results

### Analyses

After examining results from descriptive and attrition analyses, latent profile analyses (LPA) and multiple-group structural equation modeling (SEM) were conducted using software available in *Mplus 7.4* (Muthen & Muthen, 2010). Missing data were accounted for using robust maximum likelihood, an estimation that minimizes bias in parameter estimates and accounts for non-normality and non-independence of observations while retaining the original sample size ( $N = 749$ ; Enders, 2013). We used a person-centered approach (Bergman, 2001) to estimate the latent profiles of U.S. Mexican-origin adolescents' developmental niches using data on parents' nativity and school and neighborhood Latino concentrations. A 1 through 9 profile solution was estimated and we relied on several criteria to determine model fit: Akaike information criteria, Bayesian information criteria, sample size adjusted BIC, Log Likelihood, adjusted Lo-Mendell-Rubin Test, entropy, and profile size (Tein, Coxe, & Cham, 2013). Next, profile memberships obtained from the final LPA solution were assigned to each adolescent (Clark & Muthen, 2010) and included as a grouping variable to test for developmental niche moderation of the effects of adolescents' 10th grade bicultural competence on 12<sup>th</sup> grade mental health, using multiple-group SEM. The models were run with the paths between bicultural competence variables (facility and comfort) and adolescent outcomes (externalizing and internalizing) constrained across developmental niches and then freed. Satorra-Bentler scaled  $\chi^2$  difference tests (Satorra, 2000) were computed to examine if the constraints produced misfit. If there was misfit, we constrained each path one by one to see which path contributed to misfit (Mackinnon, 2008). Covariates included adolescent nativity and gender, 10th grade adolescent externalizing and internalizing symptoms, and 10th grade family economic hardship.

### Preliminary Analyses

We performed preliminary attrition analyses to examine whether families who participated in 10th grade and families who participated in 12<sup>th</sup> grade differed from those who did not on study variables and key demographic variables among adolescents (i.e., gender, age, and nativity), mothers (i.e., nativity, income), and fathers (i.e., nativity) in 5<sup>th</sup> grade. Comparisons revealed that mothers who participated in 10th grade ( $t = -3.08, p = .002$ ) and 12<sup>th</sup> grade ( $t = -3.13, p = .002$ ) reported higher annual family income compared to those who did not participate. Additionally, in 12<sup>th</sup> grade, retention was higher among female than among male adolescents ( $\chi^2 = 6.39, p = .012$ ). There were no significant differences on other demographic or study variables. To address missingness, we included 5<sup>th</sup> grade family annual income as an auxiliary variable (Enders, 2008), and performed additional gender analyses described below.

Correlations and descriptive statistics are presented in Table 2. Because gender and nativity are important social position factors affecting mental health outcomes (e.g., Escobar, Nervi, & Gara, 2000; Negri & Susman, 2011), we ran preliminary models to examine whether



the associations between the two components of bicultural competence and mental health were moderated by gender or nativity using multiple-group SEM. Gender did not moderate the prospective association between bicultural comfort and mental health ( $\chi^2(2) = .754, p = .686$ ) or bicultural facility and mental health ( $\chi^2(2) = 1.749, p = .417$ ). Nativity did not moderate the prospective association between bicultural comfort and mental health ( $\chi^2(2) = 1.859, p = .395$ ) or bicultural facility and mental health ( $\chi^2(2) = .254, p = .881$ ). After establishing stability of the models across gender and nativity, subsequent models included gender and nativity as covariates to control for mean differences in externalizing and internalizing symptoms.

### Developmental Niches

We selected the five-profile LPA solution because it was the best fitting model with good interpretability (Tables 3 & 4). Increasing the number of profiles reduced conceptual distinguishability and produced profiles with too few adolescents. In this model (Table 4), three profiles demonstrated similar patterns across family-school-neighborhood. The majority of adolescents (44.5%) were in the *consistently-Latino* niche, characterized by predominantly immigrant families (.73 probability of both parents born in Mexico), Latino schools ( $\bar{x}_{Latino} = 82.34\%$ ) and neighborhoods ( $\bar{x}_{Latino} = 79.42\%$ ). Roughly 16% of adolescents were in the *consistently-mainstream* niche, which was characterized by the lowest level of immigrant families and school and neighborhood Latino concentrations. Given strong negative correlations between Latino and non-Latino white concentrations, these school and neighborhood settings were likely predominated by U.S. Europeans. Approximately 18% of adolescents were in the *consistently-integrated* niche, which was characterized by sizable Latino school and neighborhood populations ( $\frac{1}{3}$  Latino) and about half were immigrant families. Two profiles demonstrated dissimilar school and neighborhood contexts with moderate amounts of immigrant families in both: an *integrated neighborhood—Latino school* (12.4%) and a *Latino neighborhood—integrated school* (8.9%) niche. Descriptively, the consistently-Latino niche was characterized by a greater number of foreign-born adolescents ( $\chi^2 = 29.599, p < .001$ ) and greater 10<sup>th</sup> grade family economic hardship [ $F(4,625) = 4.166, p = .002$ ] compare to the other niches. No significant differences emerged in gender ( $\chi^2 = 1.990, p = .738$ ) or other study variables (Table 5).

### Bicultural Competence and Mental Health Across Developmental Niches

Multiple-group SEM analyses revealed moderation by developmental niche for the prospective association between bicultural facility and externalizing symptoms ( $\chi^2(4) = 10.166, p = .038$ ); however, these analyses did not reveal moderation by developmental niche for: bicultural facility and internalizing symptoms ( $\chi^2(4) = 1.731, p = .785$ ), bicultural comfort and externalizing symptoms ( $\chi^2(4) = 5.274, p = .260$ ), and bicultural comfort and internalizing symptoms ( $\chi^2(4) = 2.357, p = .670$ ). We conducted follow-up analyses and found significant moderation for the association between bicultural facility and externalizing symptoms in the consistently-Latino niche relative to the other developmental niches ( $\chi^2(1) = 15.396, p < .001$ ). The final model is presented in Figure 1. Model fit was excellent (CFI = .993, RMSEA = .034, SRMR = .036). For adolescents developing in the consistently-Latino niche, bicultural facility predicted significantly lower externalizing

symptoms ( $\beta = -.221 (.082)$ ,  $p = .007$ ) above and beyond the effects of bicultural comfort. For adolescents in all other niches, the association was non-significant ( $\beta = .079 (.071)$ ,  $p = .265$ ). Across all five niches, there were non-significant associations between bicultural facility and internalizing symptoms ( $\beta = -.005 (.060)$ ,  $p = .933$ ), bicultural comfort and externalizing symptoms ( $\beta = .036 (.049)$ ,  $p = .471$ ), or bicultural comfort and internalizing symptoms ( $\beta = -.082 (.064)$ ,  $p = .204$ ).

## Discussion

The current study contributes to a better understanding of the sociocultural characteristics of the diverse niches in which U.S. Mexican-origin adolescents are developing and the ways in which these niches may qualify the prospective associations between behavioral (*facility*) and affective (*comfort*) components of bicultural competence and mental health outcomes (internalizing and externalizing). First, consistent with activity-space perspectives, we identified a range of developmental niches that adolescents are negotiating on a regular basis: *consistently-Latino*, *consistently-integrated*, *consistently-mainstream*, *integrated neighborhood—Latino school*, and *Latino neighborhood—integrated school* niches. Second, our findings suggest that the prospective benefits of bicultural competence may be *niche*, *component*, and *outcome* specific. Particularly, bicultural *facility* predicted lower levels of *externalizing* symptoms when adolescents' developmental niches were *consistently Latino*. Bicultural comfort did not predict internalizing or externalizing symptoms in any of the niches.

### Developmental Niches

Building on activity space frameworks that characterize developmental niches according to the sociocultural characteristics of *sets of common settings* (Browning & Soller, 2014), we examined variability in U.S. Mexican-origin adolescents' developmental niches relative to their families' immigrant composition and schools' and neighborhoods' Latino compositions. Our approach recognizes that adolescents experience daily exposures to the combined influence of family, neighborhood, and school contexts, and that the sociocultural characteristics of each context may be similar or dissimilar. Using person-centered approach (Bergman, 2001), consistent with activity-space recommendations (Noah, 2015), we identified five distinct developmental niches. Overall, and consistent with prior work that focused on sociocultural characteristics of the family (Roosa et al., 2008), school (Benner, Graham, & Mistry, 2008; Spivak, White, Jovonen, & Graham, 2015), or neighborhood (Roosa et al., 2009) contexts, our findings highlight that U.S. Mexican-origin adolescents are negotiating a diverse range of developmental niches that vary on their degrees of similarity and of integration (Alba et al., 2000; Roosa et al., 2009).

Three U.S. Mexican-origin adolescent niches demonstrated distinct versions of *cross-setting similarity*. The largest adolescent niche, the *consistently-Latino niche*, was predominated by immigrant families, and concentrated Latino neighborhoods and schools. In the *consistently-mainstream* niche, there was a lower likelihood of both parents being immigrants, and less than a third of adolescents' neighbors and student-bodies were Latino. Because Latino concentration was strongly, negatively correlated with non-Latino White concentration, we

interpreted this profile as predominantly mainstream and more European American (e.g., White, Knight, Jensen, & Gonzales, 2017a). Third, in the *consistently-integrated* niche, which included less than a fifth of adolescents, there was a moderate probability that adolescents' parents were both immigrants, and both school and neighborhood contexts had sizable, but non-majority Latino populations.

Looking at context specific research, there are trends such that U.S. Latino and Mexican-origin youth demonstrate some developmental benefits associated with attending Latino concentrated schools (Benner et al., 2008; Spivack et al., 2015), and residing in Latino concentrated neighborhoods (White et al., 2014; White et al., 2017b) or immigrant families (Garcia Coll & Marks, 2012). This body of work, however, did not focus on the mental health benefits of biculturalism across niches characterized by the combined sociocultural characteristics of family-neighborhood-school contexts. Further, it is important to consider that even consistently Latino family-school-neighborhood niches exist within the broader U.S. context, which pushes mainstream, host competencies. For example, segregated schools are influenced by local factors (e.g., the ethnic community), but also by state, and national factors (Kirk, 2009) emphasizing mainstream competencies. Similarly, recent research highlights ways that extra-neighborhood environments influence the types of adolescent socialization taking place in segregated residential neighborhoods (Jackson, Browning, Krivo, Kwan, & Washington, 2016), suggesting that mainstream culture is filtered into Latino concentrated neighborhoods via residents' exposures to less segregated spaces.

Two U.S. Mexican-origin adolescent niches demonstrated *cross-setting dissimilarity*. In both the *integrated neighborhood - Latino school* and the *Latino neighborhood - integrated school* niches, there was a moderate probability that adolescents came from immigrant families (equal to each other and to the *consistently-integrated* niche). In the former, however, adolescents lived in integrated neighborhoods and attended predominantly Latino schools. In the latter, adolescents lived in predominately Latino neighborhoods and attended integrated schools. These adolescents experienced integration in one context and not the other. Probably reflecting broader patterns of U.S. neighborhood and school ethnic-racial segregation (Reardon & Owens, 2014), the two cross-setting dissimilar niches were less common than any of the three cross-setting similar niches. It is possible that exposure to contexts that are diverse on their sociocultural characteristics - like these two dissimilar niches - may be *initially* necessary to promote dual-cultural adaptation (White et al., 2017b) and biculturalism. The benefits of dissimilar niches, however, might decrease with the need to constantly transition across such contexts, which could prove mentally and socially taxing, or stressful (Hamilton, Vohs, Sellier, & Meyvis, 2011).

### **Bicultural Facility and Mental Health in Context**

For adolescents developing in the consistently-Latino niche, 45% of the current sample, bicultural facility predicted lower levels of externalizing symptoms above and beyond any bicultural comfort effect. Behavioral bicultural competence was beneficial among adolescents developing in consistently Latino niches (within the broader U.S. context), but no other niches. Bicultural facility reflects adolescents' abilities to regulate their behaviors to match contextual demands. During late adolescence, individuals become more involved

in broader social contexts as they move into jobs or other activities in the community to prepare for the demands of young adulthood (Arnett, 2014). These findings, consistent with stage-environment fit perspectives (Eccles et al., 1993), offer preliminary evidence that those negotiating consistently Latino niches may be less likely to display continued or increasing externalizing symptoms at this life stage if they perceive themselves as being biculturally skilled. These youth may be developing in relatively allocentric niches that foster a sense of belonging and a focus on the heritage group (Yoshikawa, 2011). Additionally, these contexts may support adolescents to navigate mainstream cultural contexts when needed and offer neighborhood social networks that regulate adolescent behavior and support youth to pursue positive opportunities (Gonzales et al., 2011; Sampson, Raudenbush, & Earls, 1997). Still, these findings should be interpreted with caution, as they present limited evidence of the benefits of bicultural facility in a single, though common, developmental niche. The specific benefits of bicultural facility for externalizing symptoms in consistently Latino niches may reflect underlying behavioral regulation mechanisms (David et al., 2009; Eisenberg et al., 2001; Gonzales et al., 2011). More work is needed in this area.

We found no evidence of a prospective association between adolescents' bicultural facility and internalizing symptoms. Our findings may be linked to developmental timing of assessment. Adolescence is a salient period for bicultural competence development (Umaña-Taylor et al., 2014); however, some benefits of bicultural facility may not manifest until normative increases in adolescents' internalizing (Lewinsohn, Clarke, Seeley, & Rohde, 1994) have stabilized and full brain maturation (Sowell, Thompson, Holmes, Jernigan, & Toga, 1999) has been reached. Prior research shows that bicultural young adults reach more sophisticated understandings of their bicultural experiences than adolescents (Shi & Lu, 2007) and negative associations between bicultural competence (predominantly behavioral) and internalizing symptoms have been documented among college students (Carrera & Wei, 2014; David et al., 2009; Wei et al., 2010). Additional, long-term follow-up is needed to determine if eventual internalizing benefits manifest, and relative to which developmental niches. Our findings highlight the importance of distinguishing between adolescents and adults as we advance beyond prior limitations in bicultural competence research (Carrera & Wei, 2014; David et al., 2009; Wei et al., 2010).

### **Bicultural Comfort and Mental Health in Context**

We found no prospective association between adolescents' bicultural comfort and externalizing and internalizing symptoms. Perhaps the benefits of bicultural comfort only extend to some aspects of psychological adjustment such as increases in self-efficacy, self-esteem, and prosocial behaviors (Carlo et al., 2016) and decreases in anxiety symptoms among male adolescents (Basilio, 2014), but not to a broad range of internalizing or externalizing symptoms. On the other hand, the benefits of bicultural comfort for adolescents' mental health are possibly moderated by adolescents' degree of identity integration or perceived compatibility between the two cultural systems (Benet-Martinez & Haritatos, 2005). To our knowledge, this is the first study on bicultural competence and mental health to also examine an affective component of bicultural competence. Hence, more research is needed.

Although our measure of bicultural comfort (Basilio et al., 2014) aimed to assess feelings of comfort while navigating bicultural demands, for some adolescents feelings of comfort might possibly arise from the lack of need to switch between frames of reference, not from exercising their bicultural competence. Perhaps we did not find an association between bicultural comfort and mental health across any of the niches because we were not able to capture fully the affective bicultural competence found among some U.S. Mexican-origin adolescents. Alternatively, since prior work suggests that individuals' perceptions of an unfavorable host culture context (e.g., discrimination, lack of resources) is one of the major sources of stress in the lives of migrant and ethnic minority groups (Segal & Mayadas, 2005), it is plausible that the benefits of bicultural comfort might vary by the perceived discrimination experienced by adolescents regardless of the context they face within the U.S.

### Limitations and Future Directions

There were some limitations. The measure (Basilio et al., 2014) provides scores on two *components* of bicultural competence - *comfort* and *facility* - across a wide range of *cultural domains* (i.e., affiliations, attitudes, behaviors, knowledge, and values), rather than narrowing on one cultural domain. It does not, however, provide separate scores for each cultural domain. A more comprehensive assessment of bicultural competence, including subscales for components and cultural domains (Table 1), might provide a better picture of how bicultural competence relates to mental health. Our unique ecological approach enabled us to capture adolescents' developmental niches based on characteristics of multiple contexts; however, it might have yielded low power to detect the benefits of bicultural competence in the smaller niches. Our treatment of context could also be improved by examining the social processes that take place within these contexts, as individual-context interactions are a main driver of development (Bronfenbrenner & Morris, 2006), and by assessing changes in the contexts in which individuals are embedded.

Increasing numbers of U.S. citizens and residents have been exposed to two cultures (Migration Policy Institute, 2016) and many of them have developed bicultural competence. Thus, it is important to understand the role of bicultural competence vis-à-vis common mental health problems, like internalizing and externalizing symptoms. The current study suggests that mental health benefits of bicultural competence during adolescence may depend on the sociocultural characteristics of adolescents' developmental niches, the specific bicultural competence component, and the mental health outcome; specifically, benefits of bicultural facility for U.S. Mexican-origin adolescents' externalizing symptoms are found in developmental niches that are similarly Latino oriented. Prior work has suggested that our sample is representative of the population from which it was drawn (Roosa et al., 2008), Mexican immigrants in a historical U.S. receiving community (Roberts, Frank, & Lozano-Ascencio, 1999) where neighborhood Latino concentration ranges from 0.01% to nearly 100% (Diaz McConnell & Skeen, 2009). Such a range may not exist in some emerging migrant destinations. Given that benefits of bicultural facility were only observed in the most Latino concentrated niches, it may be important to conduct similar research in emerging areas with diverse ethnic and racial compositions and ranges of concentration, and among other U.S. Latino immigrant groups. Furthermore, the diversity

found among U.S. Mexican-origin adolescents' developmental niches documented here underscores the need to assess context broadly by including a range of settings.

## Conclusions

This research contributes to a better understanding of the unique characteristics of the contexts in which adolescents develop, and of the combined influence of the sociocultural characteristics of family-neighborhood-school niches on the prospective association between bicultural competence and mental health. Our findings suggest that the benefits of bicultural competence may be component, outcome, and niche specific. Benefits of behavioral bicultural competence were found in consistently Latino developmental niches. Hence in niches where both cultural systems are *relevant* but adolescents might not need to switch *as frequently* between cultural frames of reference, U.S. Mexican-origin adolescents with high bicultural facility experience lower externalizing symptoms. Furthermore, taking a multicomponent (i.e., affective and behavioral) and ecological approach to the study of bicultural competence may provide better insights about the mechanisms by which biculturalism affects mental health and relates to individuals' multiple contexts.

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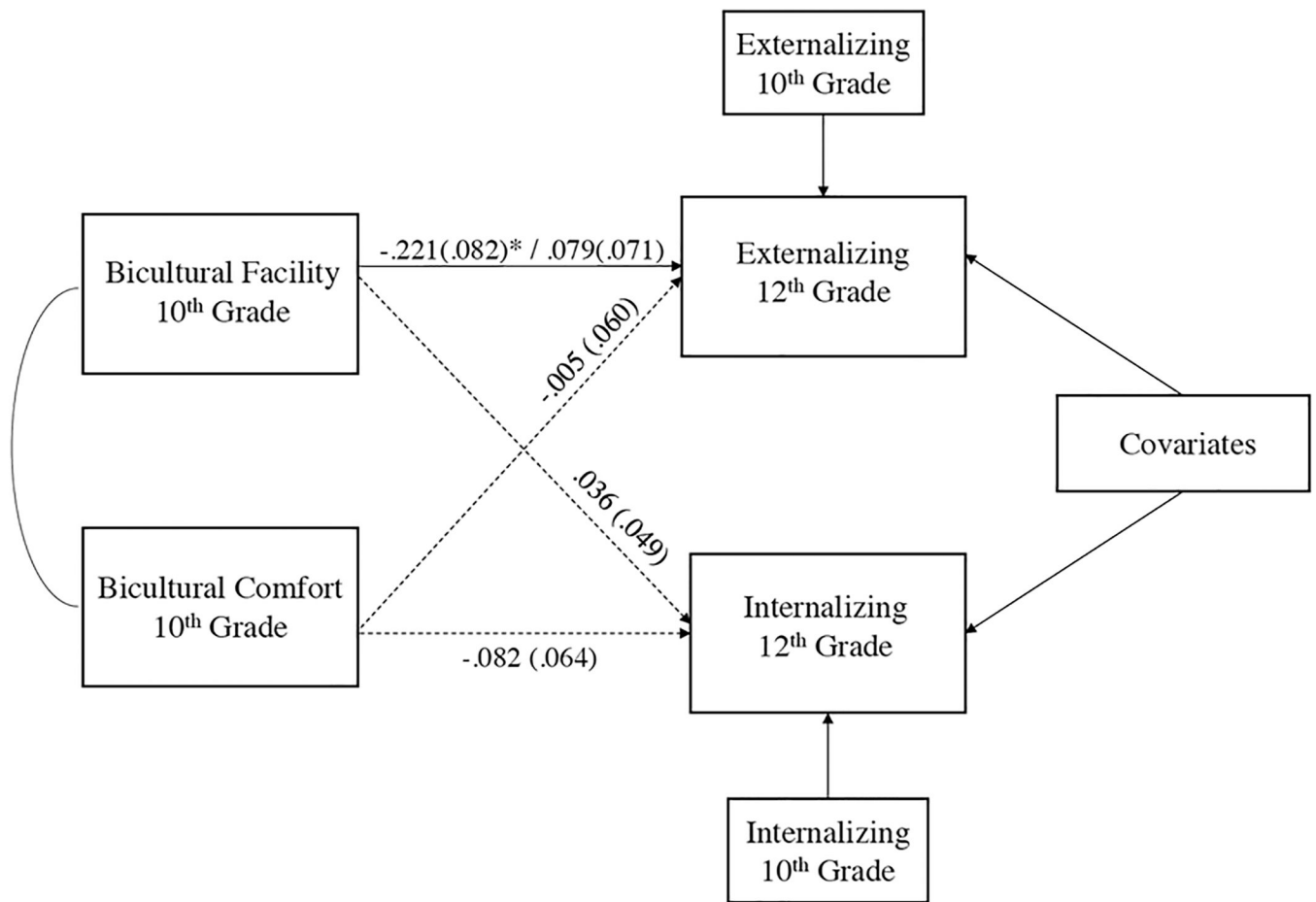


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**Figure 1.**

Bicultural Competence and Mental Health Final Model ( $N = 749$ ). Completely standardized coefficients are reported (STDYX in *Mplus*). Standard errors are reported in parentheses. For the one path that was significantly moderated by developmental niche, we report one coefficient for the consistently-Latino developmental niche path first, and one coefficient following the forward slash that represents a path that was constrained to be equal across the four remaining developmental niches. For paths that were not significantly moderated by developmental niche, we report one coefficient for a path that was constrained to be equal across the five developmental niches. Solid lines represent significant paths for the consistently-Latino niche. Dashed lines represent non-significant paths ( $p > .05$ ). All models controlled for the effects of covariates (10<sup>th</sup> grade family economic hardship, adolescents' nativity, and adolescents' gender) and included 5<sup>th</sup> grade family annual income as an auxiliary variable.

\* $p < .01$ .

**Table 1**

**Bicultural Competence Components across Heritage and Host Cultural Domains**

	Cultural Domains				Values
	Affiliations	Attitudes	Behaviors	Knowledge	Values
1. Behavioral: Perceived <i>facility</i> to -	develop(ing) and maintain(ing) relationships with members of the host and heritage cultures and feel(ing) part of the two cultures.	match(ing) culturally appropriate attitudes of the host and heritage cultures.	perform(ing) culturally appropriate behaviors or practices of the host and heritage cultures.	employ(ing) relevant knowledge of other cultural domains and history from host and heritage cultures.	match(ing) the values or beliefs of the host and heritage cultures.
2. Affective: Feelings of <i>comfort</i> towards -	An U.S. Mexican-origin individual has the skills to become friends with U.S. Mexicans and with U.S. Europeans and feels comfortable in both situations.	An U.S. Mexican-origin individual can be proud of the Mexican American community and the mainstream community and is comfortable feeling proud about either community when appropriate.	An U.S. Mexican-origin individual can speak English and Spanish and feels comfortable in both situations.	An U.S. Mexican-origin individual knows how to celebrate July 4 <sup>th</sup> and September 16 <sup>th</sup> (independence days) and feels comfortable celebrating both of these days.	An U.S. Mexican-origin individual can think of herself as an individual <i>and</i> as a family member. She feels comfortable in situations when she needs to put her needs before her family's needs, and in situations when she needs to put her family's needs before her own.



**Table 2**  
 Summary of Intercorrelations, Means, and Standard Deviations for Study Variables

Variables	1	2	3	4	5	6	7	8	9	M	SD	Range
1. Bicultural Comfort (10 <sup>th</sup> )	—									3.24	.98	4.00
2. Bicultural Facility (10 <sup>th</sup> )	.385**	—								3.67	.55	2.67
3. Externalizing Symptoms (10 <sup>th</sup> )	-.204**	-.088	—							5.64	4.99	25.50
4. Internalizing Symptoms (10 <sup>th</sup> )	-.210**	-.105**	.571**	—						12.15	8.43	53.50
5. Externalizing Symptoms (12 <sup>th</sup> )	-.063	-.042	.558**	.305**	—					3.82	3.90	26.00
6. Internalizing Symptoms (12 <sup>th</sup> )	-.150*	-.067	.407**	.574**	.548**	—				9.30	7.61	44.50
7. School Ethnic Concentration (10 <sup>th</sup> )	.068	.078	.008	-.012	.052	.023	—			58.14	24.96	94.10
8. Neighborhood Ethnic Concentration (10 <sup>th</sup> )	.033	.028	.030	.037	.060	.031	.686**	—		55.24	23.78	93.57
9 Family Economic Hardship (10 <sup>th</sup> )	.007	-.039	.044	.103*	.034	.082*	.156**	.143**	—	0	3.28	15.53

Note. 10<sup>th</sup> = 10<sup>th</sup> grade; 12<sup>th</sup> = 12<sup>th</sup> grade. Descriptive analyses were conducted in SPSS using listwise deletion.

\*  $p < .05$ .

\*\*  $p < .01$ .

**Table 3***Model Fit Criteria for Latent Profile Analysis (N = 749)*

	<b>LL</b>	<b>AIC</b>	<b>BIC</b>	<b>saBIC</b>	<b>Entropy</b>	<b>LMR</b>
1 profile	-6571.11	13158.21	13195.16	13169.79	-	-
2 profile	-6322.07	12674.14	12743.42	12695.79	.70	.001**
3 profile	-6289.02	12622.03	12723.65	12653.79	.68	.002*
4 profile	-6239.51	12537.02	12670.96	12541.01	.71	.001**
<b>5 profile</b>	<b>-6208.52</b>	<b>12489.05</b>	<b>12655.32</b>	<b>12541.01</b>	<b>.71</b>	<b>.002*</b>
6 profile	-6187.86	12461.71	12660.32	12523.78	.71	.060
7 profile	-6171.82	12443.63	12674.57	12515.80	.73	.008*
8 profile	-6150.55	12415.10	12678.37	12497.37	.72	.800
9 profile	-6130.91	12389.81	12685.41	12482.19	.73	.970

*Note.* LL = Log Likelihood; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; saBIC = Adjusted BIC; LMR = Lo-Mendell-Rubin Test. Boldface indicates the solution that was selected as the best fitting model. For the LL, AIC, BIC, and saBIC indices, a lower value represents better fit; for Entropy a higher value represents better fit; and a significant LMR indicates that the model with k profiles is a better fitting model than a model with k-1 number of profiles.

\*  
 $p < .01$ .

\*\*  
 $p < .001$ .

**Table 4**

*Probabilities and Means for 5-Profile LPA Solution of U.S. Mexican-origin Adolescents' Developmental Niches (N = 749)*

<b>Profile (Proportion)</b>	<b>Parents born in Mexico</b>	<b>% Latino in School</b>	<b>% Latino in Neighborhood</b>
Consistently-Latino (44.5%)	.73	82.34	79.42
Consistently-integrated (17.6%)	.58	36.37	39.14
Consistently-mainstream (16.4%)	.46	32.57	19.36
Integrated Neighborhood—Latino School (12.4%)	.58	72.05	51.85
Latino Neighborhood—Integrated School (8.9%)	.58	39.68	69.76

*Note.* Parents born in Mexico is the probability that both parents are born in Mexico. % Latino School and % Latino Neighborhood are profile means.

Table 5

## Analyses of Variance Across Adolescents' Developmental Niches

	Consistently Latino		Consistently Integrated		Consistently Mainstream		Integrated Neighborhood Latino School		Latino Neighborhood Integrated School		Test Statistics		
	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	<i>F</i>	<i>p</i>	Partial $\eta^2$
Bicultural Comfort (10 <sup>th</sup> )	3.25	(.97)	3.25	(.94)	3.22	(.99)	3.27	(1.04)	3.16	(1.02)	.083	.988	.001
Bicultural Facility (10 <sup>th</sup> )	3.74	(.53)	3.59	(.55)	3.74	(.53)	3.64	(.56)	3.57	(.59)	1.195	.313	.015
Internalizing Symptoms (10 <sup>th</sup> )	12.13	(9.24)	11.70	(8.20)	11.92	(7.24)	11.86	(7.26)	13.85	(9.02)	.811	.518	.005
Externalizing Symptoms (10 <sup>th</sup> )	5.61	(5.32)	5.49	(4.77)	5.02	(3.96)	6.47	(5.45)	5.94	(4.89)	1.130	.341	.007
Family Economic Hardship (10 <sup>th</sup> )	.47 <sup>a</sup>	(3.10)	-.22 <sup>ab</sup>	(3.35)	-1.03 <sup>b</sup>	(3.46)	.19 <sup>ab</sup>	(3.15)	.11 <sup>ab</sup>	(3.31)	4.166	<b>.002</b>	.026

Note. 10<sup>th</sup> = 10<sup>th</sup> grade. ANOVA tests were conducted in SPSS using listwise deletion. Within a row, means with different superscripts were significantly different from each other. Significant *F* statistics are in boldface.