

CORRELATES OF SUBSTANCE USE AMONG URBAN LATINO  
IMMIGRANT HIGH SCHOOL FRESHMEN: LINGUISTIC  
ACCULTURATION, FRIENDS' USE, AND SENSE OF SCHOOL  
BELONGING  
A DISSERTATION  
SUBMITTED TO THE FACULTY  
OF  
THE GRADUATE SCHOOL OF APPLIED AND PROFESSIONAL PSYCHOLOGY  
OF  
RUTGERS,  
THE STATE UNIVERSITY OF NEW JERSEY  
BY  
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IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE  
OF  
DOCTOR OF PSYCHOLOGY

NEW BRUNSWICK, NEW JERSEY

OCTOBER 2009

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## ABSTRACT

Substance use in immigrant youth frequently has been associated with different aspects of acculturation. There is inconsistency in the literature, however, about the direction of these relationships. Furthermore, seldom has the role of acculturation been examined in the context of other common substance use correlates, such as peer use and relationship with parents. Finally, the possible contribution of sense of school belonging previously has not been considered along with acculturation, peer use, and parent relationships, in explaining substance use and intentions to use in immigrant adolescents. Thus, the current study examined the extent to which levels of language and cultural acculturation, years in the country, sense of school belonging, relationship with parents, and friends' use would account for their use and intentions to use substances in a sample of 166 Northeastern ninth grade urban Latino immigrant adolescents. Regression analysis revealed that language acculturation, sense of school belonging, and friends' use were significantly associated with adolescent substance use and intentions to use. Consistent with past research in the general adolescent population, Latino immigrant youth who had fewer friends who use substances and had higher levels of school bonding/sense of school belonging were less likely to report using substances and/or having intentions to use. Contrary to previous literature examining non-clinical immigrant youth, the current study found that higher use of native language (low language acculturation) also predicted students' use and intentions to use.

## ACKNOWLEDGEMENTS

To my husband, sister, mother, father, grandmother, and friends, I thank you for your generosity of love, patience, encouragement, and humor. Diego, my dedicated husband, I learn something new from you everyday. I truly admire your insight and kindness. It has definitely made me a better person and clinician. Lanre, big sis, you make me laugh out loud every time I talk to you. Laughing with you makes everything better, even when I was spending hours and hours working on my dissertation. Mommy, you have the best red pen. Your editing has helped me get jobs, published, finish my dissertation, and find the best words to express myself. Daddy, your quiet support, calls to just check-in, and prayers have meant so much to me. You have definitely kept me on track. Nanny, your notes throughout graduate school always brought a smile to my face. Your support of everyone in our family to strive for education has been invaluable.

I am greatly indebted to members of my dissertation committee, Drs. Brenna H. Bry, Valerie L. Johnson and Nancy Boyd Franklin. Brenna, I thank you for providing research training, professional and personal mentorship throughout my time at GSAPP. Val, I thank you for the opportunity to work on your research study. I learned greatly from working on the study and participating in the work at the Center for Alcohol Studies. Nancy, I thank you for being available anytime of the day or night to help me and other students along the way. I would also like to acknowledge the members of Dr. Bry's research team who have provided advice and support throughout the completion of this dissertation. A special thanks goes to the American Psychological Association Minority Fellowship Program, the New Jersey Psychological Association, and The

Robert Wood Johnson Foundation for providing funding and mentorship during my graduate training.

To the GSAPP community, I thank you for providing a great education and graduate experience. I especially want to thank Sylvia Krieger for her help with my dissertation. To Alicia Picone, you deserve a medal for your hard work helping students get through the internship application process. I so appreciate all that the both of you do. I also wanted to thank the special supervisors, Beth Epstein, Tom Morgan, Vic Carlson, Norbert Wetzel, Ken Verni, Maurice Elias, and Paulette Hines, who came into my life and promoted my growth and confidence as a clinician and person.

Finally, I thank the students and school who participated in this research.

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## CHAPTER I

### Introduction

Latino youth (immigrant and non-immigrant), as compared to White and Black youth, in the U.S. have been found to have some of the highest substance use rates. For example, the Monitoring the Future survey found that 12<sup>th</sup> grade Latino youth reported the highest use of both crack and ecstasy and 8<sup>th</sup> grade Latino youth reported the highest use rates of many drugs include, including alcohol (Johnston, O'Malley & Bachman, 2001). The White House Office of National Drug Control Policy's 2007 report cite that approximately 10 % of Latino eighth-graders reported past month use of illicit drugs compared to 7.5 % of White 8<sup>th</sup> graders and 8.6% of Black 8<sup>th</sup> graders; 8% of Latino eighth-graders reported past-month use of marijuana compared to 7.5% of White youth and 5.8% of Black youth in the 8<sup>th</sup> grade (ONDCP, 2007). Researchers have identified a relationship between acculturation, measured in various ways, and substance use among immigrant youth. There is some inconsistency in the literature about the direction of the relationship. Community based studies find that as acculturation (as defined by length of residence in the U.S., language spoken at home with parents, and/or language preference) increases, immigrant substance use and/or risk of use increases (Blake, Ledsky, Goodenow, & O'Donnell, 2001; Epstein et al., 2001, 2003; Gfroerer & Tan, 2003; Vega, Gil, & Zimmerman, 1993). Some assert that risk and use increases as youth acculturate because immigrant adolescents, particular Spanish youth who speak Spanish more often



across various settings and groups (school, friends, and family), initially are sheltered from social networks that enable them to access environments and groups where substances are being used and offered to them. It is hypothesized that these social networks are more likely to be English speaking. (Escobar, 1998; Gil & Wagner, 2000; Marsiglia, Kulis, Hecht, & Sills, 2004; Marsiglia & Waller, 2002). As immigrant adolescents become less “sheltered” their access to social networks that are generally more acculturated and the broader community increases, hence increasing their exposure and access to substances and substance using peers. Additionally, because immigrant adults tend to learn English at a slower pace than immigrant children do, acquisition of and preference for English by children in Spanish speaking families can lead to detrimental changes in protective family dynamics and communication, such as family structure and hierarchy. For example, as children learn to speak English faster than their parents and grandparents, they often are placed in the role of the translator. This tends to shift the power differential in Latino families, which are generally hierarchical in structure. This shift may lead to family and cultural conflict (Marsiglia, Miles, Dustman, & Sills, 2002; Vega, Zimmerman, Warheit, Apospori, & Gil, 1997). This dynamic is often referred to as the “acculturation gap.” It is hypothesized that this gap causes familial conflict and erodes parent-related factors that protect against youth drug use.

On the other hand, research with Latino youth in clinical populations found that less acculturated (as defined as language behavior in different contexts) adolescents had more severe drug problems (Gil, Wagner, & Tubman, 2004). In a high-risk clinical population (African American and Hispanic juvenile offenders with AOD problems) participating in a brief guided self-change (GSC) intervention, baseline levels of alcohol

and marijuana use were highest among the foreign-born Hispanics. Additionally, a recent study examining “Keepin’ it REAL”, a model program for substance use prevention in schools, found that less acculturated (defined as youth who spoke more Spanish with their friends and family members) Latino boys started out with higher substance use rates and greater pro-substance use norms (e.g., positive drug expectations) (Kulis, Yabiku, Marsiglia, Nieri, & Crossman, 2007). Gil and colleagues hypothesized that the higher severity of substance use in lower acculturated youth may be due to various factors including having families that are experiencing a great deal of distress as they attempt to adjust to the host country and/or a higher likelihood that these youth have experienced greater levels of life traumas prior to their migration (e.g., exposure to civil wars, family disruptions, etc.). Another hypothesis is that cultural practices from their culture of origin may encourage substance use in immigrant youth. For example, cultural researchers highlight that alcohol use may be more so a part of the Hispanic culture. This is evidenced by less restrictive views of alcohol, cultural sanctioned fiesta drinking (binge drinking followed by long periods of abstinence), and skewed perceptions of machismo which encourage increased drinking as a means to define one’s “manliness”. Strongly identified Hispanic youth may have increased exposure and cultural acceptance of use. Therefore, activities that encourage cultural identification and engagement in cultural practices may actually encourage alcohol abuse (Gil & Vasquez, 1996). One goal of the current study is to address the previous inconsistencies about the direction of the relationship between different aspects of acculturation and immigrant substance use and intentions to use by examining these relationships in Northeastern Latino immigrant high school freshmen.

In addition, social learning has been found to contribute to the onset of substance abuse behaviors for youth. Particularly for immigrant youth, detrimental changes in parental control and changes in family structure (e.g. absence of the youth's father due to elongated family separations related to immigration) can lead to more peer influences, which may put them at increased risk for substance use. According to Velez and Ungemack (1995), who looked at social psychological risk factors for substance use (such as tolerance of deviance, parental control, respect for school) amongst Puerto Rican youth, peer modeling was found to be the greatest predictor of their drug involvement. Research also shows that immigrant youth are particularly vulnerable to peer pressure. Blake, Ledsky, Goodenow, and O'Donnell (2001) found that newly immigrated youth (defined as those living in the U.S. 6 years or less) were likely to have less parental support to avoid risk behavior and most likely to experience peer pressures to engage in risk behavior (e.g. lifetime and proximal substance use). Recent immigrant youth also report lack of confidence to refuse substances (Blake et al., 2001). This peer pressure and decreasing parental support may hasten their participation in what they see as host culture behaviors and norms (e.g., adolescent drug use). Thus, it will be interesting to examine the relative contributions of acculturation and parent and peer influences on substance use. Another goal of the current study is simultaneously to consider the contributions that other common risk factors make while exploring the relationships between different aspects of acculturation and immigrant adolescents' substance use (Bry, McKeon, & Pandina, 1982; Wills, Vaccaro, & McNamara, 1992). Specifically, the influence of drug using friends and poor relationships with parents, will be included in this study of immigrant youth. A final goal of this study is to add immigrant youth's sense of school

belonging to acculturation, relationship with parents, and friends' drug use to see if one's relationship with school plays an additional and unique role in understanding substance use. There is growing research investigating the role of school factors and outcomes, particularly academic outcomes, for immigrant adolescents (Sanchez, Colon, & Esparza, 2005). There is far less known about the role of school bonding and acculturation in the development of substance abuse for immigrant students. Thus this study will begin to explore the relative contributions of these factors. First, literature on immigration, acculturation and sense of school belonging will be reviewed.

### *Immigration*

In the last decade the U.S. has experienced a surge in immigration. Approximately 8 million immigrants have come to the United States since 2000 and the immigrant population (legal and illegal) in the U.S. currently totals 37.9 million (approximately 12% of the total population) (Camarota, 2007). These immigration figures are more than double of those seen in the "last great immigration wave" of 1910. Immigrant children and their families enter and stay in the United States in the following ways: legal immigration (usually involves the acquisition of a visa, followed by a green card and subsequently U.S. citizenship), humanitarian admission (as refugees and asylees, statuses that are also legal), or illegal entry (as either visa overstayers or undocumented immigrants). Contrary to prevalent public opinion and bias, most of the foreign-born persons living in the United States (85%) are in the country legally. The immigrant population coming to America today compared to previous immigration waves is much more widely ethnically, culturally, and linguistically diverse. Although immigrants have come to the United States from nearly 100 different countries, most

come from Latin America and Asia. Once in America, many immigrants settle in disadvantaged communities and experience high levels of poverty. Approximately 17% immigrants and their U.S.-born children (under 18) live in poverty. This figure is nearly double the rate of poverty for natives and their children (Camarota, 2007).

No other American institution has felt the effect of this migration as the nation's public school system. Immigration now accounts for almost all of the national increase in public school enrollment since the 1990s (Camarota, 2001). Projected estimates indicate that the total school-age population, persons aged 5-14 years, will grow to 42 million in 2010 and children of immigrants will account for more than 50% of this growth (Fix & Passel, 1994). The very face of schooling is changing as foreign-born and second-generation immigrant children arrive, bringing rich diversity and creating new challenges for schools and communities to appropriately address this diverse population presenting with highly varied cultural, racial, and linguistic identities.

Migration is often a complex journey with many losses and gains. The process of migration usually occurs in three phases (Drachman, 1992). The pre-migration phase is the period of time before one migrates from one's country-of-origin. It usually refers to the time period where the individual and/or family is contemplating and preparing for leaving. Children and adolescents are not often included or have limited participation in this phase of the migration experience. The decision to leave is usually made by others, such as parents/guardian. This experience can be quite traumatizing in itself to a child, who can view it as forced. This period could last for months to years and reflects some of the reasons immigrants have chosen to leave their country. Reasons for leaving one's country range from fleeing political/religious persecution to finding better employment

and educational opportunities in the host country. For example, many of the countries that form the largest group of immigrant-sending countries have been involved in civil conflict for decades. In parts of South America, such as Colombia, people have experienced conflict involving rebel guerrilla groups, paramilitary militias, and violence for over 40 years. Many of these individuals have witnessed and/or experienced traumatic events. Additionally, many immigrants come from places where they have been prosecuted for religious belief (e.g., Christians in North Nigeria) and/or ethnic identity (ethnic conflict in Sri Lanka). These individuals and families have experienced a large degree of trauma, pain, loss, and suffering. A study of the Tamil immigrant community in Canada found that individuals who have been in refugee camps have experienced multiple previous trauma and are at increased risk for poor mental health outcomes, such as depression, posttraumatic stress disorder, and alcohol abuse (Beiser, Simich, Pandalangat, 2003). During the transit/intermediate phase, individuals and families may experience a range of traumatic experiences. They may experience an illegal border crossing (as attempted by persons from Central America), extended stays in detention centers or jails awaiting governmental deportation or entry decisions/procedures, complicated travel plans (going several places before entering the U.S.) and/or long separation from family members (e.g. one family member coming to U.S. at a time). Huyuck and Fields (1981) found the latter, parent-child separations, place six- to 11-year-olds, especially refugee boys, at the most psychological risk. For example, several studies have found that Cambodians who lived in Cambodia during the Khmer Rouge Cambodian democide (1970-1980) had experienced multiple major trauma experiences (Kinzie, Sack, & Riley, 1994; Realmuto, Ann, Hubbard, Groteluschen, & Chhun, 1992).

Two decades following these traumatic experiences, Khmer Cambodians continue to suffer high rates of PTSD (62%) and depression (51%) (Marshall, 2005).

Finally, the resettlement phase includes the level of cumulative stress experienced by the individual and/or family, the discrepancy between expectations of quality life and actual quality of life in the United States, and the socio-cultural reception of the host country and neighborhood. This experience can be extremely stressful. In sum, the well being of immigrants and their families is impacted not only by past conditions (e.g., violence, trauma), but also by social factors related to resettlement, such as change social roles, receptivity of the host country, poverty, racism and discrimination, and language and cultural differences. For example, the current socio-political sentiment and policies in the U.S. may further traumatize immigrants/refugees and their families. One such traumatizing policy is the detention of immigrants following raids. In 2007 alone, ICE agents arrested 30,408 immigrants (Preston, 2008). A report released by the National Council of La Raza (NCLR) and the Urban Institute found that for every two people detained in immigration enforcement operations, one child is left behind. A majority of these children are U.S. citizens, younger than 10 years old and are greatly impacted by this experience. Severe disruptions that result from raids, such as family separation, school absences, child exploitation and neglect, can then lead to socio-emotional and behavioral problems for these children. Separation from arrested parents can cause anxiety and fear in some children, especially because the arrests often happen suddenly and unexpectedly. Additionally, community-wide fear can also contribute to distress in children in these communities (Capps, Castañeda, Chaudry, & Santos, 2007).

Immigrant children and adolescents with extended trauma experience, family separations, and/or difficult post migration adjustment are at particular risk for developing problems. Children and adolescents' migration risk can be mediated by such factors as their parent's mental health, their own individual resilience, and perceived family, peer and community support. Even when immigrant and refugee children do not directly experience and/or witness trauma and violence in their country of origin, they are still at risk. Family stress and mental health, particularly, parental mental health, was found to be associated with poor mental health in newly immigrated children of Turkish, Chilean, Lebanese, and Iranian refugee families in Sweden (Hjern, Angel, & Jeppson, 1998).

#### *Acculturation*

The psychosocial adjustment that follows emigration to the U.S. can be challenging for many immigrant adolescents. This adjustment is often labeled "acculturation." Acculturation as a concept has gone through reformulations over the years. Acculturation first appeared in the in the field of anthropology and has been studied extensively by various fields, from psychology to communications and marketing. It was first defined by Redfield, Linton, and Herskovits (1936) as "...those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original cultural patterns of either or both groups" (Redfield, Linton, & Herskovits, 1936, p.149). Subsequent definitions acknowledged that the culture change is initiated by the conjunction of two or more autonomous cultural systems; include selective adaptive of values; occurs in individuals whose primary learning has been in one culture; and include the adoption of



traits of the host culture (Social Science Research Council, 1954; Marden & Meyer, 1968).

Kim and Berry's reformulations of acculturation have greatly contributed to current acculturation research. Kim (1992) conceptualized the acculturation process as "an interactive and continuous process that evolves in and through the communication of an immigrant with the new socio-cultural environment". As the immigrant's ability to communicate with the new environment increases, their level of acculturation increases (Kim, 1992). As Kim focused on communication, Berry focused attention on the impact of *behavior changes* that occur as an immigrant acculturates. Berry (1977) asserts that in practice, acculturation tends to produce more substantial change in one of the groups. Both agreed that the changes the immigrant experiences are insignificantly greater than the changes that the host culture experiences (Kim, 1985). This is generally due to the immigrants' need to adapt to the host culture and thrive in a new environment.

Today most researchers and research prescribe to the bi-dimensional model of acculturation. The model posits that acculturation entails two co-occurring behavioral changes: (1) losing behaviors, beliefs, practices, and values specific to their minority culture, and simultaneously (2) gaining behaviors, beliefs, practices, and values of the host culture, thereby resulting in four possible outcomes (Berry, 1980, 1989, 1997; Berry, Portinga, Segall, & Dasen, 1992; Birman, 1994; Chun, Organista, & Marin, 2003). These outcomes can include the following: ethnic minorities (a) remaining immersed in their native culture (Separated, Traditional); (b) fully adopting the host culture (Acculturated, Assimilated); (c) immersing equally in both cultures (Bicultural); or (d) immersing in

neither culture (Marginalized). In this model, immigrants can be located along both the native and the host cultural dimensions (Chun, Organista, & Marin, 2003).

Generally, the concept of acculturation has been measured in various ways in the research field. Some factors (alone and/or in combination) that have been considered in its measurement are language, cultural identity, and religion (Laroche, Kim, & Tomiuk, 1998; Lee & Um, 1992; Lew & Vigil, 1987; Peñaloza, 1989; Suinn, Rickard-Figueroa, & Hirschman, 1981). Communication based measures, such as hours spent listening to Spanish radio, have also been used (Kim, Laroche, & Joy, 1990; O'Guinn & Faber, 1985). Specific research survey questions assessing acculturation measure use of English vs. another language at home, with friends and at school; completion of the research survey in English vs. another language; native born vs. foreign born; and number of years of residence in the U.S. (Perez-Stable et al. 2001; Yu, Huang, Schwalber, Overpeck, & Kogan 2002).

These studies generally use Likert-scale questions that conceptually assess, define and examine acculturation as a uni-dimensional construct, ranging from low to high acculturation. Though there are limitations to the linear model of acculturation, numerous findings provide supporting evidence that this model represents a reliable proximal measure of acculturation. Proxy measures of acculturation using the linear model have been shown to be significantly associated with multidimensional measures of acculturation and other psychosocial variables (e.g., Cuellar, Arnold, & Maldonado, 1995; Epstein, Botvin, Dusenbury, Diaz, & Kerner, 1996; Mendoza, 1989; Sabogal, Marin, Otero-Sabagol, Marin, & Perez-Stable, 1987). Common and supported proxy

measures include number of years in the country, cultural acculturation and language use.

*Acculturation and adolescent substance use*

The relationship between acculturation and drug use among ethnic adolescents has been studied with equivocal results. Higher levels of acculturation, as defined by low levels of familism, ethnic identification and/or language preference, have been associated with drug use and delinquency among Puerto Rican, Mexican American, and African American youth (Brook, Whiteman, Balka, Win, & Guersen, 1998; Marsiglia & Waller, 2002), drug use among Hispanic girls at risk for suicide (Fraser, Piacentini, Van Rossem, Hien, & Rotheram-Borus, 1998), and smoking among male, Puerto Rican high school students (Smith, McGraw, & Carrillo, 1991). In two separate studies, Brook et al. (1998) and Barrett, Joe, and Simpson (1991) respectively found that acculturation had only a weak and indirect effect on Hispanic youth substance use; and Bonnheim and colleagues found no relationship between acculturation and inhalant use among Hispanic youth (Bonnheim & Korman, 1985; Simpson & Barrett, 1991), general substance use (Barrett et al., 1991), or smoking among Hispanic adolescents.

The immigration process creates challenges for all immigrants, but as result of the psychosocial stage adolescents maybe at particular risk. During the immigration and resettlement process youth precariously struggle with conflicting social and cultural demands of their native culture and the host culture, whilst managing the accompanying normative identity crises of adolescence. This stress (referred to as acculturative stress) is often linked to the development of psychological distress, such as depression, anxiety and/or substance abuse. Youth who experience acculturative stress may exhibit

behavioral problems in school and underachieve socially and academically (Kopola & Esquivel, 1994).

Vega and colleagues assert that academic failure, which is linked to behavioral problems in school and academic underachievement, is a precursor to increasing development of attitudes which favor “deviant behavior and drift into drug-using peer groups” (Vega, Zimmerman, Warheit, & Gil, 2002, p.25). Additional variables that may increase acculturative stress in immigrant children include migration, poverty, previous education, language, and school and parental involvement (Nunez & Gary, 2004). In sum, immigrant adolescents may be at increased risk for psychological distress related to acculturation because they are already in the midst of a sometimes precarious developmental life stage, in which they are already struggling with identity issues, emotional development, and peer/familial relationships. This distress exposes them to risk factors, such as academic failure and deviant peers, that lead to increased substance use risk.

### *Sense of school belonging*

According to the most recent data, one in nine students in the U.S. public schools is an English language learner (ELL). ELL students are “students who speak English either not all at or with enough limitations that he or she cannot fully participate in mainstream English instruction” (Goldenberg, 2008). ELL students are often immigrants themselves and/or come from immigrant families. Among middle and high school ELLs, 56% were born in the U.S and approximately 80% of ELLs’ parents were born outside of the U.S. (Goldenberg, 2008). The majority of ELL students are Spanish speakers (80%), followed by those who speak Asian languages. Recent studies of immigrant secondary

education programs identified ELL student subpopulations about whom there are specific concerns. First is the set of immigrant students who arrive as teens. They must overcome such obstacles as the impact of interrupted schooling in their home countries on their academic and linguistic abilities (in both their native language and the host country's language). The time available for these particular students to become proficient in the new language and reach the level of achievement needed to graduate high school is limited. This is an especially difficult obstacle to overcome because on average it takes between four to seven years for ELL students to become proficient in "academic English" (Collier, 1995; Francis, Rivera, Lesaux, Keiffer, & Rivera., 2006; Genesee, Lindholm-Leary, Saunders, & Christian, 2006; Hakuta, Butler, & Witt, 2000; Moore & Zainuddin 2003; Oakeley, Urrabazo, & Yang, 1998).

The second population of emerging concern among educators can be classified as "long-term ELLs." This population is composed of ELL/immigrant adolescent who reach high school after having "graduated" from special language service programs (ESL or bilingual). They graduated these programs without being literate enough in English to meet state or local criteria for promotion from ELL status. It is hypothesized that these students may not also be literate in their native language as well, making it very difficult to learn a new language. High dropout rates among ELL (often an indicator of being an immigrant themselves or child of an immigrant) high school students put them at increased risk for substance use. School could play a role in reducing substance use risk for this population by beginning to examine the economic (e.g. poverty), cultural (e.g., acculturation), individual (e.g., acculturative stress), and social problems (low school

bonding) that immigrant adolescents face and develop culturally specific prevention programs that would keep them in school.

For most youth, school plays a significant role in their lives and development. On average, an adolescent spends the majority of their time at school and/or involved in school related activities. For immigrant students, schools are the first sustained point of contact with the new culture. As stated before, immigrant adolescents may have been exposed to many stressors during their pre-migration and resettlement experiences that affect their psychological well being and adjustment, hence impacting their school behavior and performance. For these children, the school environment, in conjunction with the family environment, is the most important place where intervention and prevention efforts can take place. The Surgeon General has identified schools as “a major setting for the potential recognition of psychological difficulties in children and adolescents” (Department of Health and Human Services, 1999); hence schools should be an essential environment to study in immigrant adolescent development and the prevention of problem behaviors among this group.

Schools also become an important environment in a youth’s life as the need for belonging, social support, and acceptance with peers and other adults becomes more important during middle and high school years (Goodenow, 1993a). As young people begin to think about and experiment with their individual and social identities and goals, they need to feel that they belong to social groups outside of their families. Because this period involves exploring aspects of personal identity apart from parents and family, adolescents come to spend more time, physically and emotionally in contexts involving non-familial peers (e.g., friends) and other significant adult figures (e.g., teachers)

(Pretty, 2002). “During this time in their development, the sense of personal acceptance and having a valued place in different social contexts makes students’ sense of community in their schools and classes especially important” (Vieno, Perkins, Smith, & Massimo Santinello, 2005, p.335). Without this feeling of belonging, many students experience difficulty.

Social bonding theories have suggested that weak attachment to or alienation from socializing units (e.g., family, school, etc.) may lead to increased exposure to risk factors related to problem behavior and/or the development of problem behaviors themselves (Catalano & Hawkins, 1996; Hirschi, 1969). Hirschi’s control theory of deviant behavior conceptualized that bonding within a socialization unit like school consists of four elements: 1) involvement in the unit, 2) attachment or affective relationships, 3) investment or commitment to the unit, and 4) belief in the values of the unit. Once a strong social bond is established, it acts as informal control on behavior, inhibiting deviant behavior and encouraging pro-social behavior in particular. But when a social bond is weak, deviant behavior is more likely to occur. Essentially, Hirschi’s theory asserts that if one is bonded, he or she is not so likely to engage in deviant behavior because affiliation with the socializing unit would be in jeopardy; most of one’s time is spent engaging in pro-social behaviors; one would not want to “hurt” or “anger” others within the socializing unit; and one truly believes in and respect the “rules” of the social setting. These values control the individual’s behavior and prevent the individual from engaging in deviant behaviors (Hirschi, 1969).

The Social Development Model (Catalano & Hawkins, 1996; Farrington & Hawkins, 1991; Hawkins & Weis, 1985) also suggests a key role for bonding. In contrast

to control theory, the Social Development Model focuses on “involvement” as the key component of bonding. Important socializing units to which children bond include: the family, school, peers, and community. Involvement in the social setting then leads to bonding. Once bonded, the internalization of beliefs and values of the social unit follow. Internalization of beliefs and values then mediates the effect of bonding on behavioral outcomes. The model asserts that children learn patterns of behavior, either pro-social or antisocial, from their social environment. Children are socialized through four processes: 1) perceived opportunities for involvement in activities and interactions with others; 2) actual involvement; 3) skill for involvement and interaction, and 4) perceived rewards from involvement and interaction. When all four elements are consistent in the process, a social bond develops between the child and people within the socializing unit. In this model a strong social bond prevents the child from engaging in behaviors that contradict the “acceptable” beliefs and behaviors of the socialization unit. Underlying this model is the idea that children’s behavior can either be pro-social or antisocial depending on the prevailing behaviors, norms, and values held by those individuals or institutions to which/whom the individual is bonded (Fleming, Catalano, Oxford & Harachi, 2002). In conclusion, school bonding plays a central role as one of the most important socialization domains that can inhibit antisocial behavior and promote pro-social behavior in childhood and adolescence. Additionally, school bonding is especially important for immigrant students because school becomes one of the main socializing units as students become socialized to the host culture and could be a target for intervention with immigrant adolescents.



School bonding has been associated with levels of substance use in the research literature. Catalano and his associates found that high levels of school bonding were related to lower rates of drinking and smoking initiation (Catalano, Haggerty, Oesterle, Fleming, & Hawkins, 2004). Baseline level of school bonding in 12th grade and an increase in bonding between 7th and 12<sup>th</sup> grade correlated negatively with lifetime alcohol, cigarette, marijuana, and other drug use by 12th grade (Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001). High levels of school bonding in grades 5, 8, and 10 were associated with lower rates of alcohol abuse and dependence at age 21 (Guo, Hawkins, Hill, & Abbott, 2001). These results also were found among high-risk populations as well (O'Donnell, Hawkins, & Abbott, 1995). Among Mexican-American dropouts, low school bonding was associated with attachment to substance-using peers (Swaim, Bates, & Chavez, 1998). Overall, the research literature supports that school bonding significantly protects youth from substance use (Bryant, Schulenberg, O'Malley, Bachman, & Johnston, 2003; McNeely, Nonnemaker, & Blum, 2002).

In a meta-analysis of experimental and quasi-experimental studies of school-based prevention interventions, Najaka, Gottfredson, and Wilson (2001) found that as attachment and commitment to school increased, problem behaviors decreased. Their meta-analysis indicated that across studies examining school bonding, academic achievement, and/or social competence and their relationship to problem behaviors, school bonding consistently produced the most reliable evidence of a relationship between school factors and problem behavior. There is growing research investigating the role of school factors and outcomes, particularly academic outcomes, for immigrant adolescents (Sanchez, Colon, & Esparza, 2005). There is far less known about the role of

school bonding and acculturation in the development of substance abuse for immigrant students. Further research is needed to better understand this relationship for immigrant students. Surprisingly there is a dearth of studies examining this issue in Latino immigrant students. The majority of the literature on ethnicity and culture as it relates to school adaptation (e.g., school bonding, academic achievement, etc.) focuses on non-Latino populations and do not include measures of acculturation. However, the limited research does suggest that language, American acculturation, native country (Russia) acculturation are critical aspects in the school lives of immigrant adolescents (Trickett & Birman, 2005). Studies that have examined this relationship have found interesting results. With respect to language competence, for example, Bhattacharya (2000) found low proficiency in English to be a critical factor in low achievement and school failure of children whose families had voluntarily immigrated to the United States from three South Asian countries: Bangladesh, India, and Pakistan. Wood and Clay (1996) found in an American Indian sample that there was a positive association between socialization into society (American acculturation) and grades and school attachment. It is speculated that demonstrating an American identity created a positive academic and social environment (e.g. receiving and understanding positive feedback from students and peers) for these students that was then reflected in their grades (Trickett & Birman, 2005). Additionally, for immigrant students who come from collectivistic cultures, it is particularly important to feel like they belong to a group and are fully accepted. Students who feel fully accepted and part of their school are more likely to develop a strong sense of self-worth and engage in pro-social activities. Immigrant students who come to United States from collectivistic cultures may have a greater need to be bonded to the school. For example,

Goodenow and Grady (1993) conducted a study with Black, White, and Latino 7th to 9th graders and found that sense of school belonging was positively correlated with students' intrinsic value, expectancies for success, and academic effort. Sense of belonging seemed to impact Latino students significantly more than it impacted Black and White youth. Particularly for the Latino students, sense of belonging was strongly associated to academic outcomes. Goodenow and Grady hypothesize that because of the community oriented values of the Latino collectivistic culture, students really need that sense of community and belonging in order to thrive. Since school bonding and sense of school belonging has been found to be associated with adolescent use and researchers have found differential effects of school bonding for different ethnic groups, it is of great importance to understand its role in substance use among immigrant adolescents, particularly Latino immigrant adolescents.

#### *Current study*

Current research has not yet adequately addressed how school-related factors and acculturation potentially collide and/or enhance each other, in the context of other known risk and protective factors, such as friend's use and relationship with parents, to account for immigrant adolescents' use of substances. Still left unanswered is an important question: Can and do schools play a protective role in an adolescent immigrant youth's use of substances? The current study aims to begin to address this question. Additionally, the current study aims to contribute to the field by focusing attention on school factors in immigrant adolescent substance use research. The study hypotheses suggest that differences in substance use among immigrant students are a function of both school factors and acculturation, while also considering friends' substance use and relationship

with parent. This study will help to broaden this area of research by a.) examining two possible sources of influence on immigrant adolescents' substance abuse risk, acculturation and school factors, simultaneously with other known risk and protective factors; b.) using regression analyses to elucidate the joint and unique contribution of acculturation and school factors to understanding immigrant adolescents' substance use; and c.) testing the hypothesis that school factors have a relationship beyond the impact of acculturation, peer and parent factors to substance use among immigrant adolescents. The following hypotheses were delineated for the study:

1. Level of acculturation will predict substance use/intentions to use amongst immigrant students. A direction is not hypothesized regarding the relationship between acculturation and substance use/intentions to use because there continues to be inconsistent results in previous research investigating this relationship.
2. Higher sense of school belonging would also protect against substance use/intentions to use among immigrant students.

## CHAPTER II

### Methodology

#### *Participants*

The current study utilized a subset of data from a larger study collected from all freshmen students attending an urban New Jersey high school in 2005 and 2007 (Johnson, Pandina, & Bry, 2008). The majority of students who attend this high school are Hispanic, participate in free or reduced-price lunch program, and speak Spanish in the home (New Jersey Department of Education, 2007). Study participants include 166 immigrant (those not born in the continental United States) freshmen students between the ages of 13–16. The mean age ( $\pm$ SD) for the participants was 14.28 ( $\pm$ .752) years and the mean length of stay in the United States for the participants was 7.0 ( $\pm$ 4.0) years with a range of 1 to 15 years (Table 1). Students emigrated from many different parts of the world. The majority of students emigrated from the following countries: Guatemala, Dominican Republic and Puerto Rico.

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Table 1  
Demographic characteristics

Sex	<i>n</i>	%
Male	88	53
Female	78	47
Age (mean=14.27 yrs, SD=.742)		
13	21	12.3
14	92	53.8
15	49	28.7
16	9	5.3
Years in the U.S (mean=7.0, SD=4.0)		
Less than 5 yrs.	61	36.7
5 to 10 yrs.	54	32.5
10 to 15 yrs.	51	30.7

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### *Procedures*

A group of ethnically and linguistically diverse Rutgers University-trained survey proctors administered a 45-60 minute written questionnaire. The questionnaire consisted of a core demographic section and a series of Likert-type items measuring students' use and intentions to use alcohol, tobacco, marijuana, and other drugs, language use, academic motivation, school belonging, etc. Surveys were available in both English and Spanish versions. The surveys were administered during regular school hours in the school building. Students took the surveys in a classroom setting. Prior to the survey administration, letters were sent by the school to the parent(s) of students taking the

survey explaining the nature of the study and requesting their passive consent to have their child participate in the study and complete the study surveys. Parents were asked to call the school if they did not want their child to participate. No parent called. These procedures were reviewed and approved by Institutional Review Board at Rutgers University and the high school administration. During the survey administration, students were informed that participation was voluntary, instructed that their responses would be confidential and informed that their parents provided passive consent. To ensure their confidentiality, no student names were recorded on the questionnaires and teacher involvement in survey implementation was kept to a minimum. As students completed the surveys, research team members collected all questionnaires and took them out of the school.

*Missing data.* Scales scores were created by taking the mean of the items with responses. Within scales, participants with more than 50% of the item responses missing were not included in the analyses. Accordingly, less than 10% of the participant pool was dropped from any of the analyses.

*Power analysis.* Power analyses indicated that a regression model with 8 independent variables would require a sample size of 107 participants to detect a medium effect size with power = .80 for  $p < .05$  (Cohen, 1992). The study sample consisted of 166 students and 8 independent variables, hence sufficient to find a medium effect size.

### *Measures*

*Use/intentions to use.* Students' use/intentions to use substances was assessed by four items asking the students how likely they would be to use cigarettes, alcohol, marijuana and other drugs in the next year. Responses were based on a 4-point scale

ranging from Not Likely (1) to Already Tried (4). Individual questionnaire items were combined, using mean values, to construct the measure of Use/ Intention to Use Substances ( $\alpha=.77$ ). High scores on this scale indicate a higher use/intention to use substances. Both Ajzen and Fishbein's (1980) theory of reasoned action and Ajzen's (1988, 1991) theory of planned behavior assert that future intentions to use a substance are related to subsequent behavior; therefore intentions were important to assess, in addition to actual use (Appendix A).

*Identification with culture of origin.* The scale included four questionnaire items similar to questions that have been used in established ethnic identity scales (e.g., Phinney, 1992) to measure aspects of ethnic affiliation and ethnic attachment, a subscale was created after factor analysis. The items in this scale ( $\alpha= .79$ ) were "I am proud of my family's culture(s)," "My family's culture(s) has had a positive impact on my life," "I am familiar with my family's cultural practices and customs," and "I admire people who are from my family's culture(s)." Five-point Likert-type response scales were used for each item; responses ranged from 1 (Strongly Disagree) to 5 (Strongly Agree). Scale items represent what others have referred to as a sense of ethnic "affiliation," "attachment," and "pride." Higher scores represent higher identification with culture of origin (lower American acculturation). Responses to items were averaged for the scale score.

*Linguistic Acculturation (native language use).* Another measure of acculturation included language use. Language use accounts for the greatest portion of variance in other acculturation scales and has been shown to be a valid measure (Marin & Marin, 1991). The language use scale comprised of two items taken from the Acculturation



Rating Scale for Mexican Americans (Cuellar, Harris, & Jasso, 1980), which measures language preference in various domains. The items used in this scale ( $\alpha = .87$ ) were “How much do you speak another language (besides English) at school?” and “How much do you speak another language (besides English) with friends?” Five-point Likert-type response scales were used for each item; responses ranged from 1 (Not At All) to 5 (Very Much) (Appendix A). An item, “How much do you speak another language (besides English) at home?” was eliminated because over 75% of the respondents replied “very much or “much.” Higher score means more native language use (less English use). Responses were averaged for the scale score.

*Length of Residence in the Continental United States.* A commonly used proxy for acculturation is an immigrant's duration of residence in the host country (Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005). Students were asked “How long have you been living in this country?” A continuous measure of the total number of years that the students have been in the U.S. was included in the analysis. Higher numbers mean longer time in the continental United States.

*School bonding/sense of school belonging.* A shortened version of the Psychological Sense of School Membership Scale (PSSM) was used in this study. The PSSM is an 18-item self-report questionnaire designed to assess a student's perceived level of attachment to the school; the original scale was developed for use with early and middle adolescent students (Goodenow, 1993a). The scale includes such questions as, “Most teachers at school are interested in me” and “I feel proud of belonging to this school”. Four-point Likert-type response scales were used for each item; responses ranged from 1 (Really False) to 4 (Really True). The scale was found to be reliable for

this sample ( $\alpha = .82$ ). Items were reverse scored if necessary so that higher score represents greater bonding/sense of belonging. Responses were averaged for the scale score.

*Friends' use.* Friends' use was measured by asking respondent two questions such as "How many of your friends drink alcohol or use marijuana or other drugs?" ( $\alpha = .87$ ). Responses were measured on 5-point Likert-type scales, ranging from 1 (none) to 5 (all) (Appendix A). Higher scores mean more friends' use. Responses were averaged for the scale score.

*Relationship with parent/guardian.* Student relationship with their parent/guardian ( $\alpha = .86$ ) was assessed via a three-item scale measuring the degree to which students felt attached to and respected by their parent/guardian. Items included "How often do you.... feel that you can talk to your caretaker about what is on your mind?" "share interests or activities with any of your caretakers:" and "count on your caretakers to help you when you need it." Responses were measured on 5-point Likert-type scales, ranging from 1 (never) to 5 (always) (Appendix A). See Table 2 for summary of multi-item study measures. Higher scores mean closer relationship with parents/guardians. Responses were averaged for the scale score.

*Demographic variables.* Sex and age were also included in the analysis to investigate their potentially moderating role (Appendix A). Male was coded 1. Female was coded 0.

See Table 2 for descriptive analysis of study variables.

Table 2  
Characteristics of multi-item measures

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Measure Scale	# of items	Mean	S.D	Alpha	Skew	Sample Item
Use and Intentions to Use	4	1.45	0.72	0.77	1.694	How likely do you think it will be that you will try alcohol in the next year? <i>1=Not likely 2=Somewhat likely 3=Very likely 4=Already tried</i>
Friends' Use	2	1.53	0.82	0.87	1.874	How many of your friends smoke cigarettes? <i>1=None 2=A Few 3=Some 4=Most 5=All</i>
School Bonding/ Sense of School Belonging	13	3.32	0.45	0.82	-1.290	I can really be myself at school. <i>1=Really False 2=Somewhat False 3=Somewhat True 4=Really True</i>
Identification with Culture of Origin	4	1.23	0.78	0.79	-1.568	I am proud of my family's culture. <i>1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree</i>
Native Language Use	2	3.07	1.20	0.87	-.010	How much do you speak another language (besides English) at school? <i>1=Not At All 2=A Little 3=Somewhat 4=Much 5=Very Much</i>
Relationship with parent/ guardian	3	3.68	1.17	0.86	-.536	How much do you feel that you can talk to your parent/guardian about what is on your mind? <i>1=Never 2=Rarely 3=Sometimes 4=Often 5=Always</i>

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## CHAPTER III

### Results

#### *Descriptive analyses*

Descriptive statistics for the study variables are shown in Table 2.

#### *Correlation analyses*

Pearson product– moment correlation coefficients were calculated. Bivariate correlation analyses for the total sample showed that use and intentions use substances were positively and significantly correlated with native language use ( $r=.18, p<.05$ ) and friends' use ( $r=.33, p<.01$ ) and negatively correlated with school bonding/sense of school belonging ( $r=-.16, p<.05$ ) (Table 3). Relationship with parent also significantly correlated with identification with native culture ( $r=.21, p<.01$ ); friends' use ( $r=-0.20; p<.05$ ) and school bonding ( $r=.36, p<.01$ ); identification with native culture and school bonding also correlated significantly ( $r=.20, p<.01$ ). Also, identification with native culture was significantly correlated with both age ( $r=-.16, p<.05$ ) and gender ( $r=-.19, p<.05$ )

Table 3  
Correlations

<i>(N=166)</i>									
Variable	1	2	3	4	5	6	7	8	9
1. Use/Intentions to Use	1.00								
2. Age	0.13	1.00							
3. Gender	0.08	0.19 *	1.00						
4. Relationship with Parent/Guardian	-0.13	0.06	0.08	1.00					
5. Identification with Native Culture	-0.10	-.16 *	0.19 *	0.21 **	1.00				
6. Native Language Use	0.18 *	0.08	-0.02	-0.08	0.06	1.00			
7. Years In Country	-0.04	-0.01	0.09	0.01	0.06	-0.13	1.00		
8. School Bonding	-0.16 *	-0.03	-0.05	0.36 **	0.20 **	0.17 *	-0.08	1.00	
9. Friends' Use	0.33 **	0.10	0.14	-0.20 *	-0.09	0.14	0.08	-0.03	1.00

Note: Female was coded 0. Male was coded 1.

p < .05\*, p < .01\*\*

### *Regression analysis*

A multiple regression model was used to explore the combined and unique contribution of socio-cultural variables (native language use, years of residence in the U.S., school bonding/sense of school belonging, friends' use, identification with culture of origin, and relationship with parent/guardian) to immigrant adolescents' use and intentions to use substances. The model controlled for age and gender. Additionally, interactions were explored.

Results of the multiple linear regression analysis examining predictors of use and intentions to use substances (Table 4) revealed that the model was significant,  $F(8, 157) = 3.988$ ,  $p < .001$ , adjusted  $R^2 = .127$ . 12.7% of the variance was accounted for by the full model. Standardized values were used to examine the relative contribution of the individual variables in the model. In Step 1 of the model, the mean friends' use scores made the strongest contribution to use and intentions to use substances (standardized  $\beta = 0.297$ ,  $p \leq 0.001$ ) after controlling for other variables. Friends' substance use accounted for 7.95 % of unique variance in use and intentions to use. Native language use also contributed statistically to the model (standardized  $\beta = .160$ ,  $p \leq 0.05$ ) after controlling for the other predictor variables. Native language use accounted for 2.31 % of unique variance in use and intentions to use. School bonding/sense of school belonging also contributed statistically to the model (standardized  $\beta = -0.178$ ,  $p \leq 0.05$ ) after controlling for the other predictor variables. School bonding/sense of school belonging accounted for 2.56% of unique variance in use and intentions to use.

In Step 2, two-way interactions between each of the significant socio-cultural variables and age and gender were examined due to the abundance of research finding

differential results regarding substance use according to age and gender. In order to reduce multicollinearity among variables, all variables were centered before the interaction term was computed (Frazer, Tix, & Barron, 2004). The two-way interaction terms were created through the multiplication of gender by native language use, school bonding/sense of school belonging, or friend's use respectively (i.e., Gender  $\times$  Friends' Use, Gender  $\times$  School Bonding/Sense of School Belonging, and Gender  $\times$  Native Language Use). Additionally, two-way interaction terms were created by multiplying age by native language use, school bonding/sense of school belonging, or friends' use. (i.e., Age  $\times$  Friends' Use, Age  $\times$  Native Language Use, and Age  $\times$  School Bonding/Sense of School Belonging). In Step 2, the addition of the two-way interactions did not increase the amount of variance accounted for in substance to use and intentions to use over and beyond the main effects. For the model examining age interactions, results indicate the following: F change= .563; R2 Square Change=.009; p=.640 and for the model examining gender interactions results indicate the following: F change= .664; R2 Square Change=.011; p=.575. Therefore these interactions are not shown in the model in Table 4.

Table 4

Summary of multiple regression analyses predicting use/intentions to use substances

Predictor	<i>B</i>	<i>SE</i>	$\beta$	Unique Variance*	t value	Significance
Age	0.066	0.073	0.069	0.066	0.908	0.365
Gender**	0.022	0.11	0.015	0.014	0.199	0.842
Relationship With Parent	0.008	0.051	0.013	0.012	0.161	0.872
Identification with Culture of Origin	-0.029	0.072	-0.032	-0.03	-0.407	0.685
Native Language Use	0.096	0.046	0.16	0.152	2.092	0.038
Years in Country	-0.011	0.013	-0.06	-0.058	-0.802	0.424
School Bonding/Sense of School Belonging	-0.285	0.13	-0.178	-0.16	-2.195	0.030
Friends' Use	0.261	0.067	0.297	0.282	3.872	0.000

Model :  $R = .411$  Adjusted  $R^2 = .127$   $F = 3.988$   $df(8, 157)$   $p < .001$

\*Unique Variance is SPSS part correlation squared

\*\* Male=1; Female=0



## CHAPTER IV

### Discussion

The current study aimed to explore whether school bonding/sense of school belonging contributes to understanding substance use and intentions to use substances among immigrant urban adolescent high school students, in addition to that brought by acculturation, parent, and friend variables. That is, the study explored if sense of school belonging/school bonding, in the context of more commonly identified risk and protective factors, played a role in immigrant adolescent substance use and intentions to use. The current study found that in this sample of immigrant Latino freshmen students attending a northeastern urban high school, these socio-cultural variables together explained about 13% of the variance in substance use/intentions to use. School bonding/sense of school belonging indeed did explain a statistically significant amount of the variance, in addition to the common significant predictor friends' use. Interestingly, in this population, low linguistic acculturation (high use of native language) also predicted use in the context of the other socio-cultural variables. Thus, these findings add to the field by identifying that school factors do play a role in immigrant adolescent use and intentions to use and by adding to the conflicting acculturation findings.

At the core of this study was improving the understanding the role that school bonding/sense of school belonging, in the context of other validated protective and risk factors, plays in use and intentions to use substances for immigrant adolescents. Based on existing literature, it was difficult to conclude whether school bonding/sense of school

belonging played an important role in protecting immigrant adolescents against substance use above and beyond acculturation. In the current study, we found that school bonding and sense of school belonging predicted use and intentions to use substances after two types of acculturation were accounted for. Even when controlling for other validated and strong risk and protective factors related to substance use, such as friends' use, this variable still accounted for statistically significant variance in immigrant substance use and intentions to use. School bonding may actually buffer the potentially negative impact of native language use and friends' use for immigrant Latino students. It is also important to note that school bonding/sense of school belonging is the only "modifiable" predictor, at the individual adolescent level, that we found to be significant for predicting use and intentions to use for our sample. School bonding/sense of school belonging is a potentially malleable target for intervention and prevention efforts. Hence schools might explore the promotion of school bonding/sense of school belonging as a means of preventing problem behavior, specifically substance use.

This study employed several proxies of acculturation, including years in country, native language use, and cultural identification. For the Latino immigrant students in the study, use of native language significantly predicted higher use and intentions to use substances. It appears that higher native language use, usually an indicator of lower levels of acculturation, was a risk factor for substance use and intentions to use. This finding contradicts most past research findings, contributing to, instead of clarifying the conflict.

Many researchers have found that on average recent immigrants use substances at a lower rate than immigrants who have lived in the United States for a longer period of time (Gfroerer & Tan, 2003). Then, as immigrants begin to acculturate to the American

way of life, their use begins to approximate use rates of the general U.S. population. These changes in use, often lead to negative health, mental health, educational, and social outcomes (Harris, 1999). Though language use is relatively one-dimensional proxy for the complex process of acculturation, it nevertheless has been found to account for a significant portion of the variance found in more comprehensive measures of acculturation (Cuéllar, Harris, & Jasso, 1980; Marin & Marin, 1991). Perhaps language use for immigrant students in the current study was found to significantly predict use and intentions to use because higher native language use isolates students in the school from pro-social peers and activities, putting them at increased risk of use and intentions to use. It may isolate them from prosocial peers who may “reject” them because they value, promote, reward progress towards higher acculturation (e.g., speaking English). This hypothesis is supported by Dishion and colleagues research finding which indicates that adolescents experiencing peer rejection tend to drift into "deviant peer groups" (Dishion, Patterson, Stoolmiller, & Skinner, 1991). In turn, this process may promote the development of early-onset drug use (Dishion, French, & Patterson, 1995). Additionally, students who speak their native language in school may have a harder time establishing relationships with other students. As stated previously, some researchers have postulated that the Latino culture includes and accepts more substance use. For example, traditional Mexican social norms about drinking behavior include the following norm: “men may drink with little prescription as to when, where, and how much” (Gilbert & Cervantes, 1986). Some speculate that encouragement of identification with cultural practices may be counterproductive to reducing use in immigrant youth (Gil & Vasquez, 1996).

The current study replicated previous research findings that identified a positive relationship between friends' use and individual use among youth. Peer use has been consistently found to be a significant risk factor and/or predictor of adolescent substance use (Bauman and Ennett, 1996). Research consistently finds that as the number of friends who use drugs in one's social network increases, one's own risk for substance use and/or substance use increases. The impact of peers' use in youth use has also been found to hold true for ethnic minority youth and immigrant youth. Several peer related factors play a role. Peer modeling was found to be the strongest predictor of Puerto Rican youth's drug involvement (Velez & Ungemack, 1995). Additionally, recently emigrated adolescents may have less parental support to avoid risk behavior and experience more peer pressures to engage in risk behavior (Blake, Ledskey, Goodenow, & O'Donnell, 2001); and have less confidence utilizing substance refusal skills (Blake et al., 2001). It may be this combination of increased experiences of peer pressure in the absence of confidence to refuse substance that put these youth at risk. Accordingly, the strong impact of peers on use in immigrant populations was replicated in this study.

Due to the great amount of existing research identifying gender and age as playing a moderating role in substance use for Latino youth, we examined interactions. For example, Latina females have been found to use illegal drugs at a younger age than Latino males (SAMHSA Health Information Network, 2008). The regression analyses did not show significant main effect gender or age contributions to substance use/intentions to use or moderation of the main effects of sense of school belonging/school bonding, friends' use, or native language use. Although there are significant relationships between gender and use and intentions to use substances as

indicated by the Pearson correlations, the regression analyses did not find gender and age to make a significant contribution to substance use and intentions to use when other risk and protective factors were controlled for nor did gender or age interact with significant predictor variables in predicting participants' use and intentions to use. It is hypothesized that statistically significant gender effects were not found because the study utilized a combined measure of intentions to use and substance use. Previous literature has found differential use rates per gender and per substance in the Latino youth population. These gender effects may have been “washed out” when substances were combined in the analysis.

Several limitations of this research are acknowledged. The analyses presented in this paper rely on proxies and truncated measures of this complex construct (length of time in the U.S., language use, and cultural affiliation) and do not consider more complex psychological, behavioral and other dimensions of acculturation that have been explored by other researchers (e.g., media use, food preferences, etc.). Another measurement limitation is the combined measurement of use/intentions to use variable. The current study utilized a measure of use and intentions to use, which was additive and gave equal weight to cigarette, alcohol, marijuana, and other drugs use. This is a practice that has been used in previous research, but it can create concern. Some assert that all substances are “not created equally” and do not lead to the same behavioral and social outcomes (e.g., an adolescent reporting smoking cigarettes is quite different from an adolescent reporting using heroin). Specifically for Latino youth, there have been documented differences in the types of substances they are more likely to use than other ethnic groups. For example, alcohol is the most prevalent substance used by Latino youth (SAMHSA

health information network, 2008). By combining substances, important subgroup differences could be lost.

The study was limited in examining country of origin subgroup patterns in substance use and intentions to use substance because of the lack of sufficient numbers of participants within Latino subgroups/birth country. The study included a heterogeneous group of immigrants from diverse cultural and ethnic backgrounds. While including Latino immigrants from diverse cultural backgrounds (Dominican, Guatemalan, Puerto Rican, etc.) was a strength of this study, we were limited in our analyses by the size of these subgroups. This is important to consider in the context of Valencia and Johnson's (2008) review of the acculturation literature, which specifically focused on exploring acculturation as a concept as well as examining its measurement and relationship to substance use/abuse among Latino adolescents. They identified differential effects of acculturation on use for different Latino subgroups in the research literature (e.g., high acculturation was associated with higher "risk" for drinking to relieve stress for Puerto Ricans, while low acculturation was related to a higher likelihood of experiencing alcohol-related problems in Colombians). Additionally, in that this study is cross-sectional, temporal associations could not be examined between behaviors, intentions, and social relationships as level of acculturation changes among immigrant adolescents as they age. Also, pre-migration access to and use of specific substances were not measured by the survey, and these use patterns may affect use after migration.

Despite these limitations, the study's findings have direct implications for the design of prevention strategies and future research. Findings indicate that school bonding/sense of school belonging, a modifiable variable, predicted use and intentions to

use for immigrant adolescents, above and beyond acculturation and the other more known contributor peer use. As schools face a changing demographic, which includes a large percentage of immigrants and children of immigrants, they may consider developing intervention and prevention programs to address school bonding/sense of school belonging in this population. Though interest in sense of school belonging/school bonding and its relationship to outcomes (specifically educational outcomes) has been increasing in recent years, there has not been substantial work in understanding the role of sense of school belonging/school bonding and its relationship to outcomes (social and psychological) for immigrant students. Further research is needed to develop a comprehensive understanding of this relationship.

Latino immigrant children and youth have become a sizable population in the United States and in the country's school systems. Findings from the current study underscore the importance of studying this population and understanding the role of previously under studied factors in this population, such as sense of school belonging and school bonding. These characteristics can inform culturally specific services for high risk (those with high intentions to use and other known risk factors) and substance-using immigrant youth. For example, differences in substance use and intentions to use in native language speaking youth (low acculturated) in this study could suggest there are other unmeasured behaviors or norms in their environments leading to use or intentions to use. Programs that strengthen school bonding and sense of school belonging and address emerging problems, including risk factors for substance use throughout adolescence, may decrease immigrant adolescent use of substances.

In summary, the current study examined the extent to which immigrant high school students' levels of acculturation, school bonding/sense of school belonging, relationship with parents, and friends' use would predict their use and intentions to use substances. Consistent with past research in the general adolescent population, youth who have fewer friends who use substances and have higher levels of school bonding/sense of school belonging were less likely to report using substances and/or having intentions to use in the study's sample of urban high school immigrant Latino freshmen students. Contrary to previous literature examining non-clinical immigrant youth, the current study found that higher use of native language (low American acculturation) also predicted students' use and intentions to use. From the current study, it was not yet clear, however, if (1) the temporal relationships among these variables and (2) the relationships found vary across different subgroups of Latino immigrant adolescents. Although research has examined immigrant youth substance use in the context of acculturation, less has been known previously about the role of sense of school belonging/school bonding in that relationship for immigrant adolescents. The findings of this study suggest school bonding/sense of school belonging makes an independent contribution. Continued investigation is needed to inform schools and communities as they develop intervention and prevention efforts for this rapidly growing population of youth who are facing many struggles within the school and community.



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APPENDIX A  
Survey Questions

Demographic Questions

Are you:

1. Female (0)
2. Male (1)

How old are you?

\_\_\_\_\_ years old

Circle the group that best describes who you are:

1. African American/Black
2. Caucasian/White
3. Latino/Hispanic
4. Asian American
5. Other: \_\_\_\_\_

How long have you been living in this country?

I have been living in this country for \_\_\_\_\_ total years.

What country were you born in?

I was born in \_\_\_\_\_

Use/Intentions to Use

1. How likely do you think it will be that you will try cigarettes in the next year?

Not Likely	Somewhat Likely	Very Likely	I already tried
1	2	3	4

2. How likely do you think it will be that you will try alcohol in the next year?

Not Likely	Somewhat Likely	Very Likely	I already tried
1	2	3	4

3. How likely do you think it will be that you will try marijuana in the next year?

Not Likely	Somewhat Likely	Very Likely	I already tried
1	2	3	4

4. How likely do you think it will be that you will try a drug in the next year?

Not Likely	Somewhat Likely	Very Likely	I already tried
1	2	3	4

#### Acculturation-Cultural Identification

1. My family's culture(s) has had a positive impact on my life

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

2. I am familiar with my family's cultural practices and customs

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

3. I admire people who are from my family's culture(s)

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

#### Linguistic Acculturation (Native Language Use)

1. How much do you speak another language (besides English) at school?

Not A All	A Little	Somewhat	Much	Very Much
1	2	3	4	5

2. How much do you speak another language (besides English) with friends?

Not A All	A Little	Somewhat	Much	Very Much
1	2	3	4	5

School Bonding/Sense of School Belonging

1. It is hard for someone like me to be accepted at this school.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

2. Most teachers at school are interested in me.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

3. Sometimes I feel as if I don't belong at this school.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

4. People at this school are friendly to me.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

5. I feel very different from most other students here.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

6. The teachers here respect me.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4



7. People here know I can do good work.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

8. I feel proud of belonging to this school.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

9. There's at least one teacher or other adult in this school I can talk to if I have a problem.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

10. Teachers here are not interested in people like me.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

11. People here notice when I'm good at something.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

12. Other students here like me the way I am.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

13. I can really be myself at this school.

Really False	Somewhat False	Somewhat True	Really True
1	2	3	4

Friends' Use

1. How many of your friends smoke cigarettes?

None	A Few	Some	Most	All
1	2	3	4	5

2. How many of your friends drink alcohol or use marijuana or other drugs?

None	A Few	Some	Most	All
1	2	3	4	5

Relationship with Parent/Guardian

1. How often do you think that your parent/guardian(s) really understand how you feel?

Never	Rarely	Sometimes	Often	Always
1	2	3	4	5

2. How often do you feel that your parent/guardian(s) respect you?

Never	Rarely	Sometimes	Often	Always
1	2	3	4	5

3. How often do you feel that you can talk to your parent/guardian(s) about what is on your mind?

Never	Rarely	Sometimes	Often	Always
1	2	3	4	5