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Examining Implicit Acculturation and Bicultural Identity Integration

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Dedications

I would like to dedicate this dissertation to my beautiful wife Christina Miramontez and daughter Isabella Christina Miramontez whom have made many sacrifices for me to finish my dissertation. I will always love and appreciate the both of you for being my family and always being there for me when times were rough. Without the two of you by my side this dissertation would have never been finished. Thank you.

ABSTRACT OF THE DISSERTATION

Examining Implicit Acculturation and Bicultural Identity Integration

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With the increase of cross-cultural contacts worldwide, new types of ethnic/cultural identities start to develop and take shape for individuals. Most of this research has examined the cross-cultural influences on identity by asking individuals to consciously answer questions using self-report measures. What is less known is to what extent cross-cultural contact influences identity outside of conscious awareness? Thus, the present research examined to what extent individuals implicitly incorporate cross-cultural knowledge and/or experiences into their self-concept.

Due to the limitations of self-report measures in measuring the self-concept, the current research used the Implicit Associate Test (IAT) (Greenwald, McGhree, & Schwartz, 1998) to assess implicit representations of the self-concept. The IAT's main purpose is to measure the relative strength of automatic associations between mental representations of concepts. In particular, Study 1 examined differences in the strength of

identification with both ethnic (e.g., Mexican) and mainstream (e.g., American) cultures among multigenerational Mexican American college students. That is, the extent to which Mexican American participants implicitly endorsed Berry's (2003) four acculturation strategies (i.e., integration, separation, assimilation, marginalization) using a 3 IAT design. Study 2 went beyond the realm of Study 1 and examined the underlying dynamics of bicultural identity at an implicit level. That is, the extent to which Mexican American bicultural college students implicitly negotiates or integrates their dual cultural identities into their self-concept. A phenomenon known as Bicultural Identity Integration (BII; Benet-Martínez & Haritatos, 2005)

The findings across both studies are consistent with Devos (2006) and with the image rising from modern research on acculturation and bicultural identity that individuals often find themselves immersed into multicultural surroundings and define themselves along numerous cultural boundaries and incorporate into their self-concept knowledge about a variety of cultures. An important innovation of the present research provided evidence for acculturation strategies and the integration of bicultural identities into the self-concept through assessments of thoughts that cannot be consciously controlled. That is, the results of both studies clearly demonstrated that at least under certain circumstances, cultural knowledge and/or experience can implicitly be incorporated into the self-concept.

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Examining Implicit Acculturation and Bicultural Identity Integration

In today's world it is nearly impossible to avoid the technological marvels that influence our daily lives. For instance, a typical night for any American might consist of playing online poker with 5 people from various cultures from around the world, watching a news broadcast of events unfolding in the Middle East, receive a telemarketing phone call from a center in India, and playing video games on a Japanese Nintentdo WII system. Not to mention the internet, texting, instant messaging, email, and cell phones all allow us to directly communicate and interact with individuals in other cultures that are half way around the world. As technology grows, cultures from around the world that were once isolated from each other are now interacting with one another.

Technology is just one of many effects of globalization. Other effects of globalization include economic and financial (e.g., Word Bank), political (e.g., United Nations), ecological (e.g., Global Warming), legal (e.g., International Criminal Court), and cultural (e.g., Acculturation). Of particular interest are the cultural impacts of globalization. For instance, seeing a McDonald's in Delhi or a Starbucks Coffee located in Beijing's Forbidden City are blazing symbols of the wonders of globalization. Global brands such as McDonalds and Starbucks Coffee are considered icons and carriers of American culture, whereas the Forbidden City and Delhi are considered symbols and carriers of Chinese and Indian cultures. The key premise about the cultural impacts of globalization is that it brings diverse cultures together. This type of multicultural environment can potentially allow for individuals to define themselves along multiple ethnic or cultural boundaries. The truth about globalization is that it offers a much more

mixed, complex picture that contributes to a rich tapestry of multicultural experiences and identities for individuals.

Globalization-based acculturation has led individuals from more and more countries to become multicultural. Historically, globalization was driven by factors such as colonization and slavery with the intent of creating a homogenized society. In contemporary times, globalization-based acculturation serves the same purpose but is driven by other issues such as immigration, speed of travel and communication, and transnationalism. The difference is that although globalization is nothing new, it is more pervasive today than ever before. There is no doubt that as globalization advances in the twenty-first century, intercultural contact is increasingly becoming a worldwide norm consequently having an affect on the individual.

With the increase of cross-cultural contacts worldwide, new types of ethnic/cultural identities start to develop and take shape for individuals. Chen, Benet-Martinez, and Bond (2008) argue that globalization-based acculturation stresses identity issues as a central psychological outcome of globalization for individuals who define themselves along multiple ethnic or cultural boundaries. As a result, the cross-cultural influence on identity has received a good amount of attention in psychology over the two past decades (Benet-Martínez & Haritatos, 2005; Benet-Martínez, Leu, Lee, & Morris, 2002; Berry, 2003; Haritatos & Benet-Martínez, 2002; Hermans & Kempen, 1998; Hong, Morris, Chiu, & Benet-Martinez, 2000; Laframboise, Coleman, & Gerton, 1993; Padilla, 1994; Phinney & Devich-Navarro, 1997; Rotheram-Borus, 1993; Tsai, Ying, & Lee, 2000). Most of this research has examined the cross-cultural influences on identity by asking individuals to consciously answer questions using self-report measures. What is

less known is to what extent cross-cultural contact influences identity outside of conscious awareness? In fact, recent advances in the field of implicit social cognition argue that self-related processes frequently occur outside of conscious awareness or control (Devos & Banaji, 2003). Thus, the present research examined to what extent individuals implicitly incorporate cross-cultural knowledge and/or experiences into their self-concept. As such, by understanding the basic social cognitive principles that underline the cultural dynamics of globalization on identity will help to advance the psychological research on culture and psychology.

The cultural dynamics globalization has brought about in the world today is met with both support and criticism. Globalization is a complex phenomenon and has many different meanings. One widely accepted definition refers to globalization as a process by which regional economies, societies, and cultures become integrated through a globe-spanning network of communication and exchange (Bhagwati, 2004). Proponents of the cultural impacts of globalization believe that it is a profoundly enriching process that opens minds to new experiences, removes cultural barriers, strengthens the cultural diffusion of human rights, and accelerates cultural change. Proponents further believe that globalization will bring about a multicultural global environment in which people from different nations and cultural backgrounds will be able to freely share their ideas and practices and respect, appreciate and accept those who are of different origins (Appiah, 2006)

In contrast, critics of the cultural impacts of globalization argue that it will destroy local cultures and undermine people's sense of community and ethnic/cultural identity. As a result, people will resist the shifting cultural dynamics of globalization and will

ignite cultural movements to preserve local culture. Critics are particularly worried about the impacts global brands have on local cultures, such as the McDonalds in Delhi or the Starbucks Coffee shop located in Beijing's Forbidden City (Chiu & Cheng, 2007).

Globalization-Based Acculturation to Psychological Acculturation

Whether one is a critic or proponent of the cultural impacts of globalization, one notion that both sides can agree on is the widespread cultural influence globalization has at both a macro and micro level. This widespread globalization influence is often referred to as acculturation which according to Berry (2003) exists at two levels: 1) a group/cultural level (macro level) and 2) an individual/psychological level (micro level). Group acculturation refers to changes that occur within a society or culture when two different groups come into direct continuous contact (Berry & Sam, 1997). After such contact, changes in cultural patterns within either or both cultural groups become apparent. Psychological acculturation refers to changes that take place in an individual as a result of continuous and direct participation in a culture-contact situation (Berry, 2003). Thus, a linkage is sought between the acculturation of an individual's group and the psychological acculturation of that individual.

In the past, there has been debate as to how to conceptualize psychological acculturation; is the construct unidimenisional or bidimensional? There is a growing consensus that psychological acculturation is not a linear process of assimilating and acquiring the host society's values and behaviors at the expense of giving up one's original cultural or ethnic identity (Laroche, Kim, Hui, & Tomiuk, 1998). Bidimensional models of acculturation suggest that identifications with different cultural orientations are not mutually exclusive (Nguyen, Messe, & Stollak, 1999). The bidimensional model

refers primarily to immigrant and ethnic minorities who are engaged in maintaining or preserving ethnic cultural identity and are also motivated or allowed to identify with the host culture (Berry, 2003). When these two dimensions traverse they form four distinct acculturation strategies: 1) *Assimilation* depicted as a strong identification with the host culture while weakly identifying with one's own ethnic culture, 2) *Separation* referred to as strong identification with one's own ethnic culture while weakly identifying with the host culture, 3) *Marginalization* characterized by weak identification with both cultures, and 4) *Integration* described as strong identification with both cultural orientations (see Figure 1). Bidimensional models of acculturation have been shown consistently to be more advantageous than unidimensional models across an array of domains (Abe-Kim, Okazaki, & Goto, 2001; Cuellar, Arnold, & Maldonado, 1995; Lieber, Chin, Nihira, & Mink, 2001; Ryder, Alden, & Paulus, 2000; Shephenson, 2000; Tsai, Ying, & Lee, 2000).

Psychological Acculturation and Social Cognition

There has been a wealth of research in the field of psychological acculturation (Berry, 2003). Much of this research has relied exclusively on the use of questionnaires to examine acculturation at a conscious level, i.e., people consciously dwelling on their acculturation experiences when asked via questionnaire methodology. However, due to the fact that globalization is a constant influential force in our daily lives, the question arises: "to what extent is psychological acculturation experienced out of reflective conscious awareness?" Some acculturation researchers state that advancements within the social cognition framework may benefit research on issues such as acculturation (Padilla & Perez, 2003; Tsai, Chentsova-Dutton, & Wong, 2002a). Furthermore, the

dynamic constructivist approach (a social cognition orientation) may lead to fresh insights about the psychology of acculturation (Hong et al., 2000).

To get a better idea of how psychological acculturation can benefit from the social cognition perspective it is important to define social cognition and understand how it works. Social cognition refers to how people interpret, analyze, and remember information about the social world (Pennington, 2000). It is concerned with how people process social information and apply this information to social situations. One central concept within the social cognition literature is "schemas".

Schemas are defined as generalized knowledge mental structures about the physical and social world, and how people interact with others in particular situations and with different kinds of people (Gilovich, Keltner, & Nisbett, 2006). To best illustrate how schemas work, it would be useful to compare them to a building under construction. That is, imagine the infrastructure of an unfinished building as a generalized mental structure that provides the framework to fill in the gaps of information derived from the surrounding social environment. Individuals use schemas to organize current knowledge and provide a framework for future understanding.

Schemas function as mental shortcuts to enable people to simplify the world. They allow for individuals to have certain expectations and prior knowledge so that they can navigate daily life. Schemas which are often learned through experiences and socialization provide a sense of prediction and control and help guide attention. In essence schemas functions so as to allow for individuals to have an active construction of social reality (Augoustinos & Walker, 2000).

Schemas are organized in memory as associative networks of concepts. In social

cognition, concepts represent persons, groups, and attributes. These associative networks are bidirectional relationships between pairs of concepts (Greenwald, Banaji, Rudman, Farnham, Nosek, & Mellott, 2002) and are variable in strength. In the associative networks, similar concepts are clustered together. Strength of association is reflected as when a particular concept is activated and related concepts are activated as well. Concepts are also assumed to be activated by external stimuli.

The presence of schemas does not mean that they influence cognition in a continuous fashion in all cases. Whether a schema is influential or not depends on the principles of availability, accessibility, salience, and applicability (Higgins, 1996; as cited in Nosek & Hansen, 2008). *Availability* refers to storing associative information in memory. In order for a schema to potentially influence thought and behavior, it first has to be stored in memory (made available). For instance, a person who plays baseball on a regular basis has stored in memory the rules of the game and the particular behaviors associated with baseball such as swing, hit the ball, and run versus finding themselves in a novel situation such as playing cricket for which they have no available information to govern their thoughts and behaviors. *Accessibility* refers to how easily a concept comes to mind. When a concept is more accessible it can be quickly activated and used in a particular situation. For example, if someone is in a pool then the concept of swimming is readily accessible relative to the concept of walking. *Saliency* refers to the extent to which particular features of a concept stand out in the associative network relative to other features. For instance, a woman in a room with 10 men indicates that the women's features stand out relative to the men. *Applicability* refers to the particular fit between the concepts in the associative network and incoming information from the environment. For

instance, the person playing baseball knows when an opposing teammate throws a ball at he/she (incoming information) that they are supposed to hit the ball with a bat (concept stored in associated network that fits the incoming information of the ball being thrown at them).

Individuals have different types of schemas. Of particular interests are self-schemas (Augoustinos & Walker, 2000; Fiske & Taylor, 1991; Pennington, 2000). According to Markus (1977) self-schemas refer to "cognitive generalizations of the self, derived from past experiences, that organize and guide the processing of self-related information contained in the individual's social experiences" (p. 38; as cited in Augoustinos & Walker, 2000) In particular, the self-concept is the association between the concept self with one or more attributes (Greenwald et al., 2002). In other words, the structure of the self is a network of associations (see Figure 2) (Devos & Banaji, 2003). Recent work in social cognition has identified the self-concept as a central unit in the structure of social knowledge (e.g., Greenwald, 1981; Greenwald & Pratkanis, 1984; Kihlstrom & Cantor, 1984; Kihlstrom & Klein, 1994; as cited in Greenwald et al., 2002). There are three major implications of the self-concept. First, information about the self-concept is processed faster and more efficiently, especially consistent information. Second, one retrieves and remembers information that is relevant to one's self-concept. Third, one will tend to resist information in the environment that is inconsistent with one's self-concept.

In essence, the social cognition framework provides an alternative approach to investigating acculturation, namely how psychological acculturation operates at an implicit level. To get a better comprehension of how psychological acculturation can

operate implicitly it is important to understand how culture is defined in relation to the self-concept.

Culture and the Self-Concept

"Culture" has been traditionally operationalized as a contextual variable in cross-cultural psychology. That is to say, it is often defined at the macro level (e.g., value system, ecology, political/economic structure) as being outside of and apart from the individual (Benet-Martinez & Oishi, 2008). However, over the last two decades a new perspective, called "cultural psychology," stemmed from the conceptual and methodological limitations of linking the concept of culture to the individual, a trend that dominated the traditional cross-cultural psychology perspective. Cultural psychology views culture from within rather than apart from the individual and examines how it influences actions, feelings, and thoughts. In other words, culture and the individual are seen as interdependent rather than as independent entities (Greenfield, 1997; Hong et al, 2000; Markus & Kitiyama, 1991). Both of these approaches to culture have their strengths and weaknesses, but what is apparent about the cultural psychology studies that have been conducted over the past decade that goes beyond the cross-cultural perspective is a firm declaration that "culture is a key determinant of what is means to be a person" (Benet-Martinez & Oishi, 2008, p. 3).

According to Hong and colleagues (2000) culture, as defined within the individual, is based upon two premises. First, culture is internalized as a loose network of specific systems of meaning which are activated by the context. Second, individuals contain, within themselves, multiple cultural meaning systems some of which may be contradictory to others. Based upon these two premises, culture can exist within the

individual as a network of specific knowledge structure domains and a single individual can have various cultural meaning systems (Hong et. al., 2000; Verkuyten & Pouliasi, 2002; Wong & Hong, 2005). Clearly, this type of research suggests that culture should not only be conceptualized as a situational/contextual variable which exists outside of the individual, but also at a psychological level. That is, culture can also be seen as a socio-cognitive variable that exists within the individual. Capitalizing on this recent literature, psychological acculturation can be thought of as two types of associative networks of cultural information both of which can influence an individual's self-concept, which are shaped through repeated experiences and interactions.

The bidimensional model of psychological acculturation shows that culture is a multidimensional phenomenon rather than a singular construct recorded invariantly across minds. In considering culture as an integrated and highly general knowledge structure that entails relying on it continuously perhaps makes it too easy to reject the substantial influence of culture on individuals. Cultural perceptions vary across individuals and reflect the fact that individuals have unique, personal experiences of their cultural context(s) (Fiske, Kitayama, Markus, & Nisbett, 1998). To better understand this phenomena perhaps it is best to use Rohner's (1984) metaphor that compares culture to a game (with various rules) and people as the players (as cited in Benet-Martinez & Oishi, 2008). In particular, players have the choice of picking from various strategies and options, and perhaps at times even violating the rules if it serves their individual needs and purposes. That is, the degree to which individuals follow the rules varies from person to person, depending on their personal moods, preferences, and specific social context. This will often result in a great deal of within-culture heterogeneity and

individual differences in the extent to which people endorse, internalize, and utilize particular rules that serve their own interests (Benet-Martinez & Oishi, 2008).

Since culture varies across individuals within a given context, the way in which cultural information is processed from our environment is not entirely dependent on an integrated domain-general knowledge structure that entails relying on it continuously. In other words, cultural information which is cognitively processed from our environment employs bits and pieces from our 'cultural toolbox' to influence thoughts and behaviors. To corroborate this fact, Hong and colleagues (2000) showed that cultural information is processed using only a small subset of an individual's schematic knowledge structure. This subset comes to the forefront and guides the interpretation of a given environmental stimulus within bicultural individuals.

Culture, Self-Concept, and Dual-Processing Models

The manner in which cultural information is processed is very important to consider. Recent research in social cognition has revealed a variety of dual-systems models that distinguish between how information is processed implicitly, impulsively or associatively versus explicitly, reflective, or propositionally (Chaiken & Trope, 1999; Gawronski & Bodenhausen, 2006; Smith & DeCoster, 1999; Strack & Deitsch, 2004; Wilson, Lindsey, & Schooler, 2000; as cited in Nosek & Hansen, 2008). These models suggest the extent to which implicit and explicit experiences operate independently or interactively. One important note about dual-system models is the term implicit. Implicit is often used to mean a lack of awareness or unconsciousness and includes self-regulatory processes meant to inhibit an unwarranted response (Devos, 2008). Thus, the term

"implicit" refers to processes that occur outside of conscious awareness and without conscious control (Devos & Banaji, 2003).

According to Strack and Deitsch's (2004) dual-systems model, thinking, and behavior are functions of two different systems of information processing, namely the reflective and the impulsive systems. In particular, the reflective system suggests that behavior is the result of propositional reasoning. For example, thinking about one's life may lead to the conclusion "I am joyful". Using this type of reasoning makes information accessible in the form of propositions. Propositions consist of concepts (e.g., 'I' and 'joyful') that are linked by a relation (e.g., 'am'). These propositions are usually produced through introspection. The impulsive system, on the other hand, processes information by the spread of activation between concepts that are associatively linked (e.g., 'I'-'joyful'). Associative links are activated spontaneously and are only indirectly accessible by introspection.

A common assumption of research on psychological acculturation is that it involves conscious representations of the self-concept that are generated through an introspective reasoning process of propositions. Individuals are viewed as playing a consciously active role in ascribing meaning, implementing choices, pursuing goals, or initiating actions. This assumption often leads to the belief that psychological acculturation could only be examined through the process of proposition reasoning. However, research on the dual-systems model would suggest otherwise. The differences between the evaluation of implicit and explicit self-concepts should be understood in terms of their underlying mental processes (Gawronski & Bodenhausen, 2006). The implicit self-concept reflects automatic responses which result from the particular associations that are triggered automatically when a person encounters a relevant stimulus. The explicit self-concept, on the other hand, is best considered as evaluative

judgments about the self-concept which stem from the processes of propositional reasoning. Based on the common assumption and practice that psychological acculturation involves examining the explicit self-concept through the process of proposition reasoning, it has often been examined via questionnaires which ask respondents to describe their acculturation experiences.

Although examining acculturation using a questionnaire methodology is widely accepted and a valid way to assess the topic, there are two limitations which need be addressed. First, questionnaire answers only refer to representations of the explicit self-concept that are accessible through introspection. Not all knowledge, beliefs, or attitudes of an individual are necessarily privy to introspection (Banaji, 2001). Therefore, self-reports do not provide an accurate assessment of people's thoughts and behaviors. Second, questionnaire answers are vulnerable to self-presentational biases such as social desirability, impression management, or demand characteristics. Even though self-presentations biases have not been systematically evaluated in the acculturation literature, Rudmin (2003) warns us that self-report of acculturation experiences may be affected by normative demands and response bias. Due to the limitations of self-report measures and research on dual-systems model, there is a need to have access to procedures that are not restricted to these limits of explicit questionnaire measures and which are appropriate for the assessment of implicit representations of the self-concept. Over the past decade, progress has been made with the development of these implicit measures, particularly the Implicit Associate Test (IAT) (Greenwald, McGhree, & Schwartz, 1998).

Implicit Association Test (IAT)

The IAT's main purpose is to measure the relative strength of automatic associations between mental representations of concepts. A basic assumption of the IAT is that if two concepts are highly associated, the sorting task will be easier (i.e. faster) when the two associated concepts share the same response key than when they share different response keys. The IAT measures differential associations through reaction time.

The IAT is usually administered in a block of several trials. A trial is a one-word presentation, whereas a block is a series of trials where the category decisions are the same throughout a block. Most commonly, one IAT session consists of seven blocks, however, the number of blocks that determine one IAT session may vary depending upon the purpose of the research. An example of how the IAT works, using seven blocks, is as follows. In the first block, participants are instructed to match an item (e.g. Rose vs. Cricket) with the appropriate concept (e.g. flower vs. insect name) as quickly as possible. In a second block, participants are asked to distinguish between pleasant and unpleasant attributes or traits such as love and death. Thereafter, the two concepts are then paired with the pleasant or unpleasant attributes or traits (e.g. Flower with pleasant; Insect with unpleasant). For the remaining blocks, the positions of the words are counterbalanced (e.g. Flower with unpleasant; Insect with pleasant). The degree of association between two concepts is measured by the differences in response time to compatible (e.g. Flower and pleasant; Insect and unpleasant) and incompatible (e.g. Flower and unpleasant; Insect and pleasant) blocks.

Culture and IAT

In recent years there has been much criticism in regards to what the IAT actually measures. Critics contend that the IAT measures associations that reside in the cultural environment, rather than in the person (Arkes & Tetlock, 2004; Karpinski & Hilton, 2001; Olson & Fazio, 2004). However, proponents argue that it measures individual differences (Banaji, Nosek, & Greenwald 2004; Nosek & Hansen, 2008; Nosek & Hansen, 2008). To support this argument, Nosek and Hansen (2008) showed that the IAT has little to no relationship with cultural knowledge after accounting for common variations in explicit measures. Critics argue that a problem with the Nosek and Hansen (2008) methodology was that extrapersonal associations (Pleasant/Unpleasant) were used as evaluative components to measure the IAT-cultural knowledge relationship, when indeed it should be measured using a more personalized procedural approach (Olson & Fazio, 2004). For example, the extrapersonal attribute-pair of pleasant/unpleasant words were associated with concept-pairs such as Black American-White American (Studies 1 & 4), Peanuts-Shellfish (Study 2), John Kerry-George Bush (Study 3), and Candy Bar-Apple (Study 5). What should have been used was a more personalized procedural approach that included personalized attribute-pairs such as I Like/I Dislike.

To test this proposition, Nosek and Hansen (2008) conducted a second set of experiments to see if the IAT has any relationship with cultural knowledge after accounting for personalized changes in IAT procedures. Results indicated that there is no relationship between the IAT and cultural knowledge after accounting for such changes. The procedural change that took place in their methodology involved moving from normative judgments in the original IAT procedure (Good/Bad, Pleasant/Unpleasant),

which was the type of methodology used in the first Nosek and Hansen (2008) paper mentioned earlier, to more idiosyncratic judgments in the personalized IAT procedure (I Like/I Dislike). The target concept that these judgments were being paired with were attitudes toward George Bush relative to John Kerry, which represented cultural knowledge.

There are a couple reasons as to why the aforementioned studies have found little evidence in support of an IAT-culture relationship. First, cultural knowledge serves as a poor proxy for cultural experience. Nosek and Hansen (2008) suggest that cultural knowledge may be distinct from personal knowledge, and that cultural experience may be what is manifested in implicit evaluation. That is, measuring cultural knowledge is not an optimal way to capture the cultural experience that resides in implicit evaluations. A more profound reason is more of a conceptual issue than a methodological one as previously suggested in the Nosek and Hansen studies. The problem may lie in distinguishing person from culture. Nosek and Hansen (2008) argue that "Putting aside the conceptual ambiguities of distinguishing person from culture and person from extrapersonal, we tested whether the personalizing changes influence the relationship between the IAT and cultural knowledge" (p. 9). Clearly, the authors recognize that there are conceptual limitations that affect the IAT-culture relationship and there is a need to address these limitations.

The Nosek and Hansen studies posit that there is conceptual haziness when distinguishing person from culture in implicit social cognition research. Their argument is consistent with the conceptual crisis that plagued the cross-cultural psychology perspective for decades prior to the emergence of the cultural psychology approach. Too

date, the Nosek and Hansen studies have empirically examined the IAT-culture relationship and have conceptualized culture from a traditional cross-cultural psychology perspective as being a contextual/situational variable that is outside of and apart from the individual. For instance, the authors second set of experiments examined the IAT-cultural knowledge relationship after accounting for personalized changes in IAT procedures. They used idiosyncratic judgments such as I Like/I Dislike when paired with attitudes toward George Bush relative to John Kerry, which represented cultural knowledge. This type of methodology separates culture from the individual.

Nosek and Hansen employ a type of methodology that personalizes the IAT procedures when examining the IAT-culture relationship, however their procedure fails to examine the integration of cultural knowledge and/or experience into the self-concept. The idiosyncratic judgments of I Like/I Dislike refers to a personal attitude towards an object and does not focus directly on the self-concept per se. This approach is not ideal for examining the IAT-culture relationship. The approach that is optimal when examining the IAT culture-relationship is best illustrated in the research on the IAT-gender relationship. The IAT-gender relationship often uses concept contrast judgments such as female-self (I-Women) and male-other (They-Man) and vice versa. This type of methodology is ideal for directly assessing the self-concept in relation to cultural knowledge and/or experience and needs to be used when examining the IAT-culture relationship.

To truly conceptualize and measure culture as a socio-cognitive variable that exists within the individual in assessing the IAT-culture relationship means that the culture and the individual need to be viewed as interdependent rather than as independent

entities. This phenomenon is best illustrated in the cultural-frame switching studies which experimentally manipulated culture within bicultural individuals by using a cultural priming technique (Hong et. al., 2000; Verkuyten & Pouliasi, 2002; Wong & Hong, 2005). When the Hosek and Hansen studies are compared to the cultural-frame switching studies, it becomes quite apparent that the Nosek and Hansen studies fall short of truly conceptualizing culture as a socio-cognitive variable. In all, implicit social cognitive researchers need to adopt a cultural psychology approach to culture, which would operationalize culture as a socio-cognitive variable that exists within the individual. By doing so, implicit social cognitive researchers will have the distinct advantage and opportunity of examining the IAT-culture relationship with better accuracy.

In fact, over the past couple years IAT proponents have argued that even though the IAT measures something in the person, these individual differences are derived from cultural influences. To corroborate this perspective, Nosek and Hansen (2008) argue

> "The IAT, like other implicit measures, is thought to measure concept-evaluation associations that have been developed from experiences through mechanisms such as classical conditioning. Culturally bound experience is comprised by nationality, state, city, neighborhood, school, family, birth order, friend, gender, ethnicity, age, social class, spoken language, occupation, and any number of other social categories and contexts. Implicit evaluations are presumed to reflect variations in those experiences. Experiences may be culturally bound or culturally independent, but that distinction is irrelevant for implicit evaluation. What is important for implicit evaluation is that the experience must happen, associations must form, and those associations must be available" (p. 589.)

By adopting a cultural psychology perspective to examine the IAT-culture relationship, there is a need to assess more restricted areas of this relationship, namely acculturation.

Examining Implicit Bicultural Identity (Integration Strategy)

To date, there is only one researcher who has examined acculturation, more specifically the integration strategy at both the implicit and explicit level. Devos (2006), using the IAT, examined the extent to which Mexican American and Asian American college students identified with American culture and their ethnic culture. Devos (2006) found that the both Mexican American and Asian American participants strongly and equally identified with both cultures across two levels of awareness. In particular, results were consistent across two studies in that both Mexican American and Asian American college students strongly identified with American culture when pitted against a series of primes which represented a general category of "Other" cultures in one IAT. Simultaneously, both ethnic groups also displayed a pronounced relationship between self and ethnic culture when pitted against the general category of "other" cultures in a second IAT. The third IAT directly pitted the American culture and ethnic culture against one another and results showed that identification with both cultural orientations created a stalemate. In all, these set of data provide clear evidence for an implicit bicultural identity among Mexican American and Asian American college students.

Devos's findings are in line with the portrait that is emerging from current research on acculturation (Benet-Martinez et al., 2002; Hong et al., 2000; Tsai et al., 2000). That is, at least under certain circumstances, individuals are successfully internalizing or identifying with more than one culture. Such findings are inconsistent with the literature which states that cultural identities are mutually exclusive. On the contrary, individuals often find themselves immersed into multicultural surroundings and

define themselves along numerous cultural boundaries and incorporate into their self-concept knowledge about a variety of cultures.

Devos also found that not only bicultural identity surfaces at an implicit level but also at a conscious level of awareness. A strong attachment to both American culture and ethnic culture appeared from responses based on deliberate or controlled processes. That is, when Mexican American and Asian American college students reflect on their explicit self-concept, introspect about what is important to them, and deliberately evaluate their attachment to different cultures, a strong bicultural identity emerges.

One could argue that Devos's obtained results are not the product of the associative links between the self-concept and the culture, but the extent to which individuals are familiar with the cultural icons. The familiarity account states that the techniques employed by Devos are not tapping cultural identification, but familiarity with cultural icons. However, research using IAT procedures have examined the familiarity with stimuli account and have found no influence on IAT performance (Dasgupta, McGhee, Greenwald, & Banaji, 2000; Dasgupta, Geenwald, & Banaji, 2003; Ottaway, Hayden, & Oakes, 2001; Rudman, Greenwald, Mellot, & Schwartz, 1999; as cited in Devos, 2006). A second version of the familiarity account posits that differences in familiarity with the broadly defined cultures could account for Devos's results rather than familiarity with the stimuli itself. Based on the familiarity accounts proposed by Devos, he argues that "more systematic investigations are needed to fully dissect how familiarity and experiences foster associations between the self and cultures, and how theses associative links determine the experiences that, knowingly or unknowingly, individuals seek out" (p. 27).

Although Devos (2006) provides firm evidence for a bicultural identity (integration strategy) through assessments of thoughts that cannot be consciously controlled, what is not known is to what extent do individuals who experience psychological acculturation also identify with other acculturation strategies (e.g. Assimilation, Separation, and Marginalization) at an implicit level. Given the lack of research on assessing acculturation issues through assessments of thoughts that cannot be consciously controlled, there is a need to examine the extent to which acculturation strategies may exist at an implicit level. Furthermore, Devos calls for future research to examine the extent to which cultural experiences foster associative links between the self-concept and the culture. Specifically, are the Mexican Americans and Asian American college students in Devos's study simply identifying themselves as 'bicultural' at an implicit level based on the familiarity argument or do their myriad of cultural experiences such as such having knowledge of both cultures, behaving in appropriate roles according to both cultures, having the confidence to perform effectively in both cultures, communicating in both cultures, psychologically adjusting to both cultures, and having social support networks in both cultures foster the associations between the self and their dual cultural orientations.

In fact, literature on psychological acculturation posited that stress response to demanding life events are often rooted in cultural experiences, a phenomenon known as acculturative stress. Research on acculturative stress has revealed that the integration strategy to be the least stressful, whereas marginalization is most stressful (Berry, 2003). Between these two extremes are the assimilation and separation strategies, with one or the other sometimes being the less stressful. This pattern of findings also hold true for

various indicators of mental health and self-esteem (Berry, 2003). As a result of attempting to deal with acculturative stress changes, some long term adaptations may occur. According to Ward and Kennedy (1993a), two types of adaptations emerge from acculturative stress, namely psychological and sociocultural adaptation. Psychological adaptation refers to one's psychological and physical welfare, whereas sociocultural adaptation refers to how well an acculturating person is able to handle daily life in the new cultural context. In all, good psychological adaptation is predicted by personality variables, life changing events, and social support, whereas good sociocultural adaptation is predicted by cultural knowledge, degree of contact and positive intergroup attitudes (Ward 1996, as cited in Berry, 2003). In regards to the acculturation strategies, both forms of adaptations are best suited by those who endorse the integration strategy, whereas those who are marginalized are the least well adapted. Again, both assimilation and separation strategies fall in between both levels of adaptation. Based on the research linking psychological acculturation to acculturative stress and adaption patterns, there is a need to collect data using a battery of traditional acculturation (e.g. Berry's acculturation strategies) and outcomes measures (e.g., psychological adjustment) to determine if implicit acculturation strategies correlate with explicit acculturation behaviors.

Study 1 Goals

The purpose of Study 1 was to use the Implicit Association Test (IAT: Greenwald et al, 1998) to examine differences in the strength of identification with both ethnic (e.g., Mexican) and mainstream (e.g., American) cultures among multigenerational Mexican American college students. Study 1 used methodological procedures that were similar to Devos's (2006) methodology, which allowed for an examination of the extent to which

multigenerational ethnic minority college students implicitly endorse Berry's four acculturation strategies. However, this study differed from Devos (2006) in two fundamental ways. First, a specified third neutral culture (i.e., Korean culture) was used which was considered irrelevant to the participant's cultural self-concept as opposed to using a general category of 'Other' cultures (i.e. a Flemish lion, the Sphinx in Egypt, a map of Luxemburg, a Scottish bagpipe player, a cricket field, Naoko Takahashi (Japanese track and field athlete), and the word "Ramadan"; see Devos 2006 for how cultural icons were selected). The second fundamental difference was that this study included a battery of acculturation and outcome measures in order to get at the whole familiarity versus experience issue raised in Devos's study. Recall that perhaps familiarity with the cultural icons or more generally familiarity with the broadly defined cultures itself rather than identification with the cultures can account for the results obtained in his study. This warrants a more comprehensive and in-depth analysis of the acculturation experiences.

Given the exploratory aims of this study and the limited literature on this topic, it is very difficult to make precise predictions about how our Mexican American participants will differ in their strength of identification with both ethnic (e.g., Mexican) and mainstream (e.g., American) cultures. For this reason no predictions were made for this study.

Study 1:

Examining Implicit Acculturation Strategies via IAT

Method

Participants

There were a total of 99 Mexican American participants (36 men, 63 female; Mean age=18.73, SD=3.23) who self who self-identified as of Mexican descent and had lived in the USA for at least 5 years. The sample was comprised of 10% first generation immigrants, 79% second generation (born in the USA), 1% third generation (parents born in the USA), 8% fourth generation (grandparents born in the USA), and 2% fifth generation (either one parent/grandparent born in the USA and the other born in Mexico). Participants were recruited from the University of California at Riverside psychology undergraduate participant pool and were given course credit for their participation.

Stimuli

Cultural icons were used to represent different cultures (Benet-Martinez et al., 2002; Devos, 2006; Hong et al., 2000). A pre-test was conducted to select icons which represented American, Korean, and Mexican cultures. A large set of potential stimuli (e.g. pictures of symbols, dress, flags, food, monuments, celebrities, etc.) was submitted to a sample of Mexican, Korean, and European American students. Participants were asked to rate the extent to which each stimulus (15 American, 15 Korean, and 15 Mexican) was associated with the concepts "American culture", "Korean culture", and "Mexican culture" using a 5-point likert scale ranging from 1 (*Not at all*) to 5 (*Very Much*). It is important to note that these stimuli were not linked to each culture exclusively and this will be addressed as limitations in the general discussion section.

Based on these data, there were a total of three sets of five stimuli (5 American, 5 Korean, and 5 Mexican) that were used for the main study. The first set included stimuli strongly linked to the concept "American culture": a flag of the United States of America (*M*=4.82, *SD*=.49), the Statue of Liberty (*M*=4.83, *SD*=.42), a hamburger (*M*=4.03, *SD*=.99), Marilyn Monroe (*M*=4.11, *SD*=.95), and a bald eagle with the American flag in the background (*M*=4.79, *SD*=.56). The second set included stimuli strongly linked to the concept "Mexican culture": a flag of Mexico (*M*=4.89, *SD*=.37), the Virgin de Guadalupe (*M*=4.43, *SD*=.84), a burrito, rice and beans (*M*=4.33, *SD*=.83), Frida Kahlo (*M*=4.02, *SD*=1.02), and a sombrero (*M*=4.53, *SD*=.67). The third set included stimuli strongly linked to the concept "Korean culture": a flag of Korea (*M*=4.78, *SD*=.63), a Korean entertainment artist named Kim Tae Yeon (*M*=4.01, *SD*=.87), a traditional Korean food dish called Kimchi (*M*=4.27, *SD*=.92), a Buddhist temple (*M*=4.04, *SD*=.94), and a traditional Korean dress (*M*=4.43, *SD*=.93). The criterion for selecting these stimuli was based on a matching factor. All three sets of five stimuli were matched based on similar characteristics (e.g. celebrity-to-celebrity, food-to-food, etc.) so that any differences in the cultural icons could be equated across participants.

Procedure

This study was a within-subjects design (see Figure 3). Following Devos's (2006) methodology participants were seated individually in front of a desktop computer. Computers were separated by partitions in order to reduce distraction of computer tasks. After providing informed consent, participants completed the implicit measures administered on the PC running Inquisit (Draine, 1998).

Initial presentation of stimuli. First, to acquaint participants with the stimuli used

to represent the concepts "American culture," "Mexican culture," and "Korean culture," each stimulus was presented in the center of the screen for 2000 ms under the appropriate label. Participants were instructed to watch the stimuli carefully. The order of presentation of the stimuli within category was randomized across participants.

Implicit association tests. All participants completed three IATs which assessed the relative strength of identification with the concepts "American culture," "Mexican culture," and "Korean culture". Two IATs assessed identification with the concepts "Mexican culture" and "Korean culture" compared to the concept "American culture". The third IAT directly assessed the relative identification with the concepts "Korean culture" and "Mexican culture". In line with previous research using the IAT (Bosson, Swann, & Pennebaker, 2000; Greenwald & Farnham, 2000; Nosek, Banaji, & Greenwald, 2002; Rudman, Greenwald, & McGhee, 2001), the aforementioned concepts were paired with pronoun terms that represent relevant "self" concept (i.e., I, me, mine, myself, my) and five pronoun terms that represent the "other" concept (i.e., they, them, their, themselves, other) used to designate other people or objects, respectively (see top portion of Table 1).

For each task, participants were instructed to categorize, as fast as possible, each stimulus that appeared in the middle of the screen by pressing a key that was either on the left or the right side of the keyboard. Reaction time was recorded from the onset of a stimulus to its proper categorization. Labels for the concepts were affixed at the top left and right side of the screen to indicate the pairing. If a stimulus was incorrectly categorized, a red "X" appeared below the stimulus which indicated that participates then had to provide the correct answer in order to move on to the subsequent trial. Stimuli

were rotated from each concept pairs.

For instance, to measure the relative strength of identification with Mexican and Korean cultures, participants were asked to complete the subsequent tasks. On one block of trials, participants had to categorize "self" words with Korean symbols on one side and "other" words with Mexican symbols on the other side. In a second block of trials the concept pairs were switched in which "self" words shared the same response as Mexican symbols and "other" words shared the same response option as Korean symbols. The two other IATs followed the same logic except that one set of concept symbols were replaced with American symbols. Since the participants were Mexican American, the Korean cultural symbols were considered irrelevant to the participant's cultural self-concept, thus the Korean cultural symbols were considered as a controlled point of comparison that does not elicit any expected confounding responses. In total, participants completed seven blocks of trials. Each block included 20 practice trials and 40 test trials. The order of blocks was randomized across participants. This procedural type was expected to limit the influence of order effects on the obtained results.

Explicit Measures. The explicit measures were completed on a subsequent day following the implicit measures. The questionnaire, which was administered in English, included standard demographic questions (e.g., sex, age, ethnicity, country of birth, years lived in the US and in Mexico) and the following measures (see Table 2 for means, standard deviations, & alphas):

1) *Bicultural Identity Integration Scale – Version 1 (BIIS-1; Benet-Martínez & Haritatos, 2005).* This 8 item measure comprises two independent scales, cultural blendedness vs. distance and cultural harmony vs. conflict (see Benet-Martínez et

al., 2005, for detailed information about the development and refinement of this instrument). Participants rated their agreement with each item on a scale that ranged from 1 *(strongly disagree)* to 5 *(strongly agree)*. The alphas for the harmony (M=3.82, SD=.64) and blendedness (M=3.85, SD=.98) scales were .79 and .28, respectively. The intercorrelation between these two scales was r=.18.

2) *Acculturation attitudes (Berry, Kim, Power, & Bujaki, 1989).* This 20-item questionnaire is the most widely used measure of acculturation strategies. It comprises four scales measuring individuals' attitudes (but not behaviors) towards the four acculturation strategies proposed in Berry's model: assimilation, integration, separation, and marginalization. Endorsement of each strategy is measured across five domains: marriage, cultural traditions, language, social activities, and friends. Participants rated their agreement with each item on a scale that ranged from 1 *(disagree strongly)* to 5 *(agree strongly)*. The alphas for the assimilation, separation, integration, and marginalization scales were .68, .63, .46, .53, respectively. These relatively low levels of reliability are somewhat problematic and suggest that scores on the four acculturation strategies should be interpreted with caution (see Rudmin, 2003, for a review of some of the conceptual and methodological problems attributed to Berry's instrument).

3) *Multi Ethnic Identity Measure (MEIM; Phinney, 1992).* The MEIM is a 12 item measure comprised of two factors, ethnic identity search (a cognitive component) and affirmation, belonging, and commitment (an affective component). Participants rated their agreement with each item on a scale that ranged from 1 *(strongly disagree)* to 4 *(strongly agree)*. The alphas for the ethnic identity search

and the affirmation, belonging, and commitment scales were .64 and .86, respectively.

4) *Vancouver Index of Acculturation (VIA; Ryder et al., 2000).* The VIA is a 20-item questionnaire that assessed the extent to which respondents participate in and identify with the nondominant and dominant cultures. Each cultural orientation subscale has 10 items, which were identical in wording except for the culture referenced. These items assess three domains of acculturation: values, social relationships, and adherence to traditions. The VIA items are rated on a 5-point likert-type scale, ranging from 1 *(strongly disagree)* to 5 *(strongly agree).* The alphas for each heritage and mainstream scales were .92 and .81, respectively.

5) *Riverside Acculturation Stress Inventory (RASI; Benet-Martinez & Haritatos 2005).* This measure includes 15 items taping culture-related challenges in the following five life domains: language skills (e.g., being misunderstood because of one's accent), work (e.g., having to work harder than nonimmigrant/minority peers), intercultural relations (e.g., having disagreements with others for behaving in ways that are ''too American'' or ''too ethnic''), discrimination (e.g., being mistreated because of one's ethnicity), and cultural/ethnic makeup of the community (e.g., living in an environment that is not culturally diverse). Each item was answered using a scale that ranged from 1 *(strongly* disagree) to 5 *(strongly agree).* The alphas for the language, discrimination, intercultural relations, community make-up, and work-related stress scales were .85, .86, .74, .71, .78, respectively. The alpha for the acculturative stress composite variable was .84.

6) *Big Five Inventory (BFI; Benet-Martínez & John, 1998).* This measure uses 44 short phrases to assess the most prototypical traits associated with each of the Big Five basic personality dimensions (John, 1990): Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. Respondents rated each of the 44 short phrases on a 5-point scale ranging from 1 *(disagree strongly)* to 5 *(agree strongly)*. Alphas for each personality dimension were all above .75.

7) *Symptom Checklist 90-Revised (SCL-90; Derogatis & Melisaratos, 1983).* The lack of anxiety, depression, and loneliness subscales of this instrument were used and rated on a 4-point scale ranging from 1 *(rarely or never)* to 4 *(most of the time or all of the time).* The lack of anxiety scale was comprised of 2 items which inquires about the frequency of symptoms (e.g., I feel fearful or anxious). The lack of depression scale consisted of 2 items which include statements on frequency of symptoms (e.g., I feel sad or depressed). The lack of loneliness scale consisted of 2 items which measures the frequency of symptoms (e.g., I feel isolated from others). The alpha reliabilities for the lack of anxiety, depression, and loneliness scales were .54, .41, .74, respectively.

8) *Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965).* This scale is the most commonly used measure of self-esteem. The scale is a ten-item likert-type scale with items answered on a four-point scale ranging from 1 *(rarely or never)* to 4 *(most of the time or all of the time).* The alpha reliability for RSES was .79.

9) *Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985).* This scale measures people's global satisfaction with life and is the most commonly used measure of its kind. Traditionally, the SWLS consists of 5-items,

however, only 3 of the items were used for this study (e.g., The conditions in my life are excellent). Participants rated each of the three items on a 4-point scale ranging from 1 (*rarely or never)* to 4 *(most of the time or all of the time)*. The alpha reliability for the satisfaction with life scale was .79.

10) *Psychological Well-Being*. A composite variable made up of items from the SCL-90-R, RSES, and SWL scales. The alpha reliability for the psychological well being scale was .85.

11) *English and Culture of origin Language Proficiency and Usage (Benet-Martinez et al, 2005)*. Two 7-item scales independently assessed self-reported English and Spanish language levels on the following domains: (a) language ability (e.g., rate your overall Spanish language ability), 2 items; (b) past and present language usage (e.g., how much do you use/have you used English to speak with your parents), 8 items; and (c) media exposure (e.g., how often do you read Latino newspapers), 4 items. The two language ability items were answered on 6-point scales ranging from 1 *(little knowledge)* to 6 *(perfectly fluent);* the rest of the items were answered on 6-point scales ranging from 1 *(almost never)* to 6 *(very often)*. Alpha reliabilities for the English and Spanish scales were .70 and .92, respectively. Our participants reported comparable levels of use and fluency in English (M = 4.94, SD = .77) and Spanish (M = 4.03, SD = 1.34) languages.

12) *Mexican and U.S. cultural identification (Benet-Martínez et al, 2002; Benet-Martínez & Haritatos, 2005)*. Participants were instructed to rate the strength of their identification with Mexican and U.S. cultures with two separate items that read "I feel North-American (defined as the U.S. culture) and "I feel Mexican."

Responses were measured in a 6-point scale, which ranged from 1 *(strongly disagree)* to 6 *(strongly agree)*. Participants' reported levels of identification with U.S. and Mexican culture were 4.51 (*SD* = 1.09) and 4.80 (*SD* = 1.17), respectively.

Results and Discussion

Data screening of test trials showed an error rate of 5.5% and a mean response latency of 851 ms for the IAT that assessed the American versus Mexican cultures. Furthermore, there was an error rate of 6.1% and a mean response latency of 757 ms for the IAT that assessed the Korean versus American cultures. Finally, data screening of test trials showed an error rate of 6.4% and a mean response latency of 741 ms for the IAT that assessed the Korean versus Mexican cultures. Taken together, these results suggest that participants had little trouble completing the IATs. Any outliers of extremely fast or slow responses were noted and excluded during data screening. These extreme values tend to distort means, inflate variances, and skew distributions. Therefore, trials greater than 10,000 ms and participants for whom more than 10% of trials have latency less than 300 ms were eliminated (Greenwald, Nosek, & Banaji, 2003). Based on these criteria there were a total of eight participants that were dropped.

The IAT D effect measures the association that displays the strength and direction between the target and attribute concepts. In order to calculate the IAT D effect the following procedures were followed:

1) Trials greater than 10,000 ms were eliminated
2) Participants for whom more than 10% of trials have latency less than 300 ms were deleted

3) Computed the "inclusive" standard deviation for all trials in Blocks 3 and 6 and similarly for all trials in Blocks 4 and 7
4) Computed the mean latency for responses for each of Blocks 3, 4, 6, and 7
5) Computed the two mean differences ($Mean_{Block\ 6}$ - $Mean_{Block\ 3}$) and ($Mean_{Block\ 7}$ - $Mean_{Block\ 4}$)
6) Divided each difference score by its associated "inclusive" standard deviation
7) IAT D=the equal-weight average of the two resulting ratios (Greenwald, Nosek, & Banaji, 2003)

The IAT D effect can range between -2 and 2 with a score of 0 meaning no association. For the American vs. Mexican IAT, a positive score indicated that the Self + American (and Other + Mexican) association was stronger than the Self+ Mexican (and Other + American) association. A negative score indicated that the Self + Mexican (and Other + American) association was stronger than the Self+ American (and Other + Mexican) association. For the American vs. Korean IAT, a positive score indicated that the Self + American (and Other + Korean) association was stronger than the Self + Korean (and Other + American) association. A negative score indicated that the Self + Korean (and Other + American) association was stronger than the Self + American (and Other + Korean) association. Finally, for the Mexican vs. Korean IAT, a positive score indicated that the Self + Mexican (and Other + Korean) association was stronger than the Self+ Korean (and Other + Mexican) association. A negative score indicated that the Self + Korean (and Other + Mexican) association was stronger than the Self+ Mexican (and Other + Korean) association.

Overall Effect of Each IAT

Three one-sample t-tests were performed in order to examine if the three IAT D means differ from 0 (no association) (see Table 3). For the American versus Mexican IAT, results indicated that the sample mean of -.299 was significantly greater than 0, $t(98)=-5.61$, $p<.001$. This result suggested that overall participants implicitly identified more strongly with the Mexican culture than with the American culture. For the American versus Korean IAT, results indicated that the sample mean of .223 was significantly greater than 0, $t(98)=4.94$, $p<.001$. This result suggested that overall participants implicitly identified more strongly with the American culture than with the Korean culture. For the Mexican versus Korean IAT, results indicated that the sample mean of .411 was significantly greater than 0, $t(98)=11.86$, $p<.001$. This result suggested that overall participants implicitly identified more strongly with the Mexican culture than with the Korean culture.

To further investigate the overall effects of the IAT D means, a paired sample t-test was performed to examine the difference between the American and Mexican IATs that used Korean culture as a point of comparison. Results indicated that the American vs. Korean mean (.223) was significantly lower than the Mexican vs. Korean mean (.411), $t(98)=-3.41$, $p=.001$ Taken together, these results suggested that the Mexican American participants implicitly identified more strongly with Mexican culture relative to both American and Korean cultures.

Correlational Analyses

Correlation analyses were performed to examine the overall pattern among the three IATs (see Table 4). Results showed that there was a significant negative correlation between the American versus Mexican IAT (IAT 1) and the Mexican versus Korean IAT

(IAT 3), r=-.44, p<.01. This result suggested that the more Mexican American participants implicitly self-identified with Mexican culture, the less they implicitly self-identified with American and Korean cultures. The other results indicated that there were no significant correlations among the remaining IATs.

To further explore the validity of the implicit acculturation measures, additional correlations were run to examine the relations between the three IATs and the battery of explicit acculturation and outcome measures. Out of all three IAT measures, the American versus Korean IAT (IAT 2) revealed a series of significant correlations among a host of explicit acculturation and outcome measures. In particular, this IAT was significantly correlated with the language domain of RASI (r=-.29, p=.003), the work domain of RASI (r=-.22, p=.034), RASI composite variable (r=-.25, p=.012), the heritage component of VIA (r=-.21, p=.039), the affirmation, belonging, and commitment (an affective component) of MEIM (r=-.22, p=.028), BFI Openness (r=20, p=.050), and both English and Spanish proficiency (r=.31, p=.002; r=-.23, p=.023, respectively). These results suggested that the less Mexican American participants implicitly self-identified with American culture, the less proficient they were in using English, the more proficient they were in using Spanish, the more affirmation, belonging, and commitment was felt towards their ethnic identity (MEIM affective component), the less acculturative stress they encounter such as linguistic and work (Acculturation stress), the more they identified with their heritage culture (VIA heritage), and the less these participants were open to experiences (BFI openness).

The Mexican vs. Korean IAT (IAT 3) also revealed significant correlations among some of the explicit acculturation measures. In particular, this IAT was significantly

correlated with age (r=.25, p=.013), the mainstream component of VIA (r=-.26, p=.009), and a lack of depression (r=-.20, p=.048). These results suggested that the stronger Mexican American participants implicitly self-identified with Mexican culture (IAT 3), the older the participant (age), the less they explicitly self-identified with mainstream culture (VIA mainstream), and the more depressed they feel. It is important to note that the correlations with this IAT are usually in the opposite direction of the American vs. Korean IAT (even if in most cases they were not significant).

Finally, there was one significant correlation between the American vs. Mexican IAT (IAT 1) and open to experiences (r=-.20, p=.048). This result suggested that the stronger Mexican American participants implicitly self-identified with Mexican culture, the less these participants were open to experiences (BFI openness).

Defining Acculturation Groups

According to Berry (2003) there are two methods of assessing acculturation. The first method involves directly assessing the four acculturation strategies (i.e., Berry et al., 1989 acculturation attitudes instrument). The second method involves examining the two underlying dimensions of acculturation (i.e., Ryder et al., 2000 VIA instrument). Both methods result in categorizing individuals into the four acculturation groups (Integration, Separation, Assimilation, & Marginalization). For the purpose of this study, the VIA instrument was used to form the four acculturation groups based on the fact that this instrument was a more reliable measure relative to the acculturation attitudes instrument. First, participants received two VIA scores for the heritage and mainstream components. A median split was performed on the two VIA scores in order to determine the four acculturation groups. For both VIA dimensions, the median score was 4.3. Scores on the

two dimension scales (mainstream and heritage) were cross-tabbed to form the four acculturation groups: those who scored at or above the median on both dimensions were categorized as integrationists, those that scored at or above the median on the mainstream scale and below the median on the heritage scale were considered assimilationists, the opposite pattern yielded individuals in the separation group, and those who scored below the median on both dimensions were categorized as marginalized. Based upon these categorization criteria, result indicated that 41% of participants endorsed the integration strategy, 14% preferred the separation strategy, 11% endorsed the assimilation strategy, and 33% preferred the marginalization strategy.

Participants were then categorized into four acculturation groups based on their implicit IAT D scores for comparison purposes. Similarly to the way the VIA explicit measure was used to categorize individuals, participants received two implicit IAT D scores for the American vs. Korean IAT and Mexican vs. Korean IAT. A median split was performed on the two implicit IAT D scores in order to determine the four acculturation groups. For the American vs. Korean IAT, the median score was .223. For the Mexican vs. Korean IAT, the median score was .406. Cross-tabbed methodology that was used to categorize participants based on their explicit scores was also used to categorize participants based on their implicit scores. Based upon the aforementioned categorization criteria, result indicated that 28% of participants categorized as integrationists, 22% were categorized as separatists, 22% were categorized as assimilationists, and 27% were categorized as marginalized.

Upon comparing the categorizations based upon the explicit and implicit data, results indicated that the categorizations for both the integration and marginalization

strategies were higher for the explicit categories (41% and 33%, respectively) relative to the implicit categories (28% and 27%, respectively). Categorizations for both the separation and assimilation strategies were lower for the explicit categories (14% and 11%, respectively) compared to the implicit categories (22% and 22%, respectively). These results indicated that the Mexican American participants tend to assess the self in relation to explicit and implicit acculturation strategies quite differently.

Data Exploration

To further examine the validity of the implicit acculturation measures, three one-way ANOVAs were performed in order to examine the differences among the four explicit acculturation groups on the three IAT measures (see Table 5). Overall results indicated that there was a marginal difference among the four acculturation groups for the Mexican vs. Korean IAT, $F(3,95)=2.54$, $p=.051$. Tukey post-hoc comparisons of the four acculturation groups indicated that the integration group (M=-.342, 95% CI [.241, .442]) marginally differed from the separation group (M=.611, 95% CI [.449, .774]), however not from the assimilation (M=.326, 95% CI [.147, .505]) and marginalized groups (M=.443, 95% CI [.301, .583]). There were no other significant differences among the four acculturation groups for the other two IATs.

In all, Study 1 offered an examination of the acculturation strategies through assessments of thoughts that cannot be consciously controlled. In particular, results from this sample of Mexican American participants showed that the Self + Mexican association was stronger than the Self + American association. This argument is corroborated by the fact that overall participants strongly self-identified with Mexican culture when compared to both American and Korean culture. It is not surprising that

participants implicitly self-identified with Mexican culture relative to Korean culture, but what is surprising is that participants implicitly self-identified stronger with Mexican culture relative to American culture. This particular result is different to what Devos (2006) found. Recall that the participants in Devos's (2006) study showed that self-identifications cancelled each another out when Mexican and American cultures were pitted against each other. This was not the case in the current study. Results from the current study showed that the strongest association was the Mexican vs. Korean IAT (*m*=.412), followed by the American vs. Mexican IAT (*m*=-.299), and finally the American vs. Korean IAT was the weakest association (*m*=.223).

Correlational analyses further support the argument that the Self + Mexican association was stronger than the Self + American association. In particular, responses on the American vs. Mexican IAT were more driven by identification with Mexican culture than identification with American culture given that this IAT was significantly correlated with the Mexican vs. Korean IAT and showed a lack of correlation with the American vs. Korean IAT. Furthermore, correlation analyses revealed that an explicit attachment to the Mexican culture accounts for a weaker implicit Self + American association. In particular, the less Mexican American participants implicitly self-identified with American culture, the less proficient they were in using English, the more proficient they were in using Spanish, the more affirmation, belonging, and commitment was felt towards their Mexican identity, and the more they identified with their Mexican culture. Also, for the Mexican vs. Korean IAT, results showed that the more Mexican American participants implicitly self-identified with Mexican culture, the less they explicitly self-identified with American culture. It is important to note that the

correlations with this IAT were usually in the opposite direction of the American vs. Korean IAT (even if in most cases they were not significant).

Taken together, these results showed the usefulness of the 3 IATs design to examine implicit acculturation. Given that the Self + Mexican association was stronger than the Self + American association across all three IATs suggests that the Mexican American participants implicitly showed a stronger preference for the separation strategy relative to the other three acculturation strategies. This finding is particularly interesting given that using this type of methodology yields findings not only for an implicit bicultural identity (integration strategy) as Devos (2006) found but also for other acculturation strategies, namely the separation strategy. Devos (2006) concluded, "Having provided firm evidence for implicit bicultural identification, it is a matter for future research to test more specific prediction about the structure and process underlying bicultural identities" (pg.28). Devos calls for future research that examines the underlying dynamics of bicultural identity at an implicit level.

The Underlying Dynamics of Bicultural Identities

Hong and colleagues (Hong, Chiu, & Kung, 1997; Hong et al., 2000; Hong, Ip, Chiu, Morris, & Menon, 2001) provide a useful socio-cognitive model for how biculturals shift between their dual cultural orientations. For example, Hong et al. (2000) revealed that Asian biculturals possess both East Asian and Western cultural meaning schemes and that each scheme can be separately activated by culturally relevant icons or primes. In these studies, Chinese American bicultural participants were randomly exposed to either American cultural primes (e.g., pictures of an American flag, Superman, Marilyn Monroe, and the U.S. Capitol building) or Chinese cultural primes (e.g., pictures of a

Chinese dragon, Stone Monkey, a Peking opera singer, and the Great Wall). Subsequently after, these bicultural participants completed an unrelated attributional task. The results showed that exposure to the cultural icons activated the cultural frame switching process. In particular, biculturals exposed to American primes made more internal attributions (a characteristically Western attribution style), while biculturals exposed to Chinese primes made more external attributions (a characteristically East Asian attribution style). In all, Hong et al.'s (2000) work provides persuasive evidence that biculturals can move between their dual cultural frameworks.

To account for the process of cultural-frame switching, Benet-Martinez and her colleagues empirically coined the theoretical construct of *Bicultural Identity Integration* (BII). BII is an individual difference variable, which posits that all biculturals identify with their ethnic and mainstream cultures, however differ in their ability to create a synergistic, integrated cultural identity. Some biculturals view their two cultural orientations as complimentary and compatible (High BII), whereas, others view them as contradictory and oppositional (Low BII) (Benet-Martinez et al., 2002; Haritatos & Benet-Martinez, 2002). In these studies, Chinese American biculturals followed the same experimental procedures that Hong and colleagues (2000) used, however, BII was measured as a dependent variable. Results showed that Chinese American biculturals high on BII showed culturally congruent behaviors when presented with external primes associated with one of their cultural backgrounds (e.g., made external attributions to an ambiguous social event after being primed with Chinese icons and made internal attributions to the same event after seeing American icons). On the other hand, Chinese American biculturals low on BII exhibited Chinese-congruent behaviors (i.e., external

attributions) in response to American primes and American-congruent behaviors (internal attributions) in response to Chinese primes. In all, high and low BIIs respond to cultural cues in different ways and differences in BII moderated the cultural-frame switching process.

To further unpack the concept of BII, Benet-Martinez and Haritatos (2005) showed that this construct encompasses two psychometrically independent and reliable components: cultural *blendedness* (vs. distance) and cultural *harmony* (vs. conflict) each representing unique and separate aspects of the dynamic intersection between mainstream and ethnic cultural identities in bicultural individuals. For instance, cultural blendedness captures the degree of overlap vs. dissociation or compartmentalization perceived between the two cultural orientations. Cultural harmony, on the other hand, captures the degree of harmony vs. tension or clash perceived between the two cultures. In all, the intersection of cultural harmony and blendedness make biculturals high BII while the merging of cultural distance and conflict make biculturals low BII.

Benet-Martınez and Haritatos's (2005) examination of the demographic, contextual, and personality correlates of BII showed that cultural blendedness and harmony encapsulate different psychological components of the bicultural experience. In this study, cultural harmony was negatively linked to Neuroticism and interpersonal types of acculturation stress (e.g., discrimination, strain from dual cultural group loyalties and expectations), and was quite independent from traditional demographic, attitudinal, and performance-related acculturation variables such as amount of cultural exposure, acculturation attitudes, and linguistic skills. Cultural blendedness, on the other hand, was positively associated with Openness to Experience, negatively with linguistic/structural

types of acculturation stress (e.g., self-consciousness about one's accent or fluency, lack of cultural diversity in one's habitat), and positively related to traditional demographic, attitudinal, and performance-related acculturation variables (see Figure 1 in Benet-Martınez & Haritatos, 2005).

As discussed in Benet-Martınez and Haritatos (2005; see also Nguyen & Benet-Martınez, in press), these above patterns of associations (e.g., links between cultural harmony and low Neuroticism and between cultural blendedness and Openness to Experience) suggest that blendedness captures the more perceptual (e.g., attentiveness to the overlap and permeability between the two cultures), and performance related elements of the acculturation experience (e.g., linguistic and behavioral competence on each culture), whereas cultural harmony captures the more affect driven, interpersonal component (e.g., not feeling torn between the two cultures and the dual cultural-group loyalties and expectations). Thus, when a bicultural individual high on cultural blendedness states that he or she feels part of a combined culture (e.g., ''Chinese American''), his/her self-concept is placed in proximity to both cultures and orientations (irrespective of the degree of tension or strain felt between the two cultures and group loyalties). On the other hand, when a bicultural individual high on cultural harmony states that his/her ethnic and mainstream cultural identities are quite compatible, he or she is expressing rapport and compatibility between each cultural orientation and membership (irrespective of the degree of overlap or similarity perceived between the two cultures).

Benet-Martinez et al. (2002) first examined BII using a cultural priming technique. Subsequent research on BII revealed that it encompasses two orthogonal components

(cultural harmony vs. conflict and cultural blendedness vs. distance) and encapsulates different psychological components of the bicultural experience. Given that BII is an individual difference variable that underlies the dynamics of bicultural identification, to what extent could BII be examined at an implicit level?

Recall that the IAT measures individual differences which are derived from cultural influences in the environment. Thus, the IAT is an optimal tool to assess BII at an implicit level. To best examine the negotiation or integration of the two cultural identities would require the use of the BII dimensions (harmony vs. conflict and blendednesss vs. distance). That is, examining the extent to which biculturals make automatic associations between the bipolar-pair harmony and blendedness with self-related words for high BIIs and the bipolar-pair conflict and distance with self-related words for low BIIs. By examining identification with the BII target concepts (Harmony and Blendedness) independently should show the degree to which both cultural orientations are integrated into the implicit self-concept of bicultural individuals.

Study 2 Goals

The purpose of Study 2 was to use the IAT (Greenwald et al., 1998) to examine individual differences in the implicit self-concept among biculturals varying in degree of BII. Given the exploratory aims of this study and the limited literature on this topic, it is difficult to make precise predictions about how our Mexican American biculturals will differ in their strength of identification with the BII dimensions (blendedness versus distance and harmony vs. conflict). Therefore, no predictions were made for this study.

Study 2:

Examining Implicit Bicultural Identity Integration via IAT

Method

Participants

There were a total of 133 Mexican American participants (35 men, 98 female; 69 experimental condition; 64 control condition; Mean age=19.55, SD=7.05) who self who self-identified as of Mexican descent and had lived in the USA for at least 5 years. The sample was comprised of 11% first generation immigrants, 74% second generation (born in the USA), 8% third generation (parents born in the USA), 4% fourth generation (grandparents born in the USA), and 2% fifth generation (either one parent/grandparent born in the USA and the other born in Mexico). Similarly to Study 1, participants were recruited and given course credit for their participation.

Stimuli

For the experimental condition, cultural stimuli (ethnic and American) selected for Study 1 were used in this study. For the control condition, participants were shown primes of geometrics figures, which included a diamond, rectangle, triangle, square, oval, hexagon, octagon, pentagon, trapezoid, and circle. These geometric figures were generic and were devoid of any culture specificity.

For the dependent measure (IAT), a pre-test was conducted to select synonym words that represented each bipolar-pair of BII dimensions (harmony vs. conflict & blendedness vs. distance). A large set of potential synonym stimuli were submitted to the same sample used in Study 1 that rated the cultural icons. Participants were asked to rate the extent to which they agree or disagree that the word was a proper synonym for the

key word of interest (e.g. Conflict) using a 5-point likert scale ranging from 1 (*Disagree Strongly*) to 5 (*Agree Strongly*). Based on these data, there were a total of four sets of six synonym words that were used for Study 2. The first set included synonym terms linked to the BII concept "Harmony": peace (*M*=4.60, *SD*=.78), balance (*M*=4.05, *SD*=1.15), unity (*M*=4.33, *SD*=.98), unison (*M*=4.01, *SD*=1.24), accordance (*M*=3.89, *SD*=1.27), compatibility (*M*=3.91, *SD*=1.04), and cooperation (*M*=3.98, *SD*=1.14). The second set included synonym terms linked to the BII concept "Conflict": dispute (*M*=4.52, *SD*=.81), clash (*M*=4.38, *SD*=.92), fight (*M*=4.20, *SD*=.95), war (*M*=4.21, *SD*=.93), battle (*M*=4.05, *SD*=1.00), struggle (*M*=4.11, *SD*=.99), and rivalry (*M*=3.85, *SD*=1.13). The third set included synonym terms linked to the BII concept "Distance": faraway (*M*=4.25, *SD*=.97), far (*M*=4.30, *SD*=.90), separate (*M*=4.01, *SD*=1.19), afar (*M*=3.88, *SD*=1.13), scatter (*M*=3.93, *SD*=1.41), disconnect (*M*=3.96, *SD*=1.24), and remote (*M*=3.81, *SD*=1.38). The final set included synonym terms linked to the BII concept "Blendedness": mix (*M*=4.73, *SD*=.63), mixture (*M*=4.48, *SD*=.89), combination (*M*=4.27, *SD*=.98), combine (*M*=4.37, *SD*=.93), unite (*M*=4.12, *SD*=.91), fusion (*M*=4.07, *SD*=1.09), and merge (*M*=4.17, *SD*=.97).

Procedure

This study was a between-subjects design. Using similar procedures derived from Benet-Martinez et al. (2002), participants were randomly assigned to one of two priming conditions. The first condition consisted of cultural primes (both American and Mexican cultures) that were presented to the bicultural participants at the same time in a randomized order that was determined by the computer. The importance of priming bicultural individuals with both cultural orientations was to activate both cultural

meaning systems simultaneously (Chiu & Cheng, 2007). Since there were a total of 10 cultural icons (5 American and 5 Mexican), there were a total of 25 combination patterns that bicultural individuals viewed for 3 seconds each.

The second condition consisted of culturally neutral primes (geometric icons) that were presented to the bicultural participants at the same time in a randomized order that was determined by the computer. The purpose of this condition was to act as a control. Similarly to the experimental condition, there were a total of 10 geometric icons which resulted in a total of 25 combination patterns that bicultural individuals viewed for 3 seconds each.

Participants were seated individually in front of a desktop computer screen that was separated by partitions to reduce distractions. After participants were seated they were given informed consent. Subsequently following the priming technique, participants were asked to briefly write about either their cultural orientations or the geometric figures depending on the condition they were randomly assigned to.

Implicit association tests. The initial presentation of the stimulus was identical to Study 1 in order to familiarize participants with the stimuli. Participants were told to engage in an unrelated categorization task by having bicultural individuals complete two IATs assessing the relative strength of associations made between the bipolar dimensions of BII (blendedness vs. distance & conflict vs. harmony) paired with pronoun terms that represent relevant "self" concept (i.e. I, me, mine, myself, my) and four pronoun terms that represent the "other" concept (i.e. they, them, their, themselves, other) used to designate other people or objects, respectively (see bottom portion of Table 1).

For instance, to measure the relative strength of automatic associations between the BII bipolar dimensions of cultural harmony (vs. conflict) and cultural blendedness (vs. distance) with self-related words, participants were asked to complete the following tasks. During one block of trials, participants had to categorize "self" words with words that depict the "Harmony" concept pole of the BII dimension on one side and "other" words with words that represent the "Conflict" concept pole of the BII dimension on the other side. In a second block of trials, "self" words shared the same response as the "Conflict" pole of the BII dimension and "other" words shared the same response option as the "Harmony" pole of the BII dimension. The second IAT followed the same logic in that participants had to discriminate between words that represent the "Blended vs. Distance" dimension of BII, paired with words that differentiate between "self vs. other" concept pair. In total, participants completed seven blocks of trials. Each block included 20 practice trials and 40 test trials. The order of blocks was randomized across participants. For each bicultural participant, the software randomly determined the order in which the seven blocks were completed. This procedure limits the influence of order effects on the obtained results.

Explicit measures. After completing the two IATs, participants filled out the battery of acculturation and outcome measures described in Study 1. The implicit measures were administered first. The opposite order might have produced more noise in the implicit data (more error rates) due to fatigue. Please see Study 1 for a description of the explicit measures (see table 6 for means, standard deviations, & alphas).

Results and Discussion

Data screening of test trials showed an overall error rate of 5.6% and a mean response latency of 901 ms for the IAT that assessed the conflict versus harmony dimension of BII. Furthermore, there was an overall error rate of 8.1% and a mean response latency of 919 ms for the IAT that assessed the blendedness versus distance dimension of BII. For the experimental condition, data screening of test trials showed an error rate of 5.5% and a mean response latency of 934 ms for the IAT that assessed the conflict versus harmony dimension of BII. There was an overall error rate of 7.2% and a mean response latency of 954 ms for the IAT that assessed the blendedness versus distance dimension of BII. For the control condition, there was an overall error rate of 5.7% and a mean response latency of 866 ms for the IAT that assessed the conflict versus harmony dimension of BII. Finally, there was an overall error rate of 9.1% and a mean response latency of 881 ms for the IAT that assessed the blendedness versus distance dimension of BII. Taken together, these results suggest that participants had little trouble completing the IATs. Similarly to Study 1, any outliers of extremely fast or slow responses were noted and excluded during data screening. Based on the criterion developed by Greenwald et al. (2003), there were a total of 6 participants eliminated from the study.

See Study 1 for how the IAT D effect is calculated. In Study 2, for the Harmony vs. Conflict IAT, a positive score indicated that the Self + Harmony (and Other + Conflict) association was stronger than the Self+ Conflict (and Other + Harmony) association. A negative score indicated that the Self + Conflict (and Other + Harmony) association was stronger than the Self+ Harmony (and Other + Conflict) association. For

the Blendedness vs. Distance IAT, a positive score indicated that the Self + Blendeness (and Other + Distance) association was stronger than the Self+ Distance (and Other + Blendedness) association. A negative score indicated that the Self + Distance (and Other + Blendedness) association was stronger than the Self+ Blendedness (and Other + Distance) association.

Overall Effect of Each IAT

Two one-sample t-tests were performed in order to examine if the two IAT D means differ from 0 (no association) (see Table 7). For the Harmony versus Conflict IAT, results indicated that the sample mean of .396 was significantly greater than 0, $t(132)=9.60$, $p<.001$. This result suggested that overall participants implicitly identified more strongly with being a harmonious bicultural relative to being a conflicted bicultural. For the Blendedness versus Distance IAT, results indicated that the sample mean of .270 was significantly greater than 0, $t(132)=7.95$, $p<.001$. This result suggested that overall participants implicitly identified strongly with being a blended bicultural compared to being a distant bicultural. Finally, a paired sample t-test was performed to examine the difference between these two groups and results suggested there to be a significant difference between the harmony vs. conflict IAT and blendedness vs. distance IAT, $t(132)=2.20$, $p=.024$. This result suggested that Mexican American participants implicitly showed a stronger self-attachment to harmony relative to self + blendedness association.

Experimental Manipulation

An independent sample t-test was performed to examine if there was a difference in IAT D effect between the experimental and control conditions for both dimensions of

BII. Results indicated that for the harmony versus conflict dimension of BII, there was no significant difference in the IAT D effect between the control condition (*M*=.369, *SD*=.434) and experimental (*M*=.422, *SD*=.514) conditions, *t*(131)=.645, *p*=.520. For the blendedness versus distance dimension of BII, there was no significant difference in the IAT D effect between the control (*M*=.222, *SD*=.376) and experimental (*M*=.315, *SD*=.404) conditions, *t*(131)=1.38, *p*=.171.

A second independent sample t-test was performed to examine if there was a difference in the explicit BII scores between the experimental and control conditions for both dimensions of BII. Similarly to the implicit measures, results indicated that for the harmony versus conflict dimension of BII, there was no significant difference in the explicit scores between the control condition (*M*=3.81, *SD*=1.09) and experimental (*M*=3.83, *SD*=1.04) conditions, *t*(131)=.113, *p*=.910. For the blendedness versus distance dimension of BII, there was no significant difference in the explicit scores between the control condition (*M*=3.76, *SD*=.717) and experimental (*M*=3.90, *SD*=.728) conditions, *t*(131)=1.16, *p*=.248. Taken together, these results suggested that the manipulation did not work.

Correlational Analyses

First, correlation analyses were performed to examine the overall pattern among the two IATs (see Table 8). Results indicated that there was no significant relationship between the Harmony vs. Conflict IAT (IAT1) and the Blendedness vs. Distance IAT (IAT 2), *r*=-.07, *p*=.46. Next correlational analyses were performed to examine the relation between explicit BII measures and both IATs. Overall, results showed that there was only one significant correlation between the implicit harmony versus conflict BII

dimension and explicit BII dimension of blendedness versus distance (r=-.24, p<.01). This result suggested that the more Mexican American participants explicitly self-identified as being a blended bicultural, the less they implicit self-identified as being a harmonious bicultural. The rest of the results indicated that there were no other significant relationships among the other three pairings: implicit and explicit conflict versus harmony dimension of BII (r=.06), implicit and explicit blendedness versus harmony dimension of BII (r=-.06), and the implicit blendedness versus distance BII dimension with the explicit BII dimension of harmony versus conflict (r=-.05).

Even though the experimental manipulation did not work, the aforementioned relationships were examined separately for the experimental (see Table 9) and control (see Table 10) conditions. Reason being is that these correlations will help to explain the discrepancy in the results in the general discussion section. Results indicated that there was no significant relationship between the harmony vs. conflict IAT (IAT1) and the blendedness vs. distance IAT (IAT 2) for both the experimental (r=-.13, p=.28) and control groups (r=-.01, p=.94). Next correlational analyses were performed to examine the relation between explicit BII measures and both IATs. Similarly to the overall pattern of results, for the control group, there was a significant correlation between the implicit harmony versus conflict BII dimension and explicit BII dimension of blendedness versus distance (r=-.30, p<.05). This result was consistent with the overall correlation; however, the association was stronger. In regards to the experimental group, there was no significant correlation between implicit harmony versus conflict BII dimension and explicit BII dimension of blendedness versus distance (r=-.20, p=10). The rest of the results indicated that there were no other significant relationships among the other three

pairings for both the experimental and control groups (see Tables 9 and 10 for correlations).

To further explore the validity of the implicit BII measure, additional correlations were run to assess the overall relationship between the two IATs and a battery of explicit acculturation and outcome measures. Interesting enough, there were no significant correlations between the implicit BII measures and the battery of explicit acculturation and outcomes measures with the exception of two correlations. Results indicated a marginal correlation between implicit BII dimension of blendedness versus distance and the explicit acculturation strategy measure of separation (r=-.17, p=.048) and explicit U.S. Identification (r=-.18, p=.048). These correlations suggested that the more Mexican American participants implicitly self-identified as being a blended bicultural, the less they explicitly endoresd the separation strategy and identified with U.S. culture. The same correlations were also run separately for both the experimental and control groups. Results indicated the same pattern of correlations found in the overall correlation patterns, however differed by either the experimental or control groups (refer to Tables 9 and 10 for results). Overall, these correlational analyses indicated that there is little to no relationship between the implicit BII measure and the battery of acculturation and outcome measures including the explicit BII measure.

Defining Bicultural Identity Integration Groups

Participants were categorized into two groups (high vs. low blendedness and high vs. low harmony) based on their explicit BII scores. First, participants received two BII scores for blendedness and harmony. A median split was performed on the two BII scores in order to determine the high versus low groups for each BII dimension. For both BII

dimensions, the median score was 4.0. Any participant that scored below the median was categorized as being a conflicted or distant bicultural, whereas any participant that scored at the median or higher was categorized as being a harmonious or blended bicultural. Based upon these categorization criteria, results from the explicit data indicated that 51% of participants were categorized as high blendedness and 57% were categorized as high harmony, while 49% were categorized as low blendedness and 43% were categorized as low harmony.

Participants were then categorized into two groups (high vs. low blendedness and high vs. low harmony) based on their implicit IAT D scores for comparison purposes. First, participants received two implicit IAT D scores for blendedness and harmony. A median split was performed on the two implicit IAT D scores in order to determine the high versus low groups for each BII dimension. For the harmony vs. conflict dimension of BII, the median score was .459. For the blendedness vs. distance dimension of BII, the median score was .263. Any participant that scored below the median scores of each BII dimension was categorized as being a conflicted or distant bicultural, whereas any participant that scored at the median or higher of each BII dimension was categorized as being a harmonious or blended bicultural. Based upon these categorization criteria, results from the implicit data indicated that 52% of participants were categorized as high blendedness and 51% were categorized as high harmony, while 48% were categorized as low blendedness and 49% were categorized as low harmony.

Upon comparing the categorizations based upon the explicit and implicit data, results indicated that the categorizations for high (51% and 52%, respectively) versus low (49% and 48%, respectively) blendedness were roughly identical. However,

categorization results based on the explicit and implicit data showed some discrepancy between the high (57% and 51%, respectively) versus low (43% and 49%, respectively) harmony groups. These results indicated that the Mexican American participants tend to assess their blended bicultural identities at both levels of awareness with little variation; however tend to assess their harmonious bicultural identities across two levels of awareness with a little more variation.

Data Exploration

To further examine the validity of the implicit BII measures, four independent sample tests were performed to examine the overall differences between explicit high and low blendedness and harmony groups on the two IAT measures (see Table 11). Results indicated that there was a significant difference between the explicit high (.308) and low (.489) blendedness groups on the harmony versus conflict IAT measure, $t(131)=-2.23$, $p=.027$. This result suggested that Mexican American participants who explicitly self-identified as being high in blendedness, implicitly self-identified weaker with harmony compared to those explicitly low in blendedness. Results further indicated that there was no significant difference between the explicit high (.313) and low (.255) blendedness groups on the blendedness versus distance IAT measure, $t(131)=1.31$, $p=.194$.

Results for the high versus low explicit harmony groups showed that there was no significant difference between the high (.377) and low (.422) harmony groups on the harmony versus conflict IAT measure, $t(131)=-.526$, $p=.600$. Results further indicated that there was no significant difference between the explicit high (.219) and low (.338) harmony groups on the blendedness versus distance IAT measure, $t(131)=-1.75$, $p=.083$.

These analyses were also run separately for both the experimental and control

groups. For the experimental condition, results showed that that there was no significant difference between explicit high and low blendedness and harmony groups on the two IAT measures (see Table 12 for results). However, for the control condition, results indicated that there was a significant difference between the explicit high (.247) and low (.476) blendedness groups on the harmony versus conflict IAT measure, $t(62)=-2.16$, $p=.034$ (see Table 13). Similarly to the overall pattern of results, this result suggested that Mexican American participants who explicitly self-identified as being high in blendedness, implicitly self-identified weaker with harmony compared to those explicitly low in blendedness. Results further indicated that there were no other significant differences among the other three means analyses (see Table 13 for results).

In all, Study 2 offered an examination of BII through assessments of thoughts that cannot be consciously controlled. In particular, results indicated that the experimental manipulation did not work across both measures of BII. The overall effects for both the harmony vs. conflict IAT ($m=.398$) and the blendedness vs. distance IAT ($m=.270$) showed that the Mexican American participants implicitly self-identified stronger as being harmonious and blended biculturals relative to being more conflicted and distant biculturals.

When examining the findings in regards to explicit and implicit BII, a mixed pattern of results begins to emerge. In particular, an explicit attachment to blendedness seems to account for a weaker implicit Self + Harmony association. This argument is corroborated by both correlational analyses which showed that the more Mexican American participants explicitly self-identified as being a blended bicultural, the less they implicitly self-identified as being a harmonious bicultural and means analyses which

indicated that Mexican American participants who explicitly self-identified as being high in blendedness showed an implicitly weaker self-attachment to harmony compared to those explicitly low in blendedness. What is interesting is that both types of analyses were attenuated by the control group, which was void of any experimental manipulation influence. What is also interesting is the lack of correlations between the harmony vs. conflict IAT and the battery of explicit acculturation and outcomes measures. This was not the case for the blendedness vs. distance IAT. This IAT showed at least two significant correlations. In essence, the more Mexican American participants implicitly self-identified as being a blended bicultural, the less they explicitly prefer the separation strategy and the less they explicitly identify with U.S. culture. Taken together, these results showed the usefulness of using IAT methodology to examine the underlying dynamics of bicultural identity at an implicit level. However, a thorough discussion is needed to explain these data in light of theory which will be addressed in the following section.

General Discussion

Study 1 examined differences in the strength of identification with both ethnic (e.g., Mexican) and mainstream (e.g., American) cultures among multigenerational Mexican American college students using IAT methodology. That is, the extent to which Mexican American participants implicitly endorsed Berry's (2003) four acculturation strategies (i.e., integration, separation, assimilation, marginalization) using a 3 IAT design. In all, the results form Study 1 showed the usefulness of the 3 IATs design to examine implicit acculturation. Given that the Self + Mexican association was stronger than the Self + American association across all three IATs suggests that the Mexican

American participants implicitly showed a stronger preference for the separation strategy relative to the other three acculturation strategies. This finding is particularly interesting given that using this type of methodology yields findings not only for an implicit bicultural identity (integration strategy) as Devos (2006) found, but also for other acculturation strategies such as the separation strategy.

Another goal of Study 1 was to examine the differences between how familiarity and experiences may foster associations between the self and cultures. Recall that perhaps familiarity with the broadly defined cultures itself rather than identification with the cultures accounted for the obtained results found in Devos's (2006) study. Devos studies did not include a battery of acculturation and outcomes measures in order to examine the familiarity versus experiential accounts and provide a more comprehensive and in-depth analysis of the acculturation experiences. However, the present research did undertake such an endeavor. Results from Study 1 showed that all three IAT measures were correlated with a variety of explicit acculturation and outcomes measures. For instance, the less Mexican American participants implicitly self-identified with American culture relative to Korean culture, the less proficient they were in using English, the more proficient they were in using Spanish, the more affirmation, belonging, and commitment was felt towards their Mexican identity, the less acculturative stress they encountered such as linguistic and work, the more they self-identified with their Mexican culture, and the less these participants were open to experiences. Furthermore, the stronger Mexican American participants implicitly self-identified with Mexican culture relative to Korean culture, the older the participants, the less they explicitly self-identified with mainstream culture, and the more depressed they felt. In all, these patterns

of results seem to go beyond the familiarity account and show that cultural experiences do help foster associative links between the self-concept and culture.

Study 2 went beyond the realm of Study 1 and examined the underlying dynamics of bicultural identity at an implicit level. That is, the extent to which Mexican American bicultural college students implicitly negotiates or integrates their dual cultural identities into their self-concept. Overall, results indicated that the experimental manipulation did not work across both measures of BII. Results for the implicit data further indicated that Mexican American participants implicitly self-identified stronger as being harmonious and blended biculturals relative to being more conflicted and distant biculturals. However, when examining the findings in regards to both explicit and implicit BII, a mixed pattern of results emerges.

A very interesting find for Study 2 showed that an explicit attachment to blendedness seems to account for a weaker implicit Self + Harmony association. This argument is corroborated by both correlational and mean analyses. Though these results seem contradictory, they actually illuminate a very impressive and unexpected find. A further examination into these findings suggested that these results are not contradictory, but perhaps reflect a contrast between the implicit and explicit self-concepts among individuals varying in BII. Although the main experimental manipulation failed to work as a priming technique, the IAT may have served as a priming tool to elicit such an effect. In particular, the harmony vs. conflict IAT may have worked as a means of priming the Mexican American bicultural participants by exposing them to words that ignited the negotiation of their dual cultural orientations across two levels of awareness.

According to social cognition research on priming, words can also be used to prime individuals in order to elicit a certain response (Cheng, Lee, Benet-Martinez, 2006). In the case of Study 2, Mexican American bicultural participants may have been primed with the pre-tested synonym words that represented the harmony vs. conflict dimension of BII and elicited a contrast effect. That is, the words (primes) that the bicultural participants were exposed to initiated the negotiation process of their dual cultural identities and subsequently resulted in a discrepancy between their implicit and explicit self-concepts.

The pattern of mixed results found in Study 2 seems to support this argument. In essence, the explicit attachment to blendedness seems to account for a weaker implicit Self + Harmony association. Correlational analyses showed that the more Mexican American participants explicitly self-identified as being a blended bicultural, the less they implicitly self-identified as being a harmonious bicultural and means analyses further indicated that Mexican American participants who explicitly self-identified as being high in blendedness showed an implicitly weaker self-attachment to harmony compared to those explicitly low in blendedness. It is important to note that both of these analyses were attenuated by the control condition, which was void of the experimental manipulation influence (i.e., participants were exposed to culturally neutral geometric figures). What was also interesting is the lack of correlations between the harmony vs. conflict IAT and the battery of explicit acculturation and outcomes measures. Finally, when comparing the means of the harmony vs. conflict IAT to the blendedness vs. distance IAT, results suggested that Mexican American participants implicitly showed a

significantly stronger self-attachment to harmony relative to the self + blendedness association.

Social cognition literature provides some possible explanations for understanding why contrast effects occur. If a prime is perceived as incompatible with the target's self-concept then contrast effects emerge (Koole, Dijksterhuis, & Van Knippenberg, 2001; Spears, Gordijn, Dijksterhuis, & Stapel, 2004; Staple & Blanton, 2004; Stapel & Koomen, 2000; 2001). For instance, priming participants with Albert Einstein (a radical examplar of intelligence) which is often viewed as extremely different from most peoples' self-concept led participants to fewer correct answers on a knowledge test (contrast effect) versus being primed with a professor (a moderate exemplar of intelligence) which led to more correct answers on the same test (an assimilation effect) (Dijksterhuis, Spears, Postmes, Stapel, Van Knippenberg, & Scheepers, 1998). In all, primes that are considered different from and inconsistent with the target's self-concept in turn lead to contrast effects (Glaser & Banaji, 1999; Petty & Wegener, 1993; Strack, 1992; Strack & Hannover, 1996; Wegener & Petty, 1995). This literature is consistent with the three major implications of the self-concept. First, information about the self-concept is processed faster and more efficiently, especially consistent information (assimilation effect). Second, one retrieves and remembers information that is relevant to one's self-concept. Third, one will tend to resist information in the environment that is inconsistent with one's self-concept (contrast effect).

Results from Study 2 suggest that any incoming cultural information that is incongruent with the biculturals self-concept may result in a contrast effect. When considering the influx of cultural information that affects a biculturals self-concept, it is

important to remember the underlying mental processes in which cultural information is processed. Perhaps the incoming cultural information led the Mexican American biculturals to engage in the negotiation of their two cultural orientations at two distinct levels of awareness. Research on dual-systems model would support this notion.

According to research on dual-systems model (Nosek & Hansen, 2008; Strack & Deitsch, 2004), cultural information can be processed implicitly, impulsively or associative versus explicitly, reflective, or propositionally. Cultural information that is processed implicitly or associatively is believed to represent the implicit self-concept and process information by the spread of activation between concepts that are associatively linked. The implicit self-concept reflects automatic responses which result from the particular associations that are triggered automatically when a person encounters a relevant stimulus (Gawronski & Bodenhausen, 2006). On the other hand, cultural information that is processed in the form of propositions is believed to represent the explicit self-concept and process information through introspection. The explicit self-concept is best considered as evaluative judgments about the self-concept which stem from the processes of propositional reasoning (Gawronski & Bodenhausen, 2006).

There are several important aspects of associative processes that underlie the implicit self-concept which are important to consider. First, pattern activation refers to the notion that the activation of particular associations in memory is dependent on the comparative fit between: 1) the preexisting structure of associations in memory (e.g., self-concept) and 2) the particular set of external input stimuli (Gawronski & Bodenhausen, 2006). In the case of Study 2, the comparative fit between the external stimuli (words) and the implicit self-concept may have been strong enough to trigger the

negotiation process between the participant's dual cultural identities. Second, associative evaluations are best characterized as automatic affective reactions when a person encounters a relevant stimulus (Gawronski & Bodenhausen, 2006). Recall that the harmony vs. conflict dimension of BII is affect driven, thus is makes sense that it served as a relevant stimulus to activate the negotiation process in the participant's implicit self-concept. Third, associative processes are void of truth values, unlike propositioning reasoning, which means that they are often not personally endorsed by the individual (Gawronski & Bodenhausen, 2006). Therefore, if implicit evaluations can be activated regardless of whether a person considers these evaluations as accurate or not, then it is quite possible for inconsistencies to exists between the implicit and explicit self-concepts.

In all, research on the dual-systems model helps to explain the obtained results found in Study 2. In particular, individuals varying in BII were exposed to cultural information that ignited the negotiation process of their dual cultural orientations within the self-concept, thus creating a contrast effect between their implicit and explicit self-concepts. Collectively, the results of Study 2 and the research on culture, the self-concept, and dual-systems model, have important theoretical implications for BII.

Recall that BII is an individual difference variable that underlies the dynamics of bicultural identification. Research on BII theory showed that cultural harmony is more affect driven and interpersonal component of the bicultural experience, whereas cultural blendeness captures the more perceptual and performance related aspects of the bicultural experience. Thus, when a bicultural individual high on cultural blendedness perceives his or her self as apart of a combined culture, his/her self-concept is placed in proximity to both cultures and orientations (irrespective of the degree of tension or strain felt between

the two cultures and group loyalties). On the other hand, when a bicultural individual high on cultural harmony states that his/her ethnic and mainstream cultural identities are quite compatible, he or she is expressing rapport and compatibility between each cultural orientation and membership (irrespective of the degree of overlap or similarity perceived between the two cultures) (Miramontez, Benet-Martinez, & Nguyen, 2008).

To advance BII theory, the inherent properties that characterize each pair of BII dimensions can be further understood in regards to the dual-systems model. That is, the harmony vs. conflict dimension of BII tends to capture elements of the implicit self-concept of the bicultural experience. This conclusion is evidenced by how the explicit self-attachment to blendedness accounts for a weaker implicit Self + Harmony association, implicit harmony's independence from any of the explicit acculturation and outcomes measures, and how bicultural individuals showed a significantly implicit stronger self-attachment to harmony relative to self + blendedness association. This line of reasoning is consistent with the argument that implicit evaluations reflect automatic affective reactions to relevant stimuli and that the harmony vs. conflict dimension is affective driven and captures the internal struggle felt *within* the bicultural, irrespective of the degree of overlap or similarity perceived between the two cultures. On the other hand, the blendedness vs. distance dimension of BII appears to capture elements of the explicit self-concept of the bicultural experience. This conclusion is supported by implicit blendedness's independence from the explicit BII measure, and the correlations with explicit U.S. Identification and separation strategy, which are similar findings from Benet-Martinez and Haritatos (2005). This line of reasoning is consistent with the fact that the blendedness vs. distance dimension is more perceptual driven and captures the

performance-related elements of the acculturation experience, regardless of the degree of tension or strain felt between the two cultures and group loyalties.

The results from Study 2 do not reflect the notion that the blendedness vs. distance dimension of BII is uniquely understood in terms of the explicit self-concept, while the harmony vs. conflict dimension of BII is exclusively comprehended in light of the implicit self-concept. Both BII dimensions can exist across both levels of awareness as the current research suggests and be evaluated according to the implicit and explicit self-concepts. What matters is the extent to which implicit and explicit evaluations operate independently or interactively as suggested by the dual-systems model (Chaiken & Trope, 1999; Gawronski & Bodenhausen, 2006; Smith & DeCoster, 1999; Strack & Deitsch, 2004; Wilson, Lindsey, & Schooler, 2000; as cited in Nosek & Hansen, 2008). Research on dual-systems model posits that associative processes usually serve as a basis for explicit evaluative judgments (Gawronski & Bodenhausen, 2006). If the propositional implication of an implicit evaluation is in line with other relevant propositions, then it will most likely be considered as a valid basis for an evaluative judgment. However, explicit evaluative judgments exist independent of implicit evaluations, when these evaluations are discarded as a suitable source for an evaluative judgment. Thus, bicultural individuals varying in degree of BII can show assimilation or contrast effects between their implicit and explicit self-concepts based on how their implicit and explicit evaluations co-exist.

This research also goes beyond the elements of biculturals who are considered high or low BII. Recall that the intersection of cultural harmony and blendedness make biculturals high BII while the merging of cultural distance and conflict make biculturals

low BII. What about the bicultural individuals who vary independently between these two dimensions of BII. Since the two BII dimensions are orthogonal constructs, it is quite possible for a bicultural to perceive their dual cultural orientations as blended; however, feel that they are conflicted as well. For the first time the current research provides a glimpse into the possible underlying mental processes that govern how biculturals vary independently between the two BII dimensions.

Results from Study 2 clearly give credence to the fact that the IAT is an optimal tool for measuring individual difference (BII) that are developed from cultural influences experienced in our daily environments. That is, the implicit evaluations the IAT measures are presumed to reflect variations in daily cultural experiences. This is corroborated by the variations in cultural experiences that biculturals encounter on a daily basis. Research has found that biculturals low in BII tend to have more negative experiences, which contribute to negative cultural associations (Cheng et al., 2006). On the other hand, biculturals with higher levels of BII may have more positive experiences, which contribute to more positive cultural associations. Thus, any incoming cultural information that is inconsistent with the biculturals positive or negative experience may indeed produce assimilation or contrast effects between their implicit and explicit self-concepts. Although Study 2 did not explicitly examine this phenomenon per se, it makes reasonable sense given that our self-concepts are "cognitive generalizations of the self, derived from past experiences, that organize and guide the processing of self-related information contained in the individual's social experiences" (p. 38; as cited in Augoustinos & Walker, 2000).

The findings across both studies are consistent with Devos (2006) and with the image rising from modern research on acculturation and bicultural identity (Benet-Martínez & Haritatos, 2005; Benet-Martínez et al., 2002; Berry, 2003; Haritatos & Benet-Martínez, 2002; Hermans & Kempen, 1998; Hong et al., 2000; Laframboise et al., 1993; Padilla, 1994; Phinney & Devich-Navarro, 1997; Rotheram-Borus, 1993; Tsai et al., 2000) that individuals often find themselves immersed into multicultural surroundings and define themselves along numerous cultural boundaries and incorporate into their self-concept knowledge about a variety of cultures. Going beyond the present literature, an important innovation of the present research is to provide evidence for acculturation strategies and the integration of bicultural identities into the self-concept through assessments of thoughts that cannot be consciously controlled. That is, the results of both two studies clearly demonstrate that at least under certain circumstances, cultural knowledge and/or experience can implicitly be incorporated into the self-concept.

These findings are consistent with the Cultural psychology perspective which defines culture from within the individual as a socio-cognitive variable (Hong et al., 2000; Verkuyten & Pouliasi, 2002; Wong & Hong, 2005). In other words, culture and the individual are seen as interdependent rather than as independent entities (Greenfield, 1997; Hong et al, 2000; Markus & Kitiyama, 1991). It further supports the notion that psychological acculturation can be thought of as two types of associative networks of cultural information both of which can influence an individual's self-concept, which are shaped through repeated experiences and interactions. Finally, individuals contain, within themselves, not only various cultural meaning systems but also dual self-concepts which may be contradictory to one another.

The present findings also go beyond the common assumption that psychological acculturation and bicultural identity could only be examined through conscious representations of the self-concept that are generated through an introspective reasoning process of propositions. The findings across both studies clearly showed that both psychological acculturation and bicultural identity integration can also be assessed through implicit measures such as the IAT that go beyond the restrictions of relying exclusively on explicit questionnaire methodology.

Given that multicultural individuals are able to incorporate numerous cultural identities into their self-concept that go beyond explicit measures, the present research was able to contribute to the examination of the IAT-culture relationship. Unlike previous studies that failed to untangle person from culture (Nosek & Hansen, 2008; Nosek & Hansen, 2008), the present studies were able to truly conceptualize and measure culture as a socio-cognitive variable that exists within the individual rather than as independent entities. For instance, Study 1 was able to directly pair words that represented the self-concept (e.g., I) with icons that represented various cultures (e.g., Mexican, Korean, or American) together (e.g., 'I'-'Insert various picture of Mexican culture') and Study 2 was able to directly pair self-concept terms with words that represented the negotiation of bicultural identity (e.g. blendedness or harmony) together (e.g., 'I'-'blend'). By using these types of IAT methodologies, the results across both studies showed support for an IAT-culture relationship. Showing support for an IAT-culture relationship helps corroborate the argument that cultural experience maybe what is manifested in implicit evaluations.

The fact that cultural experiences helps to cultivate associative links between the self-concept and culture makes sense. Cultural experiences occur on a daily basis and help to shape the self-concept through re-occurring mundane influences that we as individuals pay no real conscious attention too. Cultural experiences are multifaceted and are usually comprised of social categories and contexts such as national, state, city, social class, spoken language, school, occupation, friends, gender, family, ethnicity, age, and neighborhood to name a few. The main premise of cultural experiences underlying implicit evaluations is that the experiences must occur, associations must form, and those associations must be made available (i.e., associative information stored in memory).

How we as social beings derive our cultural experiences has a lot to say about the ways in which we form our identities. With the influence of cross-cultural contact on the rise in the twenty-first century, new types of ethnic/cultural identities are starting to form and take shape for many individuals. Globalization based-acculturation is increasingly becoming a worldwide norm in that many individuals are now considered to be multicultural and find themselves defining their self-concepts along multiple ethnic and cultural boundaries. The argument is that although globalization based-acculturation is nothing new, it is more prevalent today than ever before and the rate at which it is expanding and influencing individuals is alarming.

Today, globalization-based acculturation is driven by factors such as speed of travel and communication and have allowed for new technological marvels to penetrate every aspect of our daily lives. Computers, internet, texting, cell phones, instant messaging, and email now allow us to directly communicate and interact with individuals in other cultures that are half way around the world. As these technological devises are

used everyday, they become part of our everyday cultural experiences that help shape our self-concept. Most of these new cultural encounters occur instantaneously and without conscious thought, thus allowing for many new associations to be formed and be made available in memory at an accelerated rate. Unlike twenty years ago, these new types of cultural experiences allow for individuals to expose themselves to a plethora of cultures and define their self-concepts along multiple cultural boundaries at a rate that is beyond any individual's conscious control. Globalization-based acculturation allows for many cultural influences to act upon the individual that go beyond deliberate conscious awareness at an accelerated rate that defines the self-concept at two distinct levels of mental processing (i.e., dual-systems model). That is why it is important to have social-cognitive techniques such as the IAT capture implicit evaluations of the self-concept that are derived from cultural experiences.

Limitations of study

Given the important contribution of the present two studies to the literature, it is important to consider the limitations of the research. First, the cultural icons that were selected for Study 1 were not exclusively linked to each culture. Unlike the current study, Devos (2006) chose his cultural stimuli by having participants rate the extent to which each cultural icon was strongly linked to one culture (e.g. Statue of Liberty representing American culture) and weakly linked to another culture (e.g. Mexican culture). Each cultural icon was selected using this selection process across Devos's two studies in order to reduce any ambiguities in linking the self-concept to the desired culture of interest. This approach was not used for the current study. By not exclusively linking the cultural icons to each culture may be a limitation in the current study because

there was a potential for participants to ambiguously confuse the icons which each other. A second limitation of the current research was that the geometric icons that were used in Study 2 as a control condition were not pre-tested as being culturally neutral. Since the experimental manipulation did not work for Study 2, this was not much of a concern.

Suggestions for future research and concluding remarks

Given the exploratory nature of these studies, future studies are needed to replicate these results. Future research should examine these questions in non-Latino cultural groups, who are likely to have different cultural norms, migration histories, and patterns of economic, political, and social relations in the US. Lastly, because these studies focused on the extent to which ethnic minority individuals implicitly incorporate cross-cultural knowledge and/or experiences into their self-concept, it did not include a monocultural sample. Still, future work interested in the role that cultural exposure and membership may have on the content and dynamics of the self-concept may benefit from comparisons between multicultural individuals (who have extensive contact with multiple cultures) and monoculturals (who have extensive contact with only one culture).

We hope that the questions and findings raised in this research resonate not only among researchers interested in implicit social cognition but also with the larger community of social, personality, and cultural researchers. As multiculturalism and globalization-based acculturation become more prevalent in the 21st century, it is important that we understand how mental processes underlie multicultural identities. Certainly, the present findings further emphasize the complexity of implicit social cognition, culture, and the self-concept, specifically showing that multicultural identities is a highly complex and layered process. In fact, as eloquently said by Devos (2006)

"Research on implicit multicultural identities might provide insights into subtle, yet crucial mechanisms by which cultural knowledge is incorporated into the self-concept. It should lead to a better understanding of how cultural values, beliefs, customs, norms, and experiences shape thought, feeling, and behaviors without reflective consciousness or deliberate decisions" (p. 28).

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Table 1

Implicit Association Tests: Pairs of Concepts Combined, for Studies 1 & 2

Implicit Association Tests	Pair 1		Pair 2	
Study 1				
Identification with American vs. Mexican Culture	Self	Other	American culture	Mexican culture
Identification with American Culture	Self	Other	American culture	Korean culture
Identification with Mexican Culture	Self	Other	Mexican culture	Korean culture
Study 2				
Identification with BII Dimension Harmony	Self	Other	Harmony	Conflict
Identification with BII Dimension Blendedness	Self	Other	Blendedness	Distance

Note. The table does not reflect the order in which participants completed the three IATs for Study 1 and two IATs for Study 2. The order of the blocks were randomized across participants (See respective Method sections for Studies 1 & 2 for further detail).

Table 2

Explicit Measures of Acculturation, Psychological Adjustment and Personality: Reliabilities, Means and Standard deviations, Study 1

	M	SD	α
Demographic/Acculturation			
Age	18.73	3.23	--
U.S. Identification	4.51	1.09	--
Mexican Identification	4.80	1.17	--
English Proficiency/use	4.94	.77	.70
Spanish Proficiency/use	4.03	1.34	.92
Acculturation Attitudes			
Integration	4.26	.51	.46
Separation	2.22	.70	.63
Assimilation	2.13	.66	.68
Marginalization	1.58	.53	.53
Bicultural Identity Integration			
Harmony	3.82	.64	.79
Blendedness	3.85	.98	.28
Multi Ethnic identity Measure			
Ethnic Identity Search	3.29	.78	.64
Affirmation, Belonging & Commitment	4.03	.73	.86
Acculturative Stress			
Work	2.70	1.14	.78
Linguistic	1.38	.74	.85
Intercultural Relations	1.87	.91	.74
Discrimination	2.40	1.15	.86
Cultural Isolation	1.95	1.02	.71
Vancouver Index of Acculturation			
Heritage	4.21	.76	.92
Mainstream	4.22	.50	.81
Personality			
Extraversion	3.42	.78	.86
Agreeableness	4.07	.62	.80
Conscientiousness	3.77	.60	.77
Neuroticism	2.61	.64	.76
Openness	3.56	.59	.77
Symptoms Checklist 90-Revised			
Lack of Anxiety	2.95	.57	.54
Lack of Depression	3.43	.53	.41
Lack of Loneliness	3.55	.58	.74
Rosenberg Self-Esteem Scale	3.74	.28	.79
Satisfaction with Life Scale	2.95	.66	.79
Psychological Well-being (Composite)	3.48	.30	.85

Table 3

Study 1: Overall Effect of the Three IAT Measures

Variable	N	M	SD	t	df	p
American vs. Mexican (IAT 1)	99	$-.299_{a}$	.531	-5.61	98	<.001
American vs. Korean (IAT 2)	99	$.223_{ab}$	.449	4.94	98	<.001
Mexican vs. Korean (IAT 3)	99	$.412_{ac}$	.346	11.86	98	<.001
IAT 2 vs. IAT 3	--	--	--	-3.41	98	<.001

Note. Means in the same column with the same subscripts are reliably different from 0. Means in the same column with different subscripts are reliably different from each other ($p<.001$).

Table 4

Intercorrelations between Implicit Acculturation and Explicit Personality, Psychological Adjustment, & Acculturation Measures for Study 1

variables	American vs. Mexican (IAT 1)	American vs. Korean (IAT 2)	Mexican vs. Korean (IAT 3)
Implicit Association Tests			
IAT 1 (American vs. Mexican)	--	-.02	-.44**
IAT 2 (American vs. Korean)	--	--	.06
IAT 3 (Mexican vs. Korean)			
Demographic/Acculturation			
Age	-.10	.06	.25*
U.S. Identification	.06	.08	-.12
Mexican Identification	-.18	-.06	.07
English Proficiency/use	.07	.31**	.13
Spanish Proficiency/use	-.07	-.23*	.04
Acculturation Attitudes			
Integration	.00	.05	-.15
Separation	-.03	-.10	-.08
Assimilation	.13	.21	-.06
Marginalization	.11	.11	-.08
Bicultural Identity Integration			
Harmony	.05	.14	-.08
Blendedness	-.05	.05	-.00
Multi Ethnic identity Measure			
Ethnic Identity Search	-.05	-.19	-.10
Affirmation, Belonging & Commitment	-.04	-.22*	-.06
Acculturative Stress (Composite)	-.04	-.25*	.10
Work	-.03	-.22*	.11
Linguistic	-.03	-.29**	-.08
Intercultural Relations	-.05	-.12	.02
Discrimination	.00	-.12	.19
Cultural Isolation	-.05	-.13	.02
Vancouver Index of Acculturation			
Heritage	-.06	-.21*	.05
Mainstream	.18	.06	-.26**
Personality			
Extraversion	.05	-.04	.06
Agreeableness	-.03	-.01	.01
Conscientiousness	.02	-.02	-.04
Neuroticism	.08	.07	.10
Openness	-.20*	.20*	.05
Psychological Well-being (Composite)	.06	-.05	-.08
Lack of Depression	.08	-.05	-.20*
Lack of Anxiety	-.09	-.03	-.04
Lack of Loneliness	.10	-.03	-.05
Positive Self-Esteem	.01	-.04	.05
Satisfaction with Life	.11	-.01	-.15

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

Table 5

Study 1: Summary Statistics for the Four Acculturation Groups on the three IAT Measures

Variable		N	M	SD	95% Confidence Interval	
					Lower Bound	Upper Bound
American vs. Mexican (IAT 1)						
	Integration	41	-.247	.491	-.402	-.091
	Separation	14	-.442	.482	-.721	-.163
	Assimilation	11	-.045	.698	-.514	.424
	Marginalization	33	-.389	.522	-.574	-.204
American vs. Korean (IAT 2)						
	Integration	41	.200	.409	.071	.329
	Separation	14	.092	.527	-.211	.397
	Assimilation	11	.453	.356	.214	.693
	Marginalization	33	.229	.479	.060	.399
Mexican vs. Korean (IAT 3)						
	Integration	41	$.342_a$	.318	.241	.442
	Separation	14	$.611_b$	.281	.449	.774
	Assimilation	11	.326	.266	.147	.505
	Marginalization	33	.443	.397	.301	.583

Note. Means in the same column with different subscripts are reliably differnt from each other ($p < .05$)

Table 6

Explicit Measures of Acculturation, Psychological Adjustment and Personality: Reliabilities, Means and Standard deviations, Study 2

	M	*SD*	α
Demographic/Acculturation			
Age	19.55	7.05	--
U.S. Identification	4.37	1.24	--
Mexican Identification	4.60	1.21	--
English Proficiency/use	4.88	.93	.72
Spanish Proficiency/use	4.27	1.39	.91
Acculturation Attitudes			
Integration	4.14	.64	.53
Separation	2.20	.76	.66
Assimilation	2.00	.54	.48
Marginalization	1.65	.56	.47
Bicultural Identity Integration			
Harmony	3.82	1.06	.83
Blendedness	3.83	.72	.52
Multi Ethnic identity Measure			
Ethnic Identity Search	3.23	.86	.70
Affirmation, Belonging & Commitment	3.88	.82	.85
Acculturative Stress			
Work	2.56	1.07	.71
Linguistic	1.26	.59	.81
Intercultural Relations	1.98	.95	.70
Discrimination	2.58	1.08	.81
Cultural Isolation	2.14	1.01	.60
Vancouver Index of Acculturation			
Heritage	4.15	.79	.91
Mainstream	4.06	.57	.81
Personality			
Extraversion	3.40	.84	.85
Agreeableness	4.00	.63	.78
Conscientiousness	3.60	.63	.77
Neuroticism	2.90	.85	.84
Openness	3.64	.60	.73
Symptoms Checklist 90-Revised			
Lack of Anxiety	2.90	.64	.64
Lack of Depression	3.18	.59	.43
Lack of Loneliness	3.44	.66	.65
Rosenberg Self-Esteem Scale	2.79	.72	.86
Satisfaction with Life Scale	3.37	.45	.92
Psychological Well-being (Composite)	3.37	.45	.92

Table 7

Study 2: Overall Effect of the Two IAT Measures

Variable	N	M	SD	t	df	p
Harmony vs. Conflict (IAT 1)	133	$.398_{ab}$	.476	9.60	132	<.001
Blendedness vs. Distance (IAT 2)	133	$.270_{ac}$	.392	7.95	132	<.001
IAT 1 vs. IAT 2	--	--	--	2.20	132	<.05

Note. Means in the same column with the same subscripts are reliably different from 0. Means in the same column with different subscripts are reliably different from each other (p<.05)

Table 8

Overall Intercorrelations between Implicit BII and Explicit Personality, Psychological Adjustment & Acculturation Measures of Study 2

variables	Harmony vs. Conflict (IAT 1)	Blendedness vs. Distance (IAT 2)
Implicit Association Tests		
IAT 1 (Harmony vs. Conflict)	--	-.07
IAT 2 (Blendedness vs. Distance)	--	--
Demographic/Acculturation		
Age	.15	.02
U.S. Identification	-.03	-.18*
Mexican Identification	.05	-.05
English Proficiency/use	.10	-.03
Spanish Proficiency/use	-.02	.01
Acculturation Attitudes		
Integration	-.15	.13
Separation	.05	-.17*
Assimilation	.05	-.08
Marginalization	.08	-.01
Bicultural Identity Integration		
Harmony	.06	-.05
Blendedness	-.24**	-.06
Multi Ethnic identity Measure		
Ethnic Identity Search	-.05	-.06
Affirmation, Belonging & Commitment	-.10	-.07
Acculturative Stress (Composite)	-.13	-.00
Work	-.09	.07
Linguistic	-.04	.02
Intercultural Relations	-.11	-.11
Discrimination	-.04	.07
Cultural Isolation	-.17	-.07
Vancouver Index of Acculturation		
Heritage	-.12	-.08
Mainstream	-.06	-.06
Personality		
Extraversion	.16	.08
Agreeableness	-.07	-.01
Conscientiousness	.03	-.04
Neuroticism	-.02	-.02
Openness	.01	.07
Psychological Well-being (Composite)	.07	.01
Lack of Depression	.04	-.01
Lack of Anxiety	.05	-.01
Lack of Loneliness	.09	-.01
Positive Self-Esteem	.05	.01
Satisfaction with Life	.08	-.05

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

Table 9

Experimental Group Intercorrelations between Implicit BII and Explicit Personality, Psychological Adjustment & Acculturation Measures of Study 2

variables	Harmony vs. Conflict (IAT 1)	Blendedness vs. Distance (IAT 2)
Implicit Association Tests		
IAT 1 (Harmony vs. Conflict)	--	-.13
IAT 2 (Blendedness vs. Distance)	--	--
Demographic/Acculturation		
Age	.19	.01
U.S. Identification	.05	-.27*
Mexican Identification	.07	.07
English Proficiency/use	.19	-.12
Spanish Proficiency/use	-.17	.08
Acculturation Attitudes		
Integration	-.21	.12
Separation	.19	-.09
Assimilation	.08	-.02
Marginalization	.15	.04
Bicultural Identity Integration		
Harmony	.15	.02
Blendedness	-.20	-.06
Multi Ethnic identity Measure		
Ethnic Identity Search	-.07	-.04
Affirmation, Belonging & Commitment	-.09	-.09
Acculturative Stress (Composite)	-.19	.02
Work	-.19	.13
Linguistic	-.06	.08
Intercultural Relations	-.14	-.17
Discrimination	-.02	.18
Cultural Isolation	-.14	-.04
Vancouver Index of Acculturation		
Heritage	-.13	-.04
Mainstream	-.09	-.06
Personality		
Extraversion	.18	.10
Agreeableness	-.03	.01
Conscientiousness	.08	-.04
Neuroticism	.04	-.10
Openness	-.02	.14
Psychological Well-being (Composite)	.02	.06
Lack of Depression	-.07	-.04
Lack of Anxiety	-.02	-.01
Lack of Loneliness	.09	-.04
Positive Self-Esteem	.03	.07
Satisfaction with Life	.04	.14

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

Table 10

Control Group Intercorrelations between Implicit BII and Explicit Personality, Psychological Adjustment & Acculturation Measures of Study 2

variables	Harmony vs. Conflict (IAT 1)	Blendedness vs. Distance (IAT 2)
Implicit Association Tests		
IAT 1 (Harmony vs. Conflict)	--	.01
IAT 2 (Blendedness vs. Distance)	--	--
Demographic/Acculturation		
Age	-.12	-.02
U.S. Identification	-.09	-.11
Mexican Identification	.01	-.22
English Proficiency/use	.01	-07
Spanish Proficiency/use	.09	-.07
Acculturation Attitudes		
Integration	-.13	.09
Separation	-.11	-.25*
Assimilation	.03	-.14
Marginalization	-.02	-.08
Bicultural Identity Integration		
Harmony	-.05	-.12
Blendedness	-.30*	-.08
Multi Ethnic identity Measure		
Ethnic Identity Search	-.05	-.09
Affirmation, Belonging & Commitment	-.13	-.08
Acculturative Stress (Composite)	-.08	-.02
Work	.03	.01
Linguistic	-.01	-.07
Intercultural Relations	-.06	-.10
Discrimination	-.05	-.02
Cultural Isolation	-.20	-.10
Vancouver Index of Acculturation		
Heritage	-.12	-.12
Mainstream	-.06	-.09
Personality		
Extraversion	.15	.06
Agreeableness	-.14	-.05
Conscientiousness	-.04	-.03
Neuroticism	-.12	.05
Openness	.04	-.01
Psychological Well-being (Composite)	.19	-.02
Lack of Depression	.21	.04
Lack of Anxiety	.16	.01
Lack of Loneliness	.09	.02
Positive Self-Esteem	.14	-.07
Satisfaction with Life	.16	-.01

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

Table 11

Study 2: Overall Summary Statistics for High and Low Harmony and Blendedness on the two IAT Measures

Variable		N	M	SD	t	df	p
Harmony vs. Conflict (IAT 1)							
	High Harmony	76	.377	.473	-.526	131	.600
	Low Harmony	57	.422	.489			
	High Blendedness	68	$.308_{a}$	.461	-2.23	131	.027
	Low Blendedness	65	$.489_{b}$	.477			
Blendedness vs. Distance (IAT 2)							
	High Harmony	76	.219	.410	-1.75	131	.083
	Low Harmony	57	.338	.359			
	High Blendedness	68	.314	.360	1.31	131	.194
	Low Blendedness	65	.225	.420			

Note. Means in the same column with different subscripts are reliably different from each other ($p < .05$)

Table 12

Study 2: Experimental Group Summary Statistics for High and Low Harmony and Blendedness on the two IAT Measures

Variable		N	M	SD	t	df	p
Harmony vs. Conflict (IAT 1)							
	High Harmony	39	.433	.539	.190	67	.850
	Low Harmony	30	.408	.487			
	High Blendedness	38	.355	.478	-1.19	67	.237
	Low Blendedness	31	.503	.551			
Blendedness vs. Distance (IAT 2)							
	High Harmony	39	.270	.448	-1.06	67	.292
	Low Harmony	30	.374	.336			
	High Blendedness	38	.387	.354	1.67	67	.108
	Low Blendedness	31	.226	.447			

Table 13

Study 2: Control Group Summary Statistics for High and Low Harmony and Blendedness on the two IAT Measures

Variable		N	M	SD	t	df	p
Harmony vs. Conflict (IAT 1)							
	High Harmony	37	.320	.390	-1.06	62	.294
	Low Harmony	27	.436	.488			
	High Blendedness	30	$.247_{a}$	.438	-2.16	62	.034
	Low Blendedness	34	$.476_{b}$	.407			
Blendedness vs. Distance (IAT 2)							
	High Harmony	37	.166	.363	-1.40	62	.166
	Low Harmony	27	.298	.386			
	High Blendedness	30	.219	.351	-.041	62	.967
	Low Blendedness	34	.223	.402			

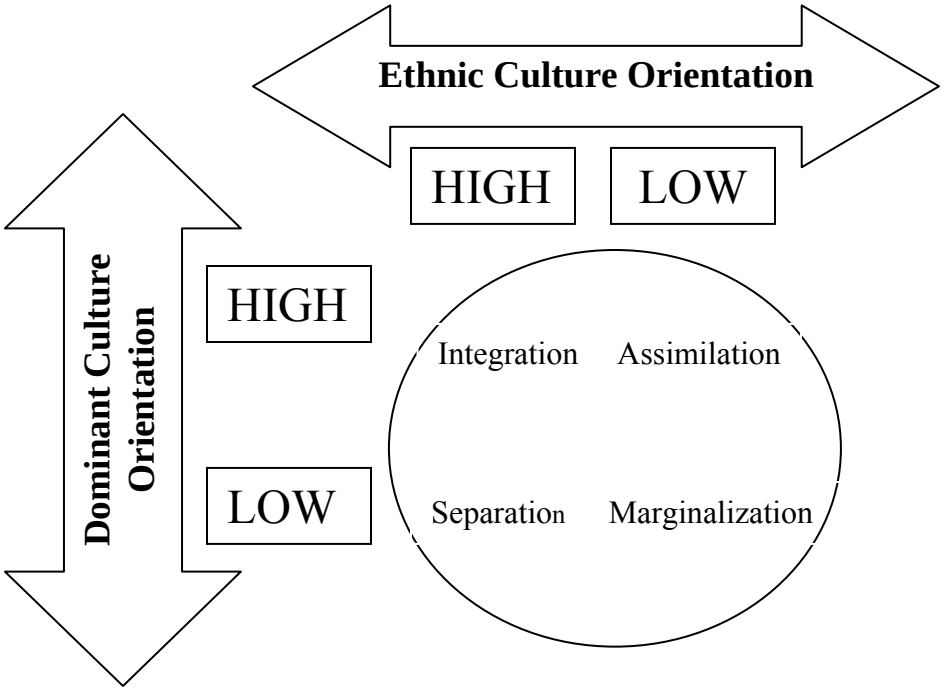
Note. Means in the same column with different subscripts are reliably different from each other ($p < .05$)

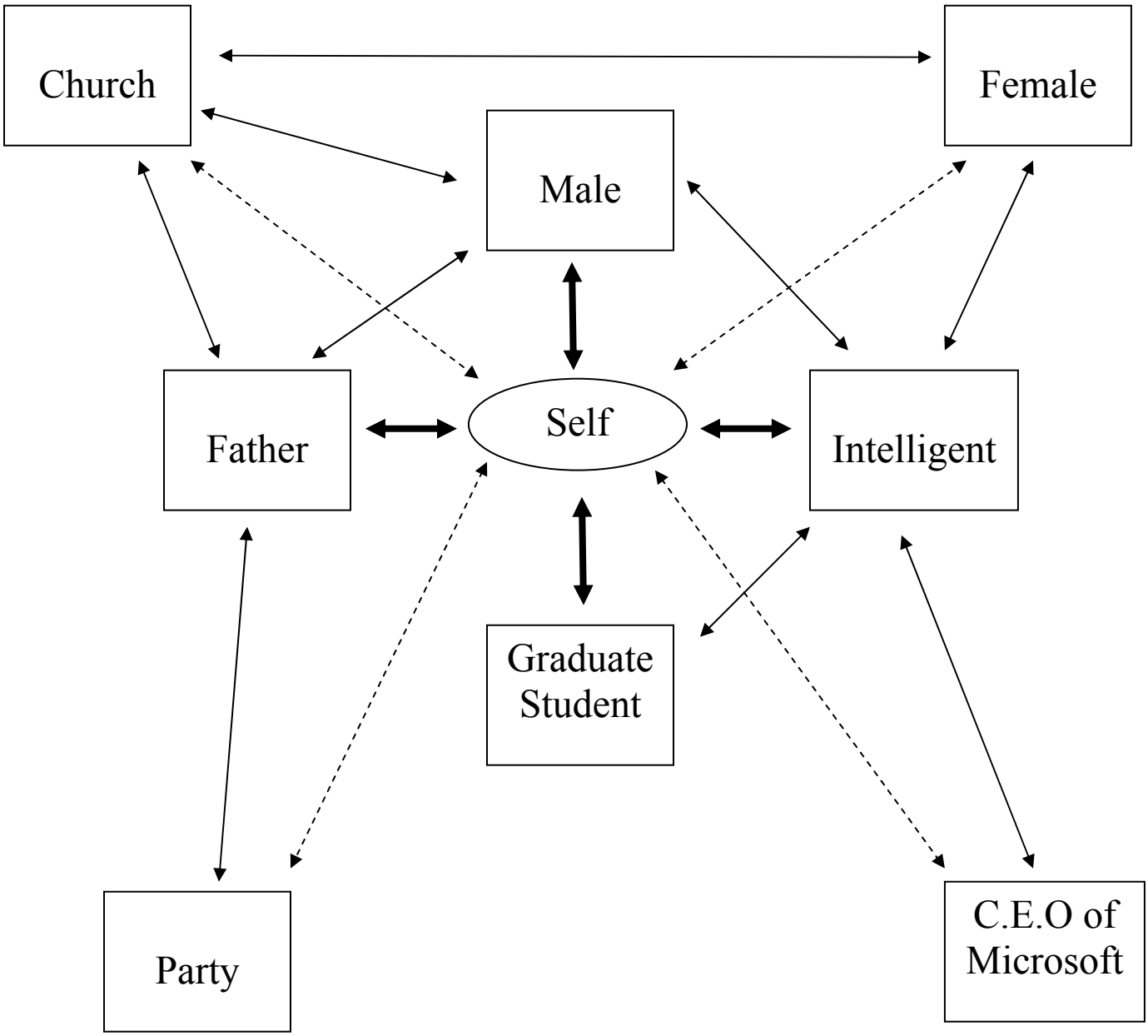
Figure Caption

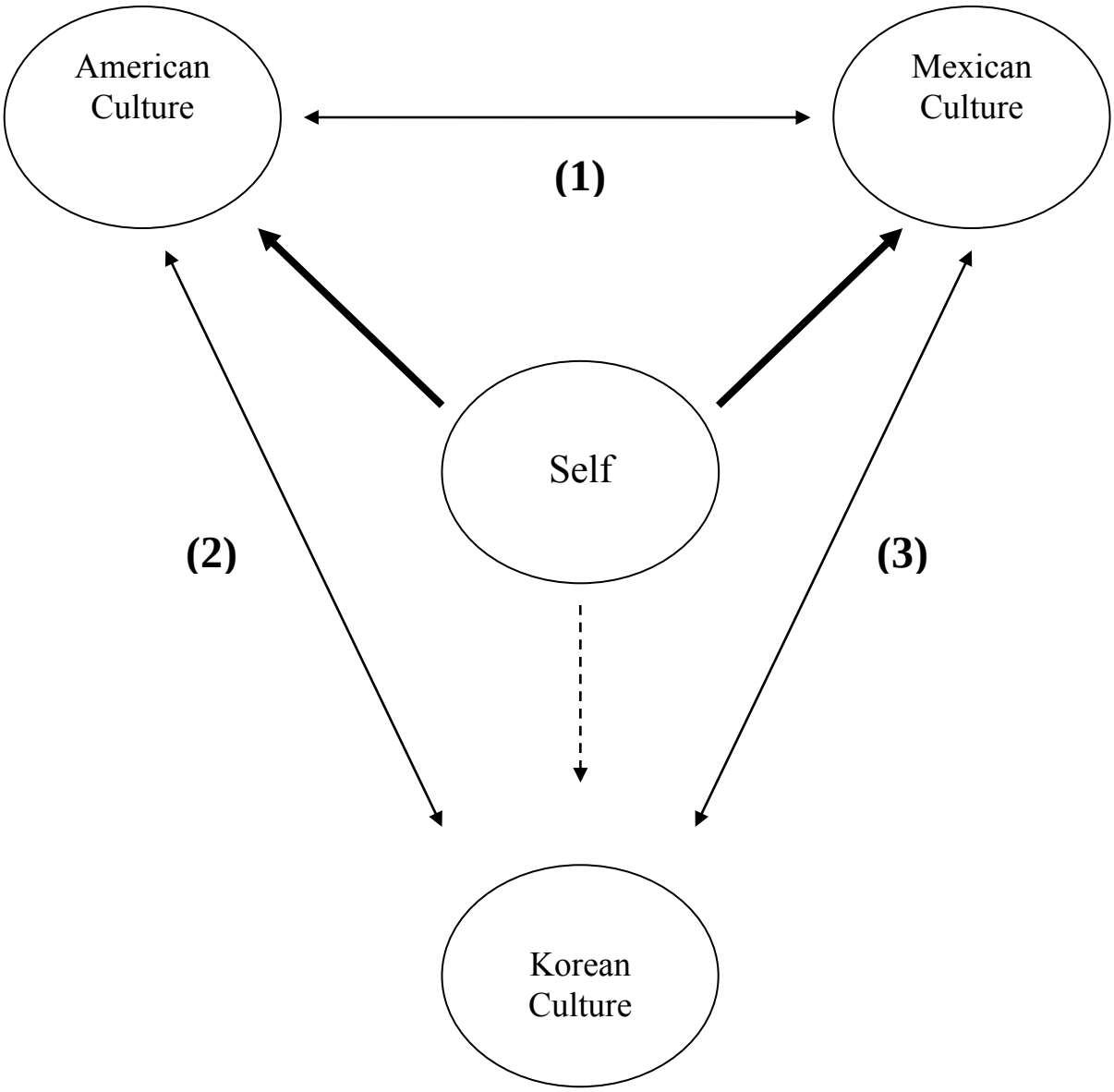
Figure 1. Berry's (2003) Acculturation Model.

Figure 2. Schematic Knowledge Structure of the Self-Concept.

Figure 3. Pictorial Representation of Study 1 (Implicit Acculturation)


Ethnic Culture Orientation
HIGH
LOW
Dominant Culture Orientation
HIGH
LOW
Integration
Assimilation
Separation
Marginalization


Church
Female
Male
Father
Self
Intelligent
Graduate Student
Party
C.E.O of Microsoft


American Culture
Mexican Culture
(1)
Self
(2)
(3)
Korean Culture