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Acculturation as a Mediating Factor between Ethnic and Self-Identities

Judith A. Hotvedt
Loma Linda University

LOMA LINDA UNIVERSITY
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Acculturation as a Mediating Factor between Ethnic and Self-Identities

by

Judith A. Hotvedt

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Each person whose signature appears below certifies that this dissertation in his/her opinion is adequate, in scope and quality, as a dissertation for the degree Doctor of Philosophy.

_____, Chairperson
Louis Jenkins, Department of Psychology Chairman

_____
David Chavez, Associate Professor of Psychology

_____
Leslie R. Martin, Professor of Psychology

_____
Paul McMahon, Clinical Geropsychologist

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ABBREVIATIONS

Age1	Age in Months
ETHNAFF	Ethnic Affiliation
LANG	Language
LANPREF	Language Preference
ENGBAS	English Fluency
MARSTAT	Marital Status
IMMIGR	Recent Immigration
GENIMM	Generation Since Immigration
MOMETH	Mom’s Ethnicity
DADETH	Dad’s Ethnicity
IMPERS	Most Important People Back Home
IMPERSG	Most Important People Here
CUSTOM	Preference for Customs of Ethnic Group
HERITAGE	Currently Active in Heritage Culture
DIFFID	Do You Have Separate American and Ethnic Identity
IDPREF	Identity Preference
BELONG	Do You Consider Yourself Belonging to an Ethnic Group
EDLEV	Education Level
EOMTOT	Ego Identity Measure Total Scale Scores
DIF	EOM Raw Diffusion Scores
FOR	EOM Raw Foreclosure Scores
MOR	EOM Raw Moratorium Scores

ACH	EOM Raw Achievement Scores
ISC	Identity Status Classifications
INTERPER	EOM Interpersonal Variables Subscale
MEIMTOT	Multi-Group Ethnic Identity Measure Total Scale Scores
ETHNGRP	MEIM Ethnic Group Belonging
ETHIDSEAR	MEIM Ethnic Identity Subscale Score
AFFBEL	MEIM Affirmation and Belongingness Subscale Score
ORIENTTOT	MEIM Out-Group Orientation Scale
VIAHER	Vancouver Index of Acculturation Heritage Subscale
VIAHOST	Vancouver Index of Acculturation Host Subscale

ABSTRACT OF THE DISSERTATION

Acculturation as a Mediating Factor between Ethnic and Self-Identities

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Judith A. Hotvedt

Doctor of Philosophy, Graduate Program in Clinical Psychology
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Dr. Louis Jenkins, Chairperson

Is acculturation a mediating factor in self- and ethnic identity among ethnic minority emerging-adults? A conceptual model was tested examining links between self- and ethnic identity and acculturation. An association was proposed between perceived social support, affirmation and belonging, and EOM self-identity statuses (diffusion, foreclosure, moratorium, achievement) as mediated by VIA mainstream and heritage acculturation. A second association was proposed between out-group orientation, interpersonal variables, and ethnic identity as mediated by VIA mainstream and heritage acculturation. This study did not provide full support for acculturation as a mediating variable; rather, the 'interpersonal variable' was an intervening variable in the association between heritage acculturation and ethnic identity search and affirmation and belongingness. The results confirm that VIA mainstream acculturation is not mediating an effect on ethnic identity; rather, it has a *direct* effect. The results also confirm that the interpersonal variable is not mediating an effect on ethnic identity. Implications and directions for future research are discussed.

CHAPTER ONE

INTRODUCTION

Acculturation and Identity Development

The culture in which a person lives has an important role in shaping a sense of self, whereby the individual identifies with and acknowledges belonging to that group. When a young emerging-adult immigrates from one culture to another, many aspects of self-identity are modified during the acculturation process to accommodate new information and experiences. Acculturation, a complex phenomenon, continues to be a primary concern of immigrating families and their children because the process of acculturation has an effect on competencies of acculturating individuals (Berry, 1988), their perceived identities (La Fromboise et al., 1993), and the amount of perceived social support in the new society (Phinney, 1996).

To date, it is projected that one third (approximately one million) of all emerging-adults immigrating to the United States in the next ten years will be faced with the emotional 'fall-out' from identity struggles related to acculturative stress (Ryder et al., 2000). In particular, the personal life experiences of minority youth in this country are burdened by the mismatch between heritage and host culture expectations (Ryder et al., 2000). The subjective discomfort (crisis) imposed by this mismatch leads to an exploration of alternatives and re-evaluation of attitudes, values, and behavior (Schwartz, 2002) that affect the process of self-awareness (Marcia, 1966; Erickson, 1968). Thus, it is this process, which defines the commitment toward self-defined goals, values, and beliefs, that direct an individual toward a firm sense of self.

Since identity crisis for acculturating youth is known to be in partnership with an increase in mental health concerns, substance abuse problems, eating disorders, and gang violence, the primary concern of this study is to examine individual variation among the persons undergoing acculturation and determine if acculturation mediates change in ethnic identity and self-identity perceptions. This will be investigated by examining individuals engaged in the acculturation process by evaluating their roles, values, beliefs, assessing the degree of ethnic identity search, affirmation, belonging, and assessing the presence or absence of crisis and commitment relative to identity achievement. The information derived from this method of data collection, and subsequent analysis, can be used to aid in treatment planning, and improvement in the delivery of services to emerging-adult minorities.

Research in the area of indigenous and immigrating populations has grown substantially over the past few decades. Yet, challenges in assessing and interpreting the impact that acculturation has on ethnic and self-identity still exists because exposure to multiple cultural contexts has resulted in multiple identities within the same person. In fact, many aspects of individual identity are modified during the acculturation process to accommodate new information and experiences, especially for young emerging-adults.

Many developmental psychologists have addressed the question of how children accumulate knowledge about themselves (see Damon & Hart, 1982 for review). As children begin to understand themselves in terms of one's capabilities and competencies (Hogan et al., 1997) the emphasis progresses toward evaluating their competencies relative to the competencies of others, and relative to known standards of evaluation (Erikson, 1968). Herein lies the problem for emerging-adult immigrants: identity

formation develops from the awareness of the self, and through external interactions within one's cultural community. For immigrating youth, self-evaluations of competency occur within one's own cultural community and the host cultural community simultaneously. Because known standards of evaluation from one's cultural community may differ from evaluations outside one's cultural community, discrepant expectations impose conflict resulting in transitional crisis. This has an impact on the perceptions of self- and ethnic identity that result in changes in roles, values, and beliefs.

Erikson (1968) characterizes the (normal) transition into adulthood as the developmental task of adolescence and the resulting capacity to give fidelity to work, values, and other people as the act of identity formation. The rationale for this study is constructed from Erickson's (1968) developmental model of the various stages in the identity-formation process. How an individual's negotiations with the environment guide him/her to make evaluations of his/her competence relative to the competence of others (Rosenburg, 1979), the degree of conflict between the sense of connection to these experiences and the individual's connection to a specific group (Ryder et al., 2000), and the sense of belongingness and membership to a social group that have an impact on how the individual feels about or reacts to identifying with that ethnic group (Phinney, 1992) are the ways in which self- and ethnic identity changes will be evaluated in this study.

The perspective that the process of identity formation is based on negotiations with the environment that actually begins to develop in middle and late adolescence (reflecting increasing maturity in thinking processes) has gained considerable attention from clinicians and researchers (Waterman, 1984; Rogoff & Chavajay, 1995; Phinney et al., 2000; Blair, 2002). While the period in which an individual is guided or directed by

known standards of evaluation encourages an inner sense of self (Marcia, 1966), the negotiation between social and personal feedback also challenges preferred beliefs about oneself (Baumeister, 1997). The sense of commitment to one's choices, experience with those choices, and referencing this to one's future plans and goals (Erickson, 1968; Waterman, 1984; Adams et al., 1987; Schwartz, 2002), result in identity confusion. Furthermore, many researchers believe that the psychological aspects of these experiences are an increased sense of vulnerability or exposure, and feelings of guilt and rejection, that further isolate the individual. The degree of commitment toward seeking a greater sense of self-awareness, compounded by the level of transitional crisis, can be evaluated by measuring the patterns from lesser to higher differentiated identity development for these transition-type identity status individuals (Adams et al., 1987).

Fundamentally, negotiating the cultural divide between multiple cultural systems is the primary conflict for emerging-adult immigrants. To some degree, individually referencing to two distinctly different group norms imposes deconstruction of known elements that have previously directed behavior (Baumeister, 1997). It is when community and family stability are absent that psychosocial pressures and mechanisms of adaptation for those seeking safety, identity, and support (Vigil, 1988) result in difficulties with maneuvering through and reconciling, ethnic aspects of identity formation (Mc Adams, 1993).

Thus, it is the subjective experience of heritage culture retention that affirms a sense of "wholeness" with, and connection to, a specific group (Tajfel, 1981; Adams et al., 1987; Cuellar et al., 1997). This connection offers one a sense of belongingness and membership that has value and emotional significance for an individual (Cuellar et al.,

1997). It is when an individual is involved in the process of self-definition, concomitant with exposure to the process of acculturation, that the sense of group belonging is really demonstrating internal psychological processes (e.g., feelings of personal worth) and psychological adjustment (Phinney, 1990; Castro, 2003).

Given that acculturative stress represents negative side effects of acculturation such as trauma, anxiety, and disorientation (Finch & Vega, 2003), the contention among many researchers (Smith et al., 1999; Rudmin, 2003; Lane et al., 2004; Donnellan et al., 2005; Schwartz et al., 2006, 2007) is that retention of both heritage-culture practices and acquisition of host-culture practices are important resettlement factors for psychological adjustment (Berry & Sam, 1997). In fact, host and heritage culture competence are a contributing factor to positive psychological adaptation and social adjustment, and resilience among acculturating adolescent minorities (Schwartz et al., 2007). Furthermore, the extent to which ethnic identity crisis is associated with difficulties in committing to goals, values, and choices about roles in either cultural setting is what determines the degree of disruption in the moratorium phase of ethnic identity development (Erickson, 1968; Phinney, 1989).

In addition, disaggregating the effects of acculturation at an individual psychological level requires one to assume (Devos, 2006) that individuals do not need to relinquish aspects of their culture of origin while in the process of adaptation (a bi-dimensional acculturation hypothesis) (Berry, 2003). In general, the assumption posits that an individual may freely adopt aspects of either or both cultures without giving up their identity, and heritage and mainstream aspects may freely vary independently from one another (Berry, 1997). Not only do individuals differ in the extent to which self-

identity includes culturally based values, attitudes, and behaviors, they are also capable of having multiple cultural identities, simultaneously. As such, the Vancouver Index of Acculturation (Ryder et al, 2000) is the best candidate for measuring the acculturation process for emerging-adult immigrants because the retention of heritage cultural values has become an important component of cultural competence, in the prediction of psychological well being and psychosocial outcomes (Schwartz et al., 2006).

Definition of Terms

The following terms are defined in order to provide clarity among the terms used in this study:

- Acculturation - refers to a process of adaptation to orientations toward both heritage and receiving cultural contexts and practices in immigrants and their descendants (Tadmor & Tetlock, 2007).
- Acculturative stress – one kind of stress experienced by an individual, in which the stressors are identified as having their source in the process of acculturation.
- Achievement – individuals who have experienced crisis and have committed to personal goals (identity-achieved).
- Alternation Model – a bi-directional and non-hierarchical relationship between two cultures in which an individual can alter his or her behavior to fit a particular social context because the individual knows and understands the two different cultures (La Fromboise, Coleman, & Gerton, 1993).
- Assimilation - a person living within two cultures assumes an ongoing process of absorption into the culture that is perceived as dominant or more desirable and the

member of the 'acculturating' group culture loses his or her original cultural identity as they acquire a new identity in the second culture (La Fromboise, Coleman, & Gerton, 1993).

- Bicultural efficacy – the belief, or confidence, that one can live effectively, and in a satisfying manner, within two groups without compromising one's sense of cultural identity (La Fromboise, Coleman, & Gerton, 1993).
- Biculturalism – an important adaptive strategy, whereby, a person retains characteristics of the culture of origin while accommodating repertoires of behavior adaptively to more than one cultural context as called for by the situation (Berry, 1989).
- Culture – a shared system of symbols, tools, and rules (such as beliefs, attitudes, norms, and values) for behavior (through which people experience and express meaning), organized around a central geographic/language theme that is shared and transmitted from one generation to the next and includes 'what has worked in the past.'
- Cultural Identity –the evolution of a sense of self in relation to a culture of origin and one who is within and without that cultural context; the manner in which an individual interprets and internalizes his or her sociological reality (La Fromboise, Coleman, & Gerton, 1993).
- Diffusion – individuals who remain role-confused regarding commitment and are uncompelled in goal attainment.
- Emotional reactivity – generally conceptualized as the intensity of reaction to specific contextual or environmental stimuli.

- Ethnic identity - refers to a subjective experience of heritage culture retention; the extent to which individuals have explored what their ethnicity means to them, as well as the extent to which they view their ethnic group positively (Roberts et al., 1999).
- Extrinsic motivation – a reflection of external controls (or rewards for motivation) or true self-regulation based upon a human need for autonomy, competency, and relatedness.
- Foreclosure – individuals who have made commitments without experiencing crisis by adopting parental commitments.
- Fusion Model – cultures sharing economical, geographic, and political space will fuse together until they are indistinguishable to form a new culture (melting pot theory) (La Fromboise, Coleman, & Gerton, 1993).
- Identity perception (individual identity) – refers to a psychological process of self-awareness where individuals see themselves in a personal and private manner that may or may not be the same as how they are seen by others; this is derived from a sense of "wholeness" with the past, but also includes future goals and plans (Erickson, 1968).
- Immigration – individuals that move to a new country or culture to settle and are exposed to changes in institutional, social, and language domains.
- Individualism – a cultural syndrome, whose elements are organized around autonomous individuals, and in complex societies, maximizes individuality (Berry, 1989).

- Marginalization – the individual is suspended between two cultures (poised in the psychological uncertainty between two worlds), often in a state of personal and social conflict (producing the greatest levels of acculturative stress) unable to participate fully in either culture.
- Moratorium - individuals who are currently experiencing crisis but are seeking personal commitments.
- Motivation - the driving force by which we achieve our goals; motivation is said to be instrinsic or extrinsic; motivation may be rooted in a basic need to minimize physical pain and maximize pleasure, or it may include specific needs such as eating and resting, or a desired object, goal, state of being, ideal, or it may be attributed to less-apparent reasons such as altruism, selfishness, morality, or avoiding mortality.
- Multicultural Model – a pluralistic approach to sustaining cultural diversity, whereby, cultures and individuals maintain distinct identities to serve common national or economic needs (La Fromboise, Coleman, & Gerton, 1993).
- Psychological acculturation - the change an individual experiences as a result of being in contact with other cultures and participating in the process of acculturation that one's cultural or ethnic group is undergoing (Berry, 1989).
- Self-identity – refers to the envisioned individual beliefs that a person has about himself or herself that are self-defining (Schwartz, 2002).
- Self-esteem - Self-esteem is a term used in psychology to reflect a person's overall evaluation or appraisal of his or her own worth. Self-esteem encompasses beliefs (for example, "I am competent", "I am worthy").

- Self-regulation - refers to the person's ability to understand and accept his or her emotional experience and to engage in healthy strategies and appropriate behavior when distressed.

Background of the Problem

Research conducted over the past five decades on first and second-generation immigrant populations in America (NIH, 2006) indicates a sharp increase in risky behaviors among ethnic minority youth adapting to transitional crisis. While emerging-adult ethnic minority youth are bridging the developmental transition from childhood to adulthood (Erickson, 1968), they are also undergoing the process of change that occurs in transitions within, between, and among dual cultures (La Fromboise et al., 1993).

Acculturation stressors and the developmental transition into adulthood poses certain psychologically undesirable risks to ethnic minority youth (Roesch et al., 2006). The common assumption is that living in two cultures is detrimental because the difficulties caused by managing dual reference points produces ambiguity, identity confusion, and normlessness (La Fromboise et al., 1993). Although some researchers suggest this is only disconcerting if the individual internalizes the conflict (Goldberg, 1941; Green, 1947), the general consensus is that continuous interaction between different cultural structures, cognitive and affective processes, and social environments result in explicit behavior (La Fromboise et al., 1993). Cultural awareness, self-knowledge, and knowledge of cultural beliefs and values are important factors in the individual's ability to act within the constraints of that worldview and to interact within the culture (Plas & Bellet, 1981). Not only is this an important component of bicultural

competence (Schiller, 1987), but considering these factors may help explain an increase in some of the medical and mental health issues seen in ethnic minority populations.

While the given social role within particular cultural relationships has an impact on an individual's ability to develop and refine the necessary skills to maintain competency in both cultures (Schlossberg, 1981), personal identity is organized around an individual's concept of self and an estimate of personal impact within cultural relationships (Sameroff, 1982). The degree to which an individual has developed a well-formed sense of individual identity determines one's ability to operate with a certain degree of individuation (Sameroff, 1982). Burnham et al. (1987) and Triandis (1980) identified two factors that determine one's effective adjustment to the majority culture: self-awareness and the ability to analyze social behavior.

The first factor involves development of an individual's sense of self-sufficiency and ego strength. It suggests that an internal sense of self develops, which is separate from a person's environment in relationship to the individual's psychosocial experience (De La Torre, 1977). This self interacts with the cultural context to develop an ethnic identity (Mego, 1988), which results in bicultural competence.

The second factor for effective adjustment involves the development of a sense of self, related to one's cultural identity (Triandis, 1980). The manner in which an individual interprets and internalizes the sociological reality in relation to a culture of origin (within the context) determines the individual's commitment to that ethnic identity (Cross, 1971; Atkinson, Morten, & Sue, 1989; Helms, 1990; Sue & Sue, 1990). Simply, one's stage of ethnic identity development will affect the manner in which the individual will cope with the psychological impact of living in a bicultural world (La Fromboise et al., 1993). The

more integrated the individual's identity, the better prepared the individual will be able to exhibit healthy coping patterns (Gonzales, 1986).

The difficulty in defining and assessing multiple identities (cultural, ethnic, and individual) first resides in the complexity associated with separating individual identity from the culture. A secondary problem is the difficulty in examining the continued effects of social conflict on the individual's perception of his/her ethnic and self-identity. This separation can only be as successful as the precision of the measurement instruments used to operationalize these constructs.

Drawing on developmental models of identity formation (Marcia, 1966; Erikson, 1968), a measure of the impact that acculturation has on identity formation can be assessed using an instrument which can distinguish patterns of growth, from lesser to higher differentiated identity in acculturating youth. One such instrument is the Extended Objectivity Measure of Ego Identity Status-II (EOM-EIS-2) (Bennion & Adams, 1987), which was developed for the purpose of classification and prediction of individual differences, and changes in the development of individual identity.

In addition, acculturation is a process that occurs by degree and has a continuous effect across a number of domains of functioning. These domains include values, social relationships, and adherence to traditions and are what define a preferred level of acculturation. Since the degree of acculturation denotes the efficacy by which an individual will explore his/her ethnic (heritage) group and the host culture, each of these domains must be assessed, relevant to acculturation. This will help to distinguish the areas of conflict between heritage and host culture boundaries, fluctuation between the two, and the preferred degree of acculturation by the individual.

Although the controversy between unidimensional[1] versus multidimensional[2] approaches to assessing acculturation has been discussed, Ryder et al. (2000) provides the most compelling argument in favor of the bi dimensional approach to the assessment of social and psychological acculturation processes. The Vancouver Index of Acculturation (VIA) (Ryder et al., 2000) is an instrument designed to evaluate the degree of individual change that occurs during the acculturation process and, simultaneously, assesses the level of commitment to both host and heritage culture domains. The inclusion of a multidimensional measure such as this provides a more sophisticated approach to exploring acculturation in the contexts of personality, self-identity, and adjustment.

Finally, understanding how an individual feels about or reacts to identifying with the ethnic group to which he/she belongs or others' perception of his/her ethnicity provide a description of the complex effects of social interaction and psychological change for transitional individuals. To evaluate the level of ethnic identity in young emerging-adult immigrants, the Multi-group Ethnic Identity Measure (MEIM) (Phinney, 1992) assesses the degree of affinity for host and heritage culture, a sense of affirmation and belongingness, and the degree of out-group orientation (a separate construct used to evaluate the degree to which a person will spend time with people from other ethnic groups).

[1] The assumption is that acculturation represents a continuum from retaining the original culture to completely relinquishing it and adopting the new culture (Gordon, 1964; Gans, 1979).
[2] The assumption is that the culture of origin and the cultural environment are independent of each other (e. g., Zak, 1973; Ramirez, 1984; Berry, 1997).

Purpose and Importance of the Study

The purpose of this study was to elucidate factors that mediate ethnic and self-identity perceptions in emerging-adult minorities. The prevalence of delinquency and violence in second-generation acculturating youth and emerging-adult immigrants (an event that appears consistent across different racial and ethnic groups), has prompted researchers (Sommers et al., 1993; Wall et al., 1993; Wong, 1999; Sampson et al., 2005; Boutakidis et al., 2006) to distinguish essential changes in individual development by evaluating acculturation influences on ethnic identity, and the effect this has on psychological and behavioral competencies of acculturating youth (Rumbaut & Portes, 2002; Le & Stockdale, 2008). Many research studies (Berry, 1988; La Fromboise et al., 1993; Burman, 1994; Phinney, 1996; Sodowsky & Lai, 1997) indicate the greatest effects of acculturation can be seen in immigrants' perception of their self-efficacy in the new society, and mode of acculturation because these are predictor variables linked directly to their behavior.

The analysis of multiple events that influence identity, which are temporally related within the context of acculturation, lead researchers to ask if acculturation is a mediating factor in ethnic identity and self-identity development in young adult minorities. Since the focus of this research is to evaluate potential mediating effects of acculturation on ethnic and self-identity, the information derived from this method of data collection and subsequent analysis can be used to aid in treatment planning, and improvement in the delivery of services to emerging-adult minorities.

Specific Aims of the Study

The personal life experiences of our acculturating minority youth are burdened by a mismatch between heritage and host culture effects, and the expectations that are imposed, generating a tremendous effect on their competencies (Ryder et al., 2000). Thus, this study was built upon previous research with indigenous and immigrating populations and focused on evaluating ethnic and self-identity development as it is related to the process of acculturation. The unique opportunity to identify and describe the impact that acculturation has on multiple identities are defined as specific aims, below.

(a) To identify specific associations and pathways for the proposed relationship that exists between acculturation, ethnic identity, and self-identity from a structural equation model using EQS.

(b) To describe self-identity as the preferred level of acculturation mediates this through interpersonal variables, the subsequent effects on perceived social support, and its possible relationship to affirmation and belongingness.

(c) To describe ethnic identity as the preferred level of acculturation mediates this through interpersonal variables and the subsequent effects on out-group orientation.

Research Questions

In order to reveal influences on individual development resulting from the mediating effects of acculturation, several research questions conceptualized this study. First, what factors have the greatest influence on the struggle for identity in transitional individuals? The philosophical compatibility between cultures, racial or ethnic similarity, degree of bilingual fluency, role models, affinity for the majority, norms, and attitudes all

have a role in distinguishing essential changes in individual development (Ryder et al., 2000).

Second, does the method and degree of acculturation mediate these variable effects? Exposure to multiple cultural environments imposes direct influence on the perception of cultural, ethnic, and self-identities within the same person that influence psychological and behavioral competencies. It must be certain in measuring acculturation that we are able to see how stress from acculturation affects the individual process of acculturation.

Third, does host and heritage cultural identity conflict (between norms, roles, values, and beliefs) have a direct effect on the preferred level of acculturation?

(a) What are the subsequent effects of the level of acculturation on perceived social support?

(b) Does factor (a) relate to affirmation and belonging?

(c) Does acculturation mediate the sense of affirmation and belonging through interpersonal variables (such as, friends, dating, recreation, or sex roles)?

(d) Does host culture identity have an effect on self-identity through out-group orientation?

(e) Does heritage culture identity have an effect on self-identity through interpersonal variables (friends, dating, sex roles), while undergoing the process of acculturation?

Conceptual Hypotheses

Erikson (1968) proposed that identity formation is a social-cognitive process of self-awareness and self-consciousness that is associated with various stages in the identity-formation process. As the individual is exposed to conflicting information from

the environment that challenges known standards of belief, identity re-formation begins to occur. Essentially, negotiations with the environment guide the individual to make evaluations of their competence relative to the competence of others, which encourages an inner sense of self. Yet, the acculturation process imposes a degree of conflict between the sense of connection to these experiences and the individuals' connection to a specific group (Erikson, 1968). It is the sense of belongingness and membership to a social group that has the greatest emotional significance for the individual and is also where acculturation is proposed to have the greatest effect on identity perception (Phinney, 1992).

Research Hypotheses

In this study, the following hypotheses were tested:

> H_1: Acculturation will have a positive mediating effect on self-identity as perceived social support, and affirmation and belongingness increase.
>
> H_2: Acculturation will have a (positive) mediating effect on ethnic identity as out-group orientation and interpersonal variables (e.g., friends, dating, sex roles) increase.

Summary

Cultural conflicts that are imposed based in the exchange of information between cultures in the process of acculturation have a direct impact on identity perceptions of those immigrating to the United States. The degree of acculturation stress during indoctrination to the new cultural environment can result in adverse behavioral and psychological effects. The consequences of sharing multiple identities within the same person are visible in the increased prevalence of violence, substance use, suicide,

affective disorders, family conflict, and identity confusion that contribute to the quality of life of our country's acculturating youth.

To shed light on which factors are contributing to the change in ethnic and self-identity perceptions in emerging-adult minorities, a mediation model of acculturation was proposed to determine the impact of acculturative transition on individual identity perceptions. Information that the mediation model can provide will add to the scientific body of knowledge and assist care providers in promoting greater health-related quality of life interventions for minority families. The following information critically reviews contemporary literature regarding acculturation, ethnic identity, and self-identity among emerging adult minority populations.

Literature Review

Many theories have been proposed in the literature across multiple disciplines, which attempt to explain cognitive, behavioral, and psychological phenomenon related to various forms of identity. It is clear that acculturation is a complex phenomenon that compounds the process of identity formation for emerging-adult ethnic minority immigrants. The following sections will discuss the importance of self-identity in the context of identity development and formation, ethnic identity development in the context of social and ethnic group awareness, and immigration concerns. Ethnic identity search will be discussed as a component of exploration of one's ethnic identity, and the sense of affirmation and belongingness that develops from being a member of a specific ethnic group and understanding the commitment to that group. Finally, the degree to which

individuals will spend more time with and learning about people from other ethnic groups will be discussed.

Self-Identity

The concept of self continues to be heavily debated, as this relates to identity and its stability (e.g., Yakushko et al., 2009; Jackson & Smith, 1999; Markus & Wurf, 1995; Gergen, 1991). Many researchers have focused on whether or not 'sense of self' (self-identity) is stable or fluid, and whether it is influenced by external social factors (culture context), or if it is tied to personality or sense of agency (Baker, 1897; Freud, 1926; Leary & Tangney, 2003; Kroger, 2007; Luyckx et al., 2009; Yakushko et al., 2009; Weinstein et al., 2011). Central to many classical theories is the idea that 1) elements of identity seem to fall together around a central characteristic (consciousness) or self-notion, and that actual 'feeling of effort' energizes the self to focus attention on external events (based in seminal works of Baker (1897); and 2) change in identity involves separation from what one already knows followed by a mediating self-identity change event involving high-intensity internal feedback and altered role expectation (Boyenowsky, 1977).

Regardless of the specific theory or interpretation, all appear to agree, "selfhood is personally created, interpretively elaborated, and interpersonally constructed", "drawn from social influences" (Elliott, 2001), and "healthy development involves assimilating and integrating life experiences and, through that process, developing a coherent sense of self (Weinstein et al., 2011)." Based in developmental models of identity formation, it is believed that identity development actually begins to assimilate in middle and late

adolescence, reflecting increasing maturity in thinking processes (Waterman, 1984; Rogoff & Chavajay, 1995; Phinney et al., 2000; Blair, 2002). The process of identity formation[3] (Erikson, 1968) occurs within two spheres of influence: introspection[4] and extrospection[5]. Thus, identity formation is a *reflective* process as this relates to personal identity and *evaluative* as relates to the significance of negotiations with the environment.

Based on the work of Marcia (1966) and Erikson (1968), identity formation is defined as a process of self-awareness that begins to cohere in early adolescence and defines the commitment toward self-defined goals, values, and beliefs that direct an individual toward a firm sense of his/her inner self-concept. This occurs through the exploration of alternative experiences and subjective discomfort (*crisis*) that leads to an evaluation of personal attitudes, values, and behavior (Schwartz, 2002). Marcia (1966) and Erikson (1968) construe the inner capacity to reconcile oneself to a set of personal goals, values, and beliefs as the individual separates themselves from the environment and other individuals; and the period in which an individual is guided or directed by evaluations of his/her competence relative to the known standards of competence of others, encouraging an inner sense of self, as *exploration* and *commitment.*

The importance of a firm sense of personal values and opinions is thought to develop from the negotiation between social feedback and one's personal feedback, and the preferred beliefs about oneself as central to what gives the individual a sense of purpose, meaning, and direction in life. Erikson (1968) suggested the sense of *commitment* to one's choices, experience with those choices, and referencing this to one's

[3] Identity formation: the self reported experience of the process of self-awareness in which an individual begins to define a personal identity.
[4] Introspection: An examination of one's own thoughts and feelings in an inner reflective manner.
[5] Extrospection: The consideration and observation of things external to the self.

future plans and goals are fundamental aspects of identity formation; and many researchers agree (Waterman, 1984; Adams et al, 1987; Baumeister, 1997; Schwartz, 2002).

The dimensions of exploration and commitment that Marcia introduced to capture individual differences in the way in which adolescents approach issues of identity and form commitments are based in a status paradigm of decision-making (a behavioral marker) (Luyckx et al., (2009). Marcia conceived these two domains in a cross-lag design resulting in four distinct categories that are defined as follows:

1) **Diffusion -** low exploration, low commitment represents a pattern of apathy, disinterest, and lack of direction.

2) **Foreclosure** - low exploration, high commitment represents adopting goals, values, and beliefs from parents or other authority figures without much critical thought.

3) **Moratorium -** high exploration, low commitment represents active exploration without commitment, and it often serves as a precursor to achievement.

4) **Achievement** - high exploration, high commitment represents the consolidation of a sense of self, following a period of exploration.

Here, comparisons are made between less advanced statuses (diffusion, foreclosure), wherein, the individual remains role-confused and disorganized as to commitment, and more advanced statuses (moratorium, achievement), wherein, the individual appears to have experienced a crisis period in which they have established personal commitment toward self-defined goals. Marcia further extended these four statuses to encompass sixteen overall status classifications that would take into account

those individuals in crisis, bordering on transition (dif/dif-for/for/for-mor/mor/mor-ach/ach), providing continuous status scores.

Adolescence has often been characterized as a period of psychosocial turmoil because forming a sense of identity can be challenging (Schwartz, 2002). While most adolescents negotiate the important transitions of this period without undue disturbance or discord, those who enter adolescence with a sense of inefficacy (e. g., acculturation stress; immigration issues; racial stigma) are vulnerable to distress and debility in meeting new environmental demands (Adams et al., 1987). Erickson (1968) maintains that conflicting information from the environment is really challenging known standards of evaluation. Indeed, the expanding set of alternatives and options available to immigrating ethnic minority emerging-adults can be overwhelming (Arnett, 2000).

In line with these ideas and Marcia's foundational work, many process-oriented theorists have conducted research evaluating the associations between psychological processes and identity formation for identity-confused individuals. Luyckx et al., (2008) developed a contemporary identity formation model that assessed the *depth* and *breath* of exploration. Luyckx et al., (2009) investigated factors that protect adolescents against using maladaptive identity strategies; Ryan & Deci (2000) and Vansteenkiste, Ryan, & Deci (2008) investigated need satisfaction set forth in self-determination theory; Schwartz et al., (2005) and Stephen, Fraser, & Marcia (1992) and Luyckx et al. (2009) investigated the crisis-like nature of moratorium status and its relation to rumination; Hodgins & Knee (2002) investigated openness and receptivity as factors related to motivation; and Weinstein, Deci, & Ryan, (2011) investigated the motivational determinants of autonomy and identity integration.

While a period of identity confusion might cause some individuals difficulty in arriving at firm identity choices that leave them floundering in the process of exploration (Schwartz et al., 2005; Luyckx, Schwartz, et al., 2008), researchers do acknowledge that one by-product of identity confusion is undue self-consciousness[6]. Self-consciousness is the consistent tendency of a person to direct attention inward or outward, as defined by Fenigstein et al. (1975), in their development of a measure assessing the domain of self-consciousness. Using a principle-components factor analysis, these researchers identified three specific factors defining the self-consciousness construct: 1) the *private self-consciousness* factor; whereby there is a concern with attending to one's inner thoughts and feelings; 2) the *public self-consciousness* factor, whereby there is a general awareness of the self as a social object that has an effect on others; and 3) a *social anxiety* factor, whereby there is a discomfort in the presence of others.

As a person first becomes aware of him/herself as a social object, private self-evaluations are made whereby attention is self-focused inwardly on self-evaluative thoughts and reflections. Then, a comparison is made between the private and public evaluations of the self, based on an awareness of others' perspective; viewing the reactions of others to the self. Sometimes perceived discrepancies are realized between how we view ourselves privately and publicly and it is thought that this is where the anxiety factor emerges (Fenigstein, 1984). Although inward and outward direction of attention may be the result of either transient situational variables, chronic dispositions, or both (Fenigstein, 1984), it is thought by many (Erikson, 1968; Marcia, 1980;

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[6] Self-consciousness: a conscious awareness of one's existence and a state of being unduly aware of oneself as the object of the attention of others; when overly self-conscious, the individual can become embarrassed, ashamed, or extremely uncomfortable (Erikson, 1968).

Grotevant & Adams, 1984; Waterman, 1984; Adams et al., 1987; Schwartz, 2002) that self-consciousness is the primary form of self-awareness in the process of identity formation.

As adolescents approach the demands of adulthood, they must learn to assume full responsibility for themselves in almost every dimension of life. This requires mastering many new skills and the ways of adult society, and the efficacy of the transition from childhood to adulthood depend on prior mastery experiences (Erikson, 1968). Adolescence is the stage when issues of mastery and competence challenge emerging-adults the most. This period of development is marked by increased social interaction with peers and school, where adolescents are exposed to new opinions and ideas (Ryder et al, 2000). This affects their self-perception and sense of competency and brings with it new challenges for coping efficacy (Marcia, 1980).

In instances where an individual has not completed the process of self-definition or when they are most self-conscious they are more likely to view themselves negatively (Schwartz, 2002). As such, persons are more role-confused and have feelings of guilt and rejection resulting in a diffused sense of identity (Marcia, 1980). When severe enough, identity confusion can manifest itself in highly self-conscious, possibly destructive self-preoccupation that can result in a psychological state of overall shame, narcissism, and continual self-testing (Adams et al., 1987).

In line with these ideas, contemporary developmental theorists have suggested that patterns of growth from lesser to higher differentiated identity development are paralleled by corresponding changes in cognitive or social-cognitive development (Schwartz et al., 2005; Bosma & Kunnen, 2001; Schwartz, 2000; Stringer, 1994;

Steinberg, 1993; Atwater, 1993; Goodenow, 1993; Grotevant & Cooper, 1985). General conceptions of these cognitive and affective aspects of identity have been translated into reliable assessment instruments. Self-report measures were developed of both the cognitive and affective aspects of identity by researchers Phinney (1992) and colleagues (Phinney, 1992; Phinney & Kohatsu, 1997; Roberts et al., 1999). Hence, evaluation of identity formation using the EOM-EIS-2 self-identity measure in conjunction with Phinney's (1992) MEIM is thought to be the most appropriate approach (in scope and depth) for evaluating changes in self-identity status and cognitive and affective aspects of ethnic identity development.

Ethnic Identity

A subcomponent of adult identity formation is ethnic identity, which takes on significance during adolescence and extends into adulthood (Cuellar et al., 1997). Many researchers propose (Tajfel & Turner, 1979; Abrams & Hogg, 1988; Gurin et al., 1994; Clement et al., 2001; Gaudet & Clement, 2005, 2007; Schwartz et al., 2007) that the greatest influence on identity formation comes directly from ethnic identity[7]. It is thought by many that visual cues and language are actually the first two factors to signal ethnic and racial awareness and are integral to the development of one's own ethnic identity (Rotheram & Phinney, 1987; Aboud, 1988). Thus, ethnic awareness is a precursor to ethnic identity and self-identification (Hernandez-Sheets, et al., 1999).

Three factors are important in the process of developing an ethnic identity: Self-identification, knowledge, and preferences (Aboud, 1984). *Self-identification* refers to the

[7] Ethnic identity is defined as a set of ideas about one's own ethnic group membership and one's sense of belonging to that group.

ethnic labels or terms that people use in identifying themselves; *knowledge* refers to people's knowledge about their ethnic culture; and *preferences* refer to preferences, feelings, and values a person has about their ethnic group membership (Bernal & Knight, 1993). As clear feelings of identity are reached when a commitment is made with regard to identity, ethnic identity becomes part of the sense of "wholeness" with regard to who we are by connecting the individual to a specific group of people (Erickson, 1968).

Membership in social groups provides an important basis for self-definition and the social group to which one belongs provides the context in which individuals locate themselves (Deaux et al., 1995). Social theorists' suggest identity is composed of collective definitions, positions or roles (Thoits, 1992), and statuses (Stryker, 1987). Deaux et al. (1995) conducted two studies to establish distinctive types of social and collective identities and determine dimensions that differentiate among identities. The goal was to establish whether different types of identities have distinct meanings or serve different functions for individuals. In a cluster analysis of 64 social identities and trait property ratings, researchers found that personal relationships, age, and time of identity acquisition are important factors for the development of identity (Deaux et al., 1995).

It was Jean Phinney (1992; 1993), who conceived a three-stage model of ethnic identity development in her research on ethnic minority adolescents. Using factor analytic structural equation modeling, she combined her stage model with other ego identity and ethnic identity models to develop the Multi-Group Ethnic Identity Measure (MEIM), based on the work of Erikson (1968), Marcia (1966), Kim (1981), Atkinson et al. (1983), and Cross (1978) and can be found in Table 1 below.

Table 1

Stages of Ethnic Identity Development and Ego Identity Statuses

Author	Subtype: Unexamined Ethnic Identity	Subtype: Lack of exploration of ethnicity	Developmental Stage of Ethnicity	Developmental Stage of Ethnicity
Phinney (1989)	Diffuse [Lack of interest or concern with ethnicity; lack of exploration]	Foreclosed [Views of ethnicity based on opinions of others]	Ethnic Identity search/Moratorium [Involvement in exploring and seeking to understand the meaning of ethnicity]	Achieved Ethnic Identity [Clear, confident of own ethnicity]
Cross (1978)		Pre-encounter	Encounter and Immersion-Emersion	Internalization
Kim (1981)		White Identified	Awakening and Redirection [to social-political awareness] and [re-direction to Asian-American consciousness]	Incorporation
Atkinson et al (1983)		Conformity [Preference for values of dominant culture]	Dissonance/ Resistance and Immersion [Questioning and challenging old attitudes] and [rejection of dominant culture]	Synergetic [Articulation and awareness]
Marcia (1966; 1980)		Identity Foreclosure	Identity Crisis and Moratorium	Identity Achievement

The first developmental stage is *unexamined ethnic identity* characterized by a lack of exploration or interest in ethnicity in which individuals may experience diffusion or foreclosure (comparable to Marcia's stages of identity diffusion and foreclosure).

The second stage is *ethnic identity search/moratorium* characterized by exploration in combination with encounter or exposure to others (comparable to Cross' encounter/immersion stage; Kim's awareness and consciousness phase; Atkinson's

dissonance, resistance, rejection stage; and Marcia's identity crisis/moratorium stage). In this stage, ethnic identity is often initiated by stressful events or **crisis.** The third stage is *ethnic identity achievement* characterized by a clear sense of one's ethnic identity and recognition of a bicultural identity (comparable to Cross's internalization phase; Kim's incorporation stage; Atkinson's synergetic and awareness stage; and Marcia's identity achievement stage).

The MEIM is often used to analyze epistemological development, ethnic identity, and academic achievement among individuals from various ethnic backgrounds (Pizzolato et al., 2008; Whitehead et al., 2009; Ghavami et al., 2011). Emerging-adult ethnic minorities are posed with a high degree of uncertainty that compounds firming a sense of ethnic identity (Phinney, 1997), especially, when the individual is making an evaluation between two different sets of cultural values and beliefs. Most specifically, late adolescence to emerging adulthood is when conflicting cultural definitions lead to complex identity crises and confusion at a time when adolescents are seeking separation and independence (Steinberg, 1993).

Here, the problem is twofold: first, the adolescent is beginning to develop a sense of uniqueness and idealism at a time when they are also becoming more self-conscious and lacking mastery of experience (Erikson, 1968). As a sense of independence begins to evolve in connection with family, peers, and society, adolescents separate and distance themselves from parental beliefs and attitudes because they need to experiment and test different roles to develop an authentic identity (Stringer, 1994). These changes occur at a

"normative crisis"[8] phase, in which, the adolescent is vulnerable to over-identification with negatively distinctive in-groups, resulting in rebellion and heightened family conflict (Kroger, 1989; Atwater, 1992; Steinberg, 1993).

Part of the job of adolescence is to experiment and test different roles before the individual can make a commitment to a career, political system, or religion (Stringer, 1994). Yet, the second problem relates to negotiating the developmental transition to adulthood as this is compounded by mixed cultural definitions (Chiu et al., 1992). When this point in time is burdened with a lack of correspondence between cultural norms, values, and beliefs, uncertainty increases for those who have not completed the process of making a self-definition; and this is where crisis to commitment occurs (Sadfar, 2003).

Kroger (1989), Atwater (1992), and Steinberg (1993) support this notion by asserting that increased cultural conflict results in highly self-conscious, self-preoccupied behaviors, such as continual self-testing, emotional discomfort, self-perceived exposure or vulnerability, and a negative self-view. On the other hand, identity achievement is associated with higher self-esteem, increased critical thinking, and advanced moral reasoning (Erikson, 1968), all aspects of individual development that are necessary for successful transition in a new cultural environment.

A healthy, well-defined sense of self- and ethnic identity depends upon developing an understanding of one's ethnic identity. According to Phinney (1990), the major components of ethnic identity are: 1) ethnic self-identification: the ethnic label that one uses for oneself; 2) a sense of belonging (a positive feeling toward group membership) or (a negative feeling of separateness and exclusion from other groups); and

[8] Normative crisis (Erikson, 1956): a theory used to describe a normative phase of development with increased conflict characterized by a seeming fluctuation in ego strength (but with high growth potential), more prevalent as adolescence proceeds.

3) positive attitudes (sense of pride pleasure, and contentment with one's ethnic group) and negative attitudes toward one's own group. Phinney (1992) asserts, "this is an often intense process of immersion in one's own culture through activities such as, reading, talking to people, going to ethnic museums, and participating actively in cultural events" (Para. 7).

Many researchers agree (Beaumont, & Walker, 2007; and Yuang & Stormshack, 2011; Greenfield & Schwartz, 1997; Sodowsky et al., 1995; Inman, Howard, 1995), and add that early ethnic development is further shaped by the ways in which parents socialize their children, the ways in which they transmit their ethnic identity to their children through parenting, and their reliance upon the central role of the family.

Parental cultural values often represent the central or desirable goals that serve as standards in the home to guide individual behavior (Smith & Schwartz, 1997). However, this does pose some difficulty for immigrating families. First, parents tend to cleave to heritage **tradition** more strongly than their children because they have been influenced more heavily by the culture of origin; they have a firmer sense of self- and ethnic identity; they are more likely to live and work within their own cultural community and maintain the language of origin in the home (Rosenthal, 1996).

Second, a strong **family orientation** toward maintenance and preservation of ethnic norms and roles for children is also believed by many parents in ethnic minority groups to be a protective factor against assimilation. Sue & Sue (1990) in their investigation of Asian American families found a strong sense of self tied to the family. However, the reliance on family hierarchy, deference to authority figures, emotional restraint, and strict adherence to traditional roles parents impose upon their children,

often result in problems for children in their attempts to reconcile the two cultures (Sung, 1987).

Third, as pressure from cultural conflict and adherence to ethnic family/group demands increases, children are more likely to accept and conform to dominant (host) cultural values and roles, for several reasons: a) immigrant children are exposed to host culture values that require their participation, while evaluating their **competencies**, in institutional settings (at school) (Ryder et al, 2000). The competency with which the child is able to negotiate, communicate, and meet the demands of the new environment guides the individual toward a re-definition of values and roles within the new culture (Portes, 1997); b) competency evaluations also occur within the context of **peers/group pressure** in the new cultural environment*;* and c) re-definition of norms and values results in an intergenerational discrepancy in cultural values between parent and child (Phinney et al., 1997), creating **family conflict**.

Each of these identity-relevant experiences can produce change in the self-concept that has an influence on ethnic identity development and cognitive and affective states (Magai & McFadden, 1996). Since one of the most important factors to development of an ethnic identity occurs through initial awareness of the differences between ethnic groups that mark ethnic and racial boundaries (Rotheram & Phinney, 1987), a longitudinal study assessing the growth trajectory of ethnic identity in adolescents was conducted by researchers Yuang & Stormshack (2011).

Ethnic identity development was assessed in middle school adolescents during a four-year period using an 8-item adapted version of the MEIM. Inter-individual differences in initial ethnic identity status and change rates of ethnic identity were found

along six trajectories. Those who started with low levels of ethnic identity in sixth grade experienced a sharp climb in ethnic identity through ninth grade. The increase in ethnic identity may be attributed to a well-formed relationship with parents and caregivers throughout this early adolescence period (Yuang & Stormshack, 2011). Indeed, other studies (Kiang & Fuligni, 2009) show that minority adolescents report the highest levels of ethnic identity when they are engaging with their parents in positive ways.

Those who started with high levels of ethnic identity in sixth grade maintained stable high levels of ethnic identity into the ninth grade. These findings suggest they may already have had a well-developed sense of their ethnicity and ethnic group membership at the beginning of early adolescence (Yuang & Stormschack, 2011). A small percentage (4.5%) of the study had low initial start values and remained at this level throughout the four-year study. It is thought that these adolescents may have received fewer messages in early adolescence about racial and ethnic socialization from parents. The stability of ethnic identity levels suggest that these adolescents had yet to encounter experiences which promoted ethnic identity exploration and affirmation (Yuang & Stormschack, 2011). Finally, decreased ethnic identity levels were found for two classes of adolescents who started with high initial levels of ethnic identity. This finding may indicate a lack of resolution of one's feelings about one's ethnicity and other ethnic groups, due to the move from middle school to a more diverse student population in high school, suggesting their peer associations were outside their own ethnic group (Yuang & Stormschack, 2011).

Of the six ethnic groups represented in the study, Pacific Islanders had high initial levels of ethnic identity that increased or stabilized at high levels over the 4-year period,

based on high levels of affirmation, achievement and belonging, and family support; multi-ethnic children were the inverse of this in every respect, including a greater likelihood that increased ethnic awareness resulted in more aggressive behaviors. African American youth had the highest trajectories throughout, with high positive family support and high racial socialization; Latino adolescents had high initial trajectories that decreased, indicating Latino youth may develop ethnic group membership and identity earlier than others; and Asian American and American Indian adolescents showed little change in ethnic identity growth over the course of the study, suggesting low exploration may be associated with acculturation (and coerced cultural assimilation).

The impact of acculturation on the process of ethnic identity development and exploration is the basis for the hypothesized mediation effects of acculturation on ethnic identity, in this study. The importance of the drive toward the discovery of ethnic identity is not only a subjective experience of heritage culture retention[9], but when adolescents increase their awareness and comprehension of the social inferences of ethnic diversity, they are developing social cues that help mold their interpretation of their race and ethnicity within the mainstream cultural context (Quintana, 1994). Furthermore, they are affirming a sense of "wholeness" with, and connection to, (their) specific group (Tajfel, 1981).

Affirmation and Belonging

For many researchers, ethnic identity search is a time when individuals actively seek knowledge about a particular group, examine their beliefs and values about that

[9] Ethnic identity perception: refers to the extent to which individuals have explored what their identity means to them, as well as the extent to which they view their ethnic group positively (Roberts et al., 1999).

group, and begin to understand the meaning of their group membership (Erikson, 1968; Marcia, 1966; Roberts et al., (1999). Thus, as an individual begins to appreciate his/her group more, a sense of belongingness and attachment may form. However, Phinney and Ong (2007) suggest that ethnic identity exploration is unlikely without at least some level of attachment to one's ethnic group membership and that a commitment to one's group is expected to promote exploration of one's ethnicity.

In line with these ideas, Whitehead et al., (2009) conducted a study, in which, structural equation model procedures were used to evaluate the relationships among adolescents' ethnic-identity exploration, ethnic identity affirmation and belonging, and attitudes toward their racial/ethnic in-group and out-groups. The results suggest that among Euro-Americans, Asian Americans, and Latinos, ethnic identity exploration predicts ethnic identity affirmation and belonging. Thus, exploration is seen as the basis for establishing a secure attachment to one's ethnic identity, and this has positive implications for attitudes toward one's own group, and other groups.

In another study, Ghavami et al., (2011) proposed that the association between identity achievement (exploring and understanding the meaning of one’s identity) and psychological well-being is mediated by identity affirmation, (developing positive feelings and a sense of belonging to one’s social group), among ethnic minority and sexual minority individuals. Across three studies using high school, college, and lesbian and gay adults, researchers found that the process of exploring and understanding one’s minority identity can serve as an important basis for developing positive feelings toward and an enhanced sense of attachment to the group.

Out-group Orientation

While a sense of attachment to one's own group confers many benefits, exposure to distinctive out-groups through peer negotiations often makes individuals seeking to achieve a positive sense of self and belongingness more vulnerable to negatively distinctive groups (Tajfel, 1972a; Turner (1975; 1978b). Some researchers (Chun & Akutsu, 2003; Landry-Allard & Theberge, 1991; Nguyen et al., 1999; Noels et al., 1996; Phinney et al., 1990) have shown that a tendency exists among minority group members to adopt out-group attributes at the expense of in-group cultural elements. Supposedly, this reduces participation in the original cultural group (Chun & Akutsu, 2003) and increases the risk of failure of the individual to consolidate their ethnic identity. The extent to which ethnic identity crisis is associated with difficulties in committing to goals, values, and choices about roles in either cultural setting, determines the degree of disruption in ethnic identity development, specifically, in the moratorium phase (Phinney, 1989).

For some individuals, this stress may be internalized in an attempt to find an integrated stress-reducing solution to the conflict (Trimble, 1981). A perfect example of this can be seen in the common engagement strategies (problem avoidance and social withdrawal) employed among many ethnic minority groups (e.g., Asian Americans, Native Americans), as compared to their Caucasian American counterparts (Chang, 2001). The probability that the individual will seek to use problem avoidance (to maintain harmony) and social withdrawal (to reduce confrontation), increases if the individual perception of a value is highly regarded (Triandis, 1989). Each of these strategies are a response (by the individual) to discrepant perceptions regarding self definition and the

differential sampling, processing, and simultaneous evaluation of information from host and heritage culture environments (Goldberger & Veroff, 1995).

However, it is important to recognize that in some cultures, the social order is guided by a philosophical orientation wherein a person has an obligation to sustain harmony within the social order (Harrison et al., 1990). In effect, problem avoidance and social withdrawal, as related to interaction with outside social agencies, are cultural artifacts that reinforce continuity within the ethnic group. As the disparity increases between host and heritage values and norms, an increase or decrease is seen in the values and emotional significance attached to membership in one group or the other (Tajfel, 1979). However, this position has been more recently debated.

Acculturation

The culture in which people live plays an important role in shaping their sense of self (Ryder et al., 2000). Yet, when an individual moves from one cultural climate to another, many aspects of identity are modified to accommodate information about experiences with the new culture (Ryder et al., 2000). The primary process by which this occurs is acculturation, which is defined by the changes that take place as a result of continuous and direct contact between individuals having different cultural origins (Redfield et al., 1936).

To assess the fundamental level at which acculturation involves alterations in the sense of self (Ryder et al., 2000), research must approach acculturation in one of two ways: as a uni-dimensional construct or bi-dimensional construct. The first assumption is based in the idea that change in identity occurs on a single continuum of relinquishing the

culture of origin, while adopting the ideas of the new society, over time (Gans, 1979). The second assumption is based on the argument that suggests individuals do not need to relinquish aspects of their culture of origin while in the process of adaptation to the new culture. In fact, the assumption is individuals may freely adopt aspects of either or both cultures without giving up their identity, and that, heritage and mainstream aspects freely vary independently from one another (Berry, 1997; Ryder et al., 2000).

Changes and experiences within the emerging-adult immigrant's daily life that are attributed to the acculturation process can be observed in the attitudes, values, and behaviors that are elicited (Sadfar et al., 2003). As such, disaggregating the effects of acculturation on emerging-adult immigrants at the basic level, where intercultural contact generates change in identity (Berry, 2003), or at the individual psychological level, where a person is directly affected by the new culture, has been assessed in a variety of ways (for a review, see Hwang & Ting, 2008).

Bi-dimensional models are based on two core assumptions (Ryder et al., 2000): first, that individuals differ in the extent to which self-identity includes culturally based values, attitudes, and behaviors. And second, individuals are capable of having multiple cultural identities, each which may vary independently (Ryder et al., 2000). The bi-dimensional approach can distinguish those individuals who strongly identify with aspects of either or both (cultural) groups (Mavreas et al., 1989; Dion & Dion, 1996). It is important to be able to distinguish heritage and host culture domains for an individual because in today's society, individuals are immersed in multiple cultural contexts that allow them to readily define themselves along multiple cultural or ethnic boundaries (Devos, 2006).

Whether an individual chooses to adopt aspects of both heritage and host culture, or to become highly acculturated by adopting more aspects of the host culture, is an important predictor of adaptive versus maladaptive behavior (Schwartz et al., 2007). In general, it seems that becoming more highly acculturated into mainstream 'America' by relinquishing one's own cultural heritage has resulted in an increased prevalence of health risk for those with immigrant status. The broad social and philosophical ideals that define the culture, the impact of contexts in which the parent interacts (parental work stressors and support system), and within which the youth interacts (peers, school, and family interactions) have a direct effect on the individual (Prado et al., 2008).

For example, children of immigrant families are learning to adapt to the host culture through social (friendships), at institutional (academic) levels, and by learning the primary (host) language as a useful competency strategy for negotiating intercultural conflict (Suinn, 1995). Meanwhile, immigrant parents often become further isolated from the host culture by living and working within their ethnic community, and often lack the formal education in the host culture language their children receive at school (Suinn, 1995). In due course, the child becomes the primary communication link between the host culture and immigrant parents, causing a shift in traditional roles and decreasing parent-child relations.

Recent increases in mental health problems among successive generations (second, third, and fourth) of acculturating youth have, in fact, shown diminished supportive parental involvement for their acculturating youth based on parents' social isolation (Coatesworth et al., 2002). Seemingly, the long-term effects of acculturative adaptation on identity perception (specifically, ethnic identity) (Spencer et al., 2000) are

related, in some way, to the loss of a sense of belongingness and affirmation with one's own ethnic group. At the end of the day, children become more vulnerable to outside influences in their search for affirmation and belongingness (Marcia, 1966).

Acculturative stress per se is thought to represent the negative side effects of acculturation, such as trauma, anxiety, and disorientation (Finch & Vega, 2003). The contention among many researchers (Smith et al., 1999; Rudmin, 2003; Lane et al., 2004; Donnellan et al., 2005; Schwartz et al., 2006, 2007) is that acculturation stress contributes to an increased likelihood of behavior problems in immigrant youth (e.g., gang involvement; exposure to drugs; eating disorders) (Simons et al., 1993). Research over the past ten years indicates that among more highly acculturated Latinos, more substance abuse problems prevail, risky sexual behaviors have increased, they have poorer dietary practices, and worse birth outcomes than those less acculturated (Lara et al., 2005).

Among first generation Mexican American women, lower incidence of low-birth weight infants is found compared to their second-generation counterparts; newly immigrated Mexicans also have lower prevalence rates for alcohol abuse, major depression, and phobias than US-born Mexican Americans (Margai, 2005). Among black women immigrating to the U. S., a greater health advantage is seen than for their US-born counterparts in the areas of chronic disease, depression, suicidal tendencies, and reproductive health (Margai, 2005). An increase in acculturation among Korean Americans has also been associated with increased smoking, drinking, and obesity (Song et al, 2004); and higher acculturation has been associated with higher stress levels and increased depression among Chinese Americans (Shen & Takeuchi, 2001).

Finally, research on the psychological adaptation of youth and emerging adult immigrants has demonstrated that ethnic cultural competence promotes psychological adaptation within one's own ethnic socio-cultural settings (Betancourt & Lopez, 1993) and host culture competence facilitates mainstream adaptation (Birman & Trickett, 2002). Increased ethnic and host culture competence have been found to have a positive effect on mental health symptoms indirectly through family and friendship support (Oppendal et al., 2005). Thus, retention of heritage-culture practices is related to a positive ethnic identity and may be a contributing factor in resilience among acculturating adolescents.

Summary

Moving from one cultural environment to another has a clear impact on the psychological, emotional, and behavioral well being of emerging-adult immigrants. At a time when the young adult is forming a sense of self and learning to define aspects of their cultural and ethnic domains, acculturation stress results in individual re-evaluation of their heritage, values, beliefs, and customs. Based on the degree of conflict between host and heritage cultures the effect is twofold.

First, comparisons are made at the individual level between aspects of one's own ethnic identity in relation to one's heritage culture and aspects of the host culture. When host and heritage culture are vastly discrepant, the degree of stress imposed by the process of acculturation depicts the level of crisis for the individual, and subsequent level of identity confusion. Second, exposure to multiple cultural environments provides an opportunity for the individual to determine which aspects of either or both cultures they wish to retain. In cases where an individual adapts to features of both cultural

environments, their competence within the new society provides situations whereby bicultural adaptation can be described and better health outcomes can be observed.

Thus, identifying specific associations, related pathways, and direction of the mediating effects of acculturation on ethnic identity through interpersonal variables and out-group orientation and identifying similar mediated relationships to self-identity through interpersonal variables and affirmation and belonging, can provide information regarding protective factors to assist those in the process of acculturation.

CHAPTER TWO

RESEARCH METHODOLOGY

The following section details how the data was collected and recorded, ethical steps taken to protect participants, and specifies the model of analysis, and the resultant meaning. Methodological assumptions and limitations have been considered and then each section concludes with a brief summary, followed by an end of chapter summary. Structural equation modeling was used as a statistical technique in this study because it allowed the researcher to examine the set of relationships between multiple independent and dependent variables that involve multiple regressions. The rationale is based in the proposed relationships between self-identity and ethnic identity and acculturation.

Research Approach and Design

The purpose of this study was to determine if acculturation mediates ethnic identity and self-identity development. Identifying and understanding the way acculturation has an effect on norms, roles, and values, in relation to the degree of ethnic identity search and affirmation, and belonging, out-group orientation, and the presence or absence of crisis and commitment relative to identity achievement was evaluated by a proposed structural equation model and path analysis using Bentler-Weeks EQS 6.1 program. The statistical methodology has made clear the assumed underlying causal processes that generate observations on the proposed variables.

To reveal the underlying influences on individual development resulting from the acculturation process, it is necessary to ask what specific factors have the greatest influence on the struggle for identity in transitional individuals, and how acculturation

mediates these effects. The impact on the search for identity for those in transition was proposed to be associated with host and heritage cultural identity conflict.

It was important to distinguish if acculturation and perceived social support are associated, if they have an impact on each another, if acculturation and affirmation and belonging are associated, if they have an impact on each other, if social support and affirmation and belonging are associated with each other, and if these factors are related in some way to self-identity through mediation by acculturation. It was also important to distinguish if acculturation and interpersonal variables are associated, if they have an impact on each another, if acculturation and out-group orientation are associated, if they have an impact on each other, if interpersonal variables and out-group orientation are associated with each other, and if these factors are related in some way to ethnic-identity through mediation by acculturation.

This study used a correlation design within a confirmatory structural equation model (SEM) as a hypothesis-testing approach to the multivariate analysis of a structural theory bearing on the mediation processes of acculturation (Tabachnick & Fidell, 2007). This theory represents the assumed underlying processes that generate observations on multiple variables. It allows questions to be answered that involve multiple regression analysis of factors, such that, a relationship is posited between the measured variable (e.g., acculturation via host and heritage culture) and other measured variables (e.g., interpersonal variables via sex roles, dating, friends) (Ullman, 2007). The processes under study are represented by a series of regression equations (in EQS 6.1) that provide structure to the conceptual and underlying theoretical relationships in a simultaneous analysis of the entire system of variables.

Although SEM is a large sample technique (Bentler & Yuan, 1999), test statistics have been developed that allow for estimation models with as few as 60 participants (Mac Callum et al., 1996). However, an estimation approach to adequate sample size for the power calculations needed for tests of goodness of fit are based on model degrees of freedom and effect size from Cohen's tables of minimum sample sizes (Cohen, 1992). Based on the number of independent relationships in this model, Cohen recommends a minimum of 107 participants for a moderate effect size at $a = .05$ (Cohen, 1992).

Method

Confidentiality

Coding the information for each participant into the SPSS statistical program by subject number only protected the identity of participants in this study. Access was restricted to the principle investigator (PI) and student investigator (SI), in accordance with the Family Education Rights and Privacy Act of 1994; revised 2011 (FERPA, 1994; 2011). All records for this research project are stored on computer disk (CD-Rom) and maintained by the Senior Administrative Secretary in the Department of Psychology at Loma Linda University for 15 years. This is the required period specified by the university. Strict adherence to the requirements of the National Research Act on Experimentation with Human Subjects (1994) and the American Psychological Association's Ethical Principles in the Conduct of Research with Human Participants (1993; 2004) will be maintained throughout this period. All subjects participating in this research were assured privacy and confidentiality.

Participants and Recruitment Methods

Participants

A total of 184 healthy men (n=43) and women (n=141) from various ethnic groups between the ages of 18 to 55 years were recruited for participation in this study. Approximately 56 females and 19 males participated from La Sierra University in Southern California and approximately 85 females and 24 males participated from the University of Alaska Anchorage. Ethnic status was determined by individual responses to a demographic questionnaire, which asked what ethnic group they identify with and/or are descended from. Participants were required to belong to or identify with a specific ethnic group that has immigrated (at some point in time) to the United States or identify themselves as a member of an indigenous population in the United States. Generation since immigration was not a deciding factor for ethnic group status.

Minority status was determined based on recent statistics from the National Institute of Health (NIH) (2009) identifying minority group populations. Specifically, those recognized as having ethnic minority status in the United States were Eastern European (Russian) immigrants, Asian (i.e. Chinese), African American, Middle Eastern (i.e. Iranian), Hispanic, and Native 'American'. As such, participants may have been born inside or outside of this country, but must have had some current or past history of exposure to their ethnic community and/or traditions (Ryder et al., 2000). All participants were fluent in speaking, reading, and writing in the English language enough so that they were able to conceptually grasp the information being asked of them on the individual questionnaires.

Recruitment Methods

Recruitment of participants took place in two separate venues, as outlined below. An introduction to the study and an appeal for approval to approach La Sierra University (LSU) students was submitted electronically to the LSU Research Participant Pool Coordinator (RPPC), Leslie R. Martin, PhD. Follow up contact by the student investigator (SI) was made in person. Once approval from LLU IRB was granted for this study (OSR #59028), an informed consent form (Appendix A) was sent to the LSU Office of Sponsored Research (OSR) as an appendix to their on-line research application. Support for accessing the LSU participant pool was then granted by letter approval from LSU (Appendix C) for data collection to begin in Spring Term 2009.

In October 2009, a change to the existing research protocol was submitted to LLU IRB (Appendix E) requesting two modifications. First, the time frame for data collection was extended from Spring Term 2009 to Winter/Spring term 2010 at LSU. Second, a letter of introduction (Appendix H) was sent to Joanne K. Thordarson, MA, Research Compliance Administrator for UAA and, subsequently, to the Institutional Review Board (IRB) chairman at the University of Alaska Anchorage, Robert Boeckmann, PhD requesting permission to access the research participant pool at the University of Alaska Anchorage (UAA). The purpose of these modifications was to increase the subject size of the study and to increase the diversity of the subject pool. Once LLU IRB approved the protocol modifications, a brief description and purpose of the study (Appendix F) and informed consent form (Appendix G) was sent to the University of Alaska Anchorage (UAA) and they granted their support by letter of approval (Appendix I). A letter of request (Appendix J) was also sent to Shari Lane, Senior Administrative Secretary, LLU,

SST, Department of Psychology, and forwarded to all LLU graduate students in the department via LLU e-mail, requesting the services of a "student assistant" to assist in the on-going data collection process at LSU.

All participants at LSU were approached, consented, and participated in the survey based on an in vivo research protocol established by La Sierra University. All University of Alaska Anchorage participants were approached via a letter of introduction on their campus Internet research portal. The portal contained a brief description of the study and its purpose, the informed consent form, a hyperlink to an internet-based survey company known as "Survey Monkey", and a debriefing statement and hyperlink at the end of the survey, which routed them back to the UAA research portal. These methods were established through a coordinated effort between the SI for this study and the University of Anchorage Alaska. Each of the recruitment methods will be discussed under the subheadings *LSU recruitment methods* and *UAA recruitment methods*, in the following paragraphs of this section.

LSU Recruitment Methods

Once the letter of agreement (Appendix C) to participate was sent from LSU to the principle investigator, the student investigator coordinated with the LSU Research Participant Pool Coordinator (RPPC), Leslie R. Martin PhD., to post a flyer with attached sign-up sheet, in a central location in their Department of Psychology. The flyer entitled "Brief Description and Purpose of the Study" (Appendix D) contained brief information about the study, factors that qualified an individual for participation, where and when the

consent process and survey distribution would occur, contact information, and specific times that potential participants could sign up to participate in the process.

The sign-up sheets contained space for a student identification number (ID)[10], telephone contact information, and best participation times, so that faculty could acknowledge student participation in the research process for extra credit, and the researcher could anticipate how many potential participants to expect on a particular date. The flyer and sign-up sheets were posted on the LSU research board two weeks in advance of the scheduled assessment dates/times.

Of the 76 interested potential participants that signed up for the study, the SI and student assistant (refer to *LSU recruitment protocol modifications* section for description), met with each individual to determine eligibility. All potential participants were informed that their participation was strictly voluntary and was based on specific inclusion criteria. The basis for inclusion was that each participant must be over the age of 18 years and under 55 years of age, must have had some prior exposure to their ethnic group and traditions, must have immigrated at some point in time to the United States or be an indigenous person, and must able to speak, read, and write fluently in the English language.

For all eligible participants, the SI and student assistant handed out a packet containing the consent form and survey questions. The study was explained in detail to each participant, any questions were answered, and informed consent was obtained prior to their participation. Volunteers were not paid for their participation (other than an extra credit option offered through their university department) and were treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American

[10]The students created their own identification numbers.

Psychological Association, 1992). Of the 76 participants signed up to receive a survey packet, 1 was disqualified by virtue of not meeting the minimum age requirement, leaving 75 eligible participants for the study. Of these, 6 participants did not provide complete survey information. In the sample of 75 actual participants, the mean age was 21.91 years (SD = 5.135 years) and of these, 56 were females (74.6%) and 19 were males (25.3%) between the ages of 18 to 45 years of age.

LSU Recruitment Protocol Modifications

At the end of Spring Term 2009, only 25 completed assessments had been gathered from the data collection process at LSU. Since the statistical analysis in this study required a minimum of 107 participants, the PI submitted protocol modifications to Loma Linda University OSR # 59028, for Fall Term of 2009 (Appendix E). The following revisions were added to the IRB protocol: The first revision was to change the completion date for data collection at LSU. The current protocol stated 'Spring Term completion, 2009'; the requested change was to extend the data collection period to 'Fall Term completion, 2009.' Subsequently, this was changed to 'Spring Term completion, 2010' as approval for the current protocol modifications were not granted until the end of Winter Term, 2009.

The second revision involved the manner in which the SI would collect data at La Sierra University. The purpose behind this modification was to facilitate the student investigator while she was out of state on her pre-doctoral internship by employing a doctoral student at LLU to assist in data collection. A letter of request for a student assistant (Appendix J) was sent out via campus e-mail to all 2nd year and above graduate

students in the Department of Psychology at LLU by Shari Lane (Senior Administrative Secretary, (909) 558-8577) asking for assistance in data collection for this research study. Any qualified student interested in assisting in the data collection process at LSU would work under the guidance of Leslie R. Martin, PhD, and RPPC coordinator at LSU. The student assistant would receive a flat amount of $500.00 (one half to be paid the upon start of data collection process at LSU, the other half to be paid upon completion of the data collection) for participating in this service. The student was to be referred to in the amended protocol as “student assistant”, per Louis Jenkins, Chairman, Department of Psychology, LLU, Principle Investigator.

The student assistant would then be instructed to contact Dr. Leslie Martin directly, for assistance in setting up research times/dates and consent protocol for data collection at La Sierra University. The student assistant was directed to give Dr. Martin all hard copies of the data and summary participation for each session. These were later given to the SI to be entered into an SPSS program file for data analysis. Outside of these changes, the remainder of the existing data collection protocol between LLU IRB and LSU remained the same.

UAA Recruitment Protocol Modifications

Since the statistical structural equation program being used required a large number of participants, the second modification request (in the aforementioned protocol modification to LLU IRB) was to add the University of Alaska Anchorage (UAA) to the recruitment protocol. Prior to applying for access to the research participant pool at the University of Alaska Anchorage (UAA), the PI requested a letter of agreement

(Appendix H) from Robert Boeckmann, PhD., Chairman of the UAA Institutional Review Board (IRB) (907-786-1793 office; 907-786-4898 fax), for cooperation and access to the UAA research participant pool. All hard copies of the data and summary participation for each session were collected from an Internet survey company known as 'Survey Monkey'. At the close of data collection, the survey information was entered into the student investigators SPSS program file for data analysis. Outside of these changes, the remainder of the existing data collection protocol between LLU IRB and UAA remained the same as with LSU.

UAA Recruitment Methods

Once a letter of agreement (Appendix I) to participate was sent from UAA to the principle investigator, the SI coordinated with the IRB chairman at UAA, Robert Boeckmann, PhD, to post a flyer on the student computer research portal at UAA[11]. The flyer entitled "Mediating factors between ethnic and self-identities" (Appendix F) contained brief information about the study; factors that qualified an individual for participation; where, when, and how the consent process would occur; how students could access the study on their research portal; and researcher contact information.

All potential participants were informed that their participation was strictly voluntary and was based on specific inclusion criteria. The basis for inclusion was that each participant must be over the age of 18 years and under 55 years of age; must have had some prior exposure to their ethnic group and traditions; must have immigrated at some point in time to the United States or be an indigenous person; and must able to

[11] A special thanks goes to William Hutchings, Research Portal Editor at the University of Alaska Anchorage for his technical assistance and expertise in facilitating the on-line requirements for this research study.

speak, read, and write in the English language. Volunteers were informed they would not be paid for their participation (other than an extra credit option offered through their university) and were treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 1992).

Once the research portal for the study was made available to UAA students, potential participants were able to enter the portal to read the study introduction. The study was explained in detail on the first portal page. On the second portal page, potential participants were provided with the informed consent form to read and were given contact information, should they wish to speak to someone involved with the study. Once the individual consented to participate, he/she was able to move from the UAA portal via a hyperlink that directed them to the Survey Monkey Internet portal to complete the questionnaires. Upon entering the survey portal, participants were able to enter their responses to individual items on the survey. Upon completion, participants were debriefed and re-directed back to the UAA research portal by a specific hyperlink (provided by the UAA research department) that would allow them to enter their student identification number and login to claim extra credit from their academic department.

Of the 131 interested potential participants that accessed the UAA student research portal, 121 eligible participants consented to participate, while 10 declined by leaving the portal. Of the remaining 121 participants, 8 did not complete all of their survey information and 4 did not answer any of the study information. In the sample of 109 actual participants, the mean age was 21.91 years (SD = 5.135 years) and of these, 85 were females (77.9%) and 24 were males (22%) between the ages of 18 to 55 years of age.

Assessments and Measures

The Extended Objective Measure of Ego Identity Status II

The EOMEIS-2 (Grotevant & Adams, 1984) (Appendix K) consists of 64 items that indicate the presence or absence of crisis and commitment in two content realms: ideological and interpersonal. The ideological content realm is comprised of items relating to occupation, religion, politics, and philosophical life-style. The interpersonal content realm is comprised of items relating to friendship, dating, recreation, and sex roles. Each of these four ideological and interpersonal content areas is assessed by two items (each) from the scale, resulting in a total of 16 identity statuses. As such, responses to items on the test result in two diffusion, two foreclosure, two moratorium, and two identity-achievement statuses. One interest in this research is to focus on the effects of acculturative change on identity. The classification and prediction of individual differences between the four identity statuses, and the comparisons that can be made between less advanced (diffusion, foreclosure) and more advanced (moratorium, achievement) identity statuses can be achieved by observing pure identity statuses and the transitions from one status to another as acculturation levels shift (Adams et al., 1987). It is speculated that as an individual begins the process of acculturation, a corresponding degree of subjective discomfort occurs that leads to a re-evaluation of attitudes, values, and behavior. A short 24-item version is also available and will be used in this study to reduce the risk of participant fatigue. The development of the EOMEIS-2 is the result of Marcia's (1966) work in operationalizing Erickson's (1968) conceptions about identity (Adams et al., 1987). Because crisis often results in a psychological process of re-evaluation of attitudes, values, and behavior and commitment toward individual purpose,

meaning, and direction (Waterman, 1984), the EOMEIS-2 can reasonably distinguish between those who have experienced crisis and have committed to personal goals (identity-achieved). The EOMEIS-2 can also distinguish between those who remain role-confused regarding commitment and are uncompelled in goal attainment (diffused); those individuals who are currently experiencing crisis but are seeking personal commitments (moratorium); and those who have made commitments without experiencing crisis (by adopting parental commitments) (foreclosed). Although the EOMEIS-2 was designed to assess the development of patterns of growth from lesser to higher differentiated identity for those in middle and late adolescence, the application of these concepts to corresponding changes in social-cognitive processes (resulting from assimilation-acculturation) is the intent of this study. More specifically, if identity confusion (as Erickson suggests) is a self-focusing process of centering on the self within the context of others, low identity achieved individuals would be less willing to reveal themselves to others and less likely to commit to being bicultural. The raw scale scores for the four statuses are derived by summing responses to the appropriate items (1 = *strongly disagree*, 6 = *strongly agree*) and then each participant is classified into either ideological or interpersonal identity statuses, as long as participants in one identity content realm do not also appear in the other. Identity status assignments for the EOM-EIS-II are made based on a standardized procedure. Within each cluster of domains (ideological, interpersonal, and overall), the scores for each participant for the four statuses are converted to standardized scores. The status with the highest score becomes the participant's classification status. For those whose status scores are within one-half standard deviation of their respective means, an undifferentiated status is assigned.

Estimates of reliability and validity for both long- and short-form tests have been reported in several studies (e.g., Adams et al., 1984; Adams et al., 1979; Grotevant &Adams, 1984). Cronbach's alpha values for the full EOM-EIS-II scales are: Ideological Diffusion, .62; Interpersonal Diffusion, .64; Ideological Foreclosure, .75; Interpersonal Foreclosure, .80; Ideological Moratorium, .75; Interpersonal Moratorium, .58; Ideological Achievement, .62; and Interpersonal Achievement, .60 (Schwartz, 2003). A reliability analysis of the EOM in this sample resulted in a Chronbach's alpha value of .87.

The Vancouver Index of Acculturation

The VIA (Ryder et al., 2000) (Appendix L) is a 20-item bi-dimensional instrument designed to provide independent measures of identification with host (mainstream) and heritage cultures. It is used to assess several domains relevant to acculturation, including values, social relationships, and adherence to traditions. It can be used to assess acculturation in immigrants, sojourners, and even general American and Canadian populations (Ryder et al., 2000). It is used to assess an individual's heritage culture [meaning the culture that has had the greatest influence on the individual], other than American culture. It may be the culture of an individual's birth, the culture in which they have been raised, or another culture that forms part of their background. The VIA is comprised of two primary subscales: the **heritage** sub score, which is the mean of odd-numbered items, and the **mainstream** sub score, which is the mean of even-numbered items. The VIA uses a 9-point likert scale that ranges from 1 = strongly agree to 9 = strongly disagree. The reliability of the VIA was assessed by means of Cronbach alpha coefficients and mean inter-item correlations. Internal consistency (alpha) coefficients

were .79 for the six-item Heritage subscale (mean inter-item *r* = .40) and .75 for the six-item Mainstream subscale (mean inter-item *r* = .34). The internal structure, specifically orthogonality, was assessed by calculating the subscale inter-correlation, in an overall sample of 718 acculturating individuals from various ethnic groups (Ryder et al., 2000). This analysis demonstrated that the two dimensions of acculturation were orthogonal in the sample, and in both first- and second-generation groups, as well (*r* = .09). It should be noted that the mean inter-item correlations in this sample are similar to alpha coefficients for the two-item scales used in previous studies, suggesting wider coverage of the culture domain than is obtained with other acculturation instruments, in the past (Ryder et al., 2000). Concurrent validity was evaluated by comparing the two dimensions with (a) percentage of time lived in a Western, English-speaking country, (b) percentage of time educated in a Western, English-speaking country, (c) the uni-dimensional acculturation score provided by the SL-ASIA, and (d) a single-item validity check measuring current cultural identification in a uni-dimensional fashion. The percentages of time lived in and educated in the west were significantly associated with the Mainstream subscale (*rs* = .47 and .41, respectively, p .001) and the Heritage and Mainstream subscales were significantly associated with the SL-ASIA (*rs* = -.30 and .54, respectively, p .001). The heritage dimension of the VIA has also been highly internally consistent in samples of Chinese, East Indian, and miscellaneous groups with Cronbach alphas of .92, .92, and .91, respectively, and had high mean inter-item correlations of *rs* = .52, .53, and .51. The Mainstream dimension has yielded high Cronbach alpha coefficients and mean inter-item correlations in Chinese, East Indian, and miscellaneous samples of .89, .85, and .87, *rs* = .45, .38, and .44.

The Multigroup Ethnic Identity Measure - Revised

The MEIM (Appendix M) is a 15-item measure that uses a 4-point Likert scale to assess ethnic identity using adolescent or emerging adult self-reports of an individual's ethnicity or ethnic group to which he/she belongs, and how the individual feels about or reacts to identifying with that ethnic group. Development of this measure was originally grounded in Erickson's theories of identity formation and modeled after the Objective Measure of Ego Identity Status (Adams et al., 1987). Four general aspects of ethnic identity are assessed, including: positive ethnic attitudes and sense of belonging; ethnic identity of achievement; ethnic behaviors and practices; and other-group orientation (a separate construct). These factors allow the measure to be used across various ethnic groups; and ethnic identity is conceptualized as a continuous variable (Phinney, 1992). The MEIM is an assessment instrument that has subsequently been used in a number of studies and has consistently shown good reliability, typically with alphas above .80 across a wide range of ethnic groups and ages (Phinney, 1992). Cronbach alphas for the subscales range between .69 and .81 in a high school sample and between .74 and .90 for a college sample. The alphas were the highest for the 14-item scale (.81 for the high school sample and .90 for the college sample), while six of the items in the scale assess Other Group Orientation, which are indicators of acculturation with alphas of .71 and .74 for high school and college students, respectively (Phinney, 1992). On the basis of recent work, including a factor analysis of a large sample of adolescents, it appears that the measure can best be thought of as comprising two factors, Ethnic Identity Search (a developmental and cognitive component) and Affirmation, Belonging, and Commitment (an affective component). The items related to each of the factors are as follows: ethnic

identity search, items 1, 2, 4, 8, and 10; affirmation, belonging, and commitment, items 3, 5, 6, 7, 9, 11, 12 (none of the items are reversed). The MEIM subscales used in this study are Affirmation and Belonging; Ethnic Identity Achievement; Ethnic Behaviors; and Other Group Orientation. In the questionnaire, participants are asked to indicate the degree to which they agree with anchors (4) **strongly agree**, (3) **somewhat agree**, (2) **somewhat disagree**, and (1) **strongly disagree**, with higher scores indicating higher levels of ethnic identity achievement. The preferred scoring for this measure is to use the mean of the item scores; that is, the mean of the 12 items for an over-all score, and, if desired, the mean of the 5 items for Search and the 7 items for Affirmation. Thus, the range of scores is from 1 to 4. Items 13, 14, and 15 are used only for purposes of identification and categorization by ethnicity. In addition, four items from the Other-group Orientation subscale are extracted and used to tap into out-group orientation (Appendix N). These items are as follows: 1) I like meeting and getting to know people from ethnic groups other than my own; 2) I often spend time with people from ethnic groups other than my own; 3) I am involved in activities with people from other ethnic groups; and, 4) I enjoy being around people from ethnic groups other than my own.

Procedure

These procedures were based on methods used in previous studies conducted with adolescent and emerging-adult immigrants, recruited from various sources. Correlation analysis was conducted to investigate the extent to which scores on the various factors are associated with one another. Multiple regressions were conducted based on the strongest associations found, in order to determine potential relationships among the variable

factors. Finally, structural equation modeling and path analysis were used as a confirmatory technique of the directional nature of the proposed relationships.

La Sierra University Procedures

Once LLU IRB, LSU OSR, LSU RPPC, and LSU faculty approval was granted for this study, access to the LSU student research participant pool was observed in the following manner. First, the SI coordinated with the LSU department of psychology administrative secretary (Andrea Poblete; apoblete@lasierra.edu, (951) 785-2099) to reserve research space for the dates/times for research data collection and at the indicated locations. Second, a flyer[12] with attached sign up sheets (provided by LSU) (Appendix D) explaining the study was posted on the RPP bulletin board in the LSU Psychology Department in the first three weeks of Spring Quarter.

Third, course instructors informed their students (by the second week of Spring Quarter) that an on-going research opportunity was available for their participation. They were told to go directly to the research board, read the brief description, sign up with their student ID number, and appear on the designated date and time for which they signed up for the consent/survey procedure[13]. Fourth, as each participant arrived at the (pre-arranged) room[14], she or he was seated at 6-foot long table along one wall, while the student investigator or student assistant was seated at a desk on the opposite wall. Each

[12] The flyer contained brief information about the study, factors that qualified an individual for participation, where and when the consent process and survey distribution would occur, contact information, and specific times that potential participants would be able to sign up for participation in the study.

[13] Each individual was allocated a 50-minute interval for consenting and survey completion, with a 10-minute break between participants (so that no more than one participant was in the room at a time).

[14] The room was a small, unmarked office, but was of normal structure and of adequate size. Only the materials needed by the researcher were present in the room (e.g., chair, desk, pencils, test materials).

participant was given a packet of information containing the informed consent form (Appendix C), a short demographic questionnaire (Appendix D), and the survey questions for him or her to fill out (Appendix I, J, K). Participants were asked not to open their packet until instructed to do so by the researcher. The researcher also gave students an RPP[15] card provided by the RPPC (if this was their first research involvement) or the SI signed off on RPP cards for students that already had a card.

Fifth, the student investigator or student assistant gave potential participants a copy of the informed consent form and the researcher reviewed this document with them, in detail. Potential participants were given a description of the study and purpose and were given a clear statement of the reasons why the participant was appropriate for the study, and if they are excluded, why they did not meet the inclusion criteria. Participants were also informed that they would not be paid for their participation, but their participation would be recognized by La Sierra University as fulfillment of credit toward a research participation requirement within their department.

Sixth, the student investigator then gave a description of the information the participant would be asked to provide and asked to do, given an explanation of how to fill out the surveys, how the data from the surveys would be handled, and who was involved in the study. Participants were provided with the name, address, and phone number of the investigators involved in this research, the supervisor for the student investigator (Louis Jenkins, PhD; LLU Department of Psychology, (909) 558-8752), the research sponsor at LSU (Leslie R. Martin, PhD, (909) 558-8577), individuals they could speak with about the study (Leslie R. Martin, PhD., Faculty Sponsor, LSU, (909) 558-8577); David

[15] RPP card: An index card provided by the LSU research department that was designed for the researchers signature, signifying student participation in a study.

Chavez, PhD., Professor of Psychology, CSUSB, (909) 558-5572; committee members), and a third party contact that was not directly involved in this study (LLU, Office of Patient Relations (909) 558-4647), if the participant had any further questions, concerns, or a complaint they would like to discuss.

Seventh, participants were then informed as to how long the study would last, a description of all known risks and discomforts the participant may be subjected to, and a clear statement of the ways that the risk of harm would be reduced so that participants could give informed consent[16] before participation. Participants were also informed that their participation was strictly voluntary and that they could withdraw from the study at any time without negative consequences. Finally, participants were given the opportunity to leave, if they chose; and if not, they were instructed to fill out the survey questions and demographic questionnaire[17], contained in their packet. Participants were informed the surveys would take no longer than 35 minutes to finish, if they agreed to participate.

To reduce the threat of possible construct overlap (and to control for participant fatigue), the presentation order of the three questionnaires in the packets was counterbalanced. The three measures were followed by a demographic questionnaire (to avoid priming/expectation effects) that asked for such information as age, gender, education level, primary language used by the participant, and ethnic group they identify with. The counterbalancing procedure was conducted as follows: The first variation presented the Vancouver Index of Acculturation (VIA) first, and the two remaining instruments in random order. The second variation presented the Extended Objective

[16] All participants are treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 1992; 2002).
[17] The demographic questionnaire asked about information such as age, gender, educational background, primary language used by the participant, and primary language used in the home.

Measure of Ego Identity Status-II (EOMEIS-2) scale first, and the two remaining instruments in random order. The third variation presented the Multi-group Ethnic Identity Measure (MEIM) and Out-group Orientation scale first, and the two remaining instruments in random order.

Upon completing the surveys, each participant placed their completed materials in the survey box, received a de-briefing letter (Appendix O) stating the intent of the research and relevant contact information, and left the room. At the end of the day, the LSU faculty sponsor, Leslie R. Martin, PhD, RPPC, retrieved the surveys to verify that none of them contained any identifying information. The sign up sheets and the list of student ID numbers were also turned over to her. Once the RPPC was assured that no identifying information was included with the surveys, they were given to the SI for data entry into the researchers statistical program for SEM analysis.

University of Alaska Anchorage Procedures

Once LLU IRB and UAA IRB granted protocol modification approval for this study, access to the UAA student research participant pool was observed in the following manner. First, a letter of approval/support[18] (Appendix I) was sent from UAA to LLU IRB granting permission to access the student research participant pool through the UAA on-line research portal. Second, the PI posted a brief description and purpose of the study (Appendix F) on the UAA campus blackboard research portal. This included an internet-based hyperlink address to an internet-survey site known as "Survey Monkey." This internet-based survey service provided data collection and analysis, confidentiality

[18] Letter of Approval and Letter of Support have the same meaning in this instance).

encryption, and Veri-sign privacy protection for researchers[19]. The survey monkey hyper-link address [http://www.surveymonkey.com/s/H2D30N2] was sent to the Internet Technical Support (ITS) office on the UAA campus, to be placed on the research portal managed by William Hutchings, UAA Research Portal Editor. Once the hyperlink was added to the research portal, the research editor added a UAA hyperlink at the end of the survey that would collect relevant information from UAA students (e.g., student ID number and course they were seeking credit for) and credit students with 30 minutes (equal to one (1) unit) of extra credit for participation. The SI for this study was in no way involved in or required to track this information.

The third procedure included the following provisions for the survey monkey hyperlink: a) a brief description and purpose of the study (Appendix F) was embedded in the first page of the survey on the research portal at UAA. This was followed on page two of the survey with b) an informed consent form (Appendix G) that included any foreseeable risks and contact information. Participants were provided with contact information for the Office of Patient Relations at LLU and the UAA IRB chairman (provided on the informed consent form). This was followed by c) a short demographic questionnaire (Appendix B), unchanged from the original protocol with LSU. This was followed by d) the individual survey questions, unchanged from the original protocol (Appendix K, L, M) and finally, e) a de-briefing message[20] was placed at the end of the survey with directions that would re-direct students via the UAA hyperlink to the student information portal.

[19] The student investigator contracted Survey Monkey privately and was responsible for making quarterly payments for the service.

[20] Although the de-briefing message was on the final page of the survey portal, access to this was restricted once the UAA link was attached. The intent was to protect participants right to privacy and confidentiality and a copy of this message is not included in the dissertation appendices.

It is noteworthy at this point to mention any additional concerns beyond those already described in the preceding recruitment procedures section for LA Sierra University. While every UAA participant was fully informed about the known risks involved in study participation, use of the Internet for data collection might have raised additional concerns about privacy and confidentiality. At key points in the process, steps were taken to minimize breeching privacy and confidentiality by using separate hyperlinks at each stage of the process. By procedural design, the Internet provider (IP) address entering and leaving the survey website originated from UAA. This routed terminal identification into the UAA system without a direct link to the participant, separated the participants survey information from their student login, and kept separate the researcher and the survey company from participants personal information, once they left the survey portal. Thus, anonymity minimized the risk as much as possible.

Furthermore, despite the different recruitment methods and variations in the procedures used to access LSU and UAA participants, the essential information that was shared with participants was the same. Participants were assured the right to privacy and confidentiality, protection of personal information, fully informed about all known risks and benefits; and they were provided with contact information, should questions or concerns arise.

Finally, it was explained to university representatives and participants at both LSU and UAA that the results would be available for review with their department, upon completion of the study. Each university was notified the law requires the researcher to provide this information and that the researcher would maintain the data on a CD-Rom

should they or other researchers wish to examine the data. Both parties were informed that no identifying information or coding would be included in the database.

Treatment of the Data

Age was coded in months, gender was coded as female (1) and male (2), ethnic affiliation was coded into 10 categories (by ethnicity) then recoded into five categories (western European/mixed, African American. Hispanic, Indian, Asian). Of the 184 total completed surveys, six participants were excluded from the analysis as non-responders on the demographic questionnaire (1 = LSU, 5 = UAA), resulting in a total participant n = 178. Participants by gender at LSU are (male = 31, female = 38) and at UAA are (male = 16, female = 93). For ethnic affiliation (ethnicity) by category: European/mixed (male = 13, female = 65), African/American (male = 1, female = 8), Hispanic/Latino (male = 13, female = 27), Indian (all) (male = 4, female = 16), and Asian (male = 15, female = 12). Language preference was coded into 10 categories then recoded into three categories (English, origin language, no preference; with American sign-language changed to English), mother's and father's identification was coded into 13 categories then recoded into nine categories (European, Mexican/Hispanic, Asian, Islander, east Indian, Mixed, African American, Indigenous, Unknown), self-identification preference (IDPREF) was coded into seven categories then recoded (IDPREF2) into four categories (American identity, non-American identity, prefer both, prefer neither), ethnic group (ETHNGRP) was coded into 15 categories and then recoded (ETHNGRP2) into 11 categories (Mexican American or Latino, black or African American, Asian American, Asian,

islander, indigenous, eastern European, western European/European American, east Indian, unknown).

Raw scores from 9-point-Likert scale responses on the VIA (i.e., 1= strongly disagree, 9= strongly agree) were entered for each participant on each item. Individual items were summed to yield two total scores: one for the 'mainstream' subscale and one for the 'heritage' subscale. The mainstream subscale score was the sum of the even numbered items (2,4,6,8,10,12,14,16,18,20) divided by 10 to yield a host culture acculturation score. The heritage subscale score was the sum of the odd numbered items (1,3,5,7,9,11,13,15,17,19) divided by 10 to yield a heritage acculturation score. The higher scaled score classified the individual as mainstream or heritage, in terms of the degree of acculturation. None of the items on the VIA was reverse coded because the two subscale scores were not derived from a total scale score, but the mean of odd and even numbered items.

All 24 items on the EOM-EIS-II were reverse coded as follows: EOM1 to EOM24 = (6=1) (5=2) (4=3) (3=4) (2=5) (1=6). Next, raw scale scores for diffusion, foreclosure, moratorium, and identity achievement were derived by summing responses to the appropriate items (1 = strongly disagree, 6 = strongly agree) as follows: DIF (diffusion) = items 8+16+1+11+3+6; FOR (foreclosure) = items 2+4+17+7+21+23; MOR (moratorium) = 20+22+5+19+12+15; ACH (identity achieved) = 10+14+13+24+9+18. Scores for each participant for the four status variables (DIF, FOR, MOR, ACH) were then converted to standardized scores. Standardizing the scores is a direct measure of the degree to which participants endorse each status and allows each

participant to be assigned a status classification (e. g., the highest standardized score for each participant becomes his or her classification).

The 16 classification statuses (ISC) were coded as follows: 1 = Pure Diffusion, 2 = Pure Foreclosure, 3 = Pure Moratorium, 4 = Pure Achievement, 5 = Dif-For Transition, 6 = Dif-Mor Transition, 7 = Dif-Ach Transition, 8 = For-Mor Transition, 9 = For-Ach Transition, 10 = Mor-Ach Transition, 11 = Dif-For-Mor Transition, 12 = Dif-For-Ach Transition, 13 = Dif-Mor-Ach Transition, 14 = For-Mor-Ach Transition, 15 = Dif-For-Mor-Ach Transition, and 16 = Undifferentiated/Low Profile Mor (undifferentiated status was assigned to participant's whose scores are all within one-half standard deviation of their respective means). The highest score from the four statuses was then assigned to each participant for the final collapsed status variable (STATUS). Status was coded with the following values: low exploration, low commitment (DIF) as (1), low exploration, high commitment (FOR) as (2), high exploration, low commitment (MOR) as (3), and high exploration, high commitment (ACH) as (4).

An 'interpersonal variables' mean subscale score was also derived from EOM items #3, 5, 13, 21, & 22. These items represent key aspects of interpersonal values. The items are described, as follows: 3) "My ideas about men's and women's roles are identical to my parents. What has worked for them will work for me"; 5) "There are a lot of different kinds of people. I'm still exploring the many possibilities to find the right kind of friends for me"; 13) "There are many reasons for friendship, but I choose my close friends on the basis of certain values and similarities I've personally decided on"; 21) "My parents know what's best for me in terms of how to choose my friends"; and 22)

"I've chosen one or more recreational activities to engage in regularly from lots of things and I'm satisfied with those choices."

For the MEIM, raw scores from 4-point-likert responses on each item (i.e., 1 = strongly disagree, 4 = strongly agree) were entered for each participant. Of the two factors that comprise the MEIM, items 1, 2, 4, 8, and 10 (related to ethnic identity search) and items 3, 5, 6, 7, 9, 11, and 12 (related to affirmation, belonging, and commitment), were summed and the mean of the 12 items was obtained for an over-all score (MEIMTOT). The MEIM subscales used in this study are affirmation and belonging; ethnic identity achievement; ethnic behaviors; and other group orientation. Next, the mean of the 5 items for Search (SEARCH2) and the 7 items for Affirmation (AFF2) were also obtained. None of the items were reverse coded. Items 13, 14, and 15 were only used for the purpose of identification and categorization by ethnicity. For the Other-Group Orientation subscale, raw scores for each of the four items were extracted from the MEIM. The responses on each of the items (ORIENT 1-4) were then summed and the mean of the 4 items was obtained for an over-all score (ORIENTOT), used to assess out-group orientation.

Data Pre-screening

Ungrouped Data

Descriptive statistics for all quantitative variables were conducted to assess for data entry errors, skewness, and kurtosis on ungrouped data. A summary of the descriptive characteristics for all variables in the data set can be found in Table 2 below.

Table 2

Descriptive Characteristics for All Variables in the Analysis

Variable	Mean	SD	Skew	Kurtosis
Age in months	264.27	63.04	2.487	7.001
Gender	1.23	.419	1.33	-.244
Ethnic affiliation	2.81	1.64	.139	-1.579
Language preference	1.20	.443	2.049	3.491
Generation since immigration	4.11	2.107	-.390	-1.625
Mothers ID	2.45	1.627	1.105	.167
Fathers ID	2.33	1.629	1.224	.429
Self ID preference	1.70	.694	.484	-.844
Different ID preference	1.60	.492	-.397	-1.863
Interpersonal variable	3.91	.681	-.434	.044
Important person (1st generation)	3.45	1.045	-1.487	.499
Important person (2nd or more generation)	1.81	1.273	1.068	-.747
Customs	1.52	.592	.816	.578
Heritage	1.57	.569	.344	-.801
Belonging	1.59	.504	-.242	-1.625
Education level	2.91	.344	-1.490	4.218
Ethnic ID search (MEIM)	2.72	.604	-.042	-.436
Affirmation and belonging (MEIM)	3.12	.599	-.280	-.327
Ethnic group	5.63	3.593	.649	.108
Total EOM-EIS	81.11	13.032	-.202	-.050
Total MEIM	35.27	6.727	-.200	-.090
Orientation TOT	3.334	.584	-.371	-.682
Total VIA heritage	5.313	1.936	.313	-.831

Note: skew and kurtosis presented prior to data transformation.

The total composite scores for the Extended Objective Measure of Ego Identity Statuses (EOM-EIS-2) can be found in Figure 1 below.

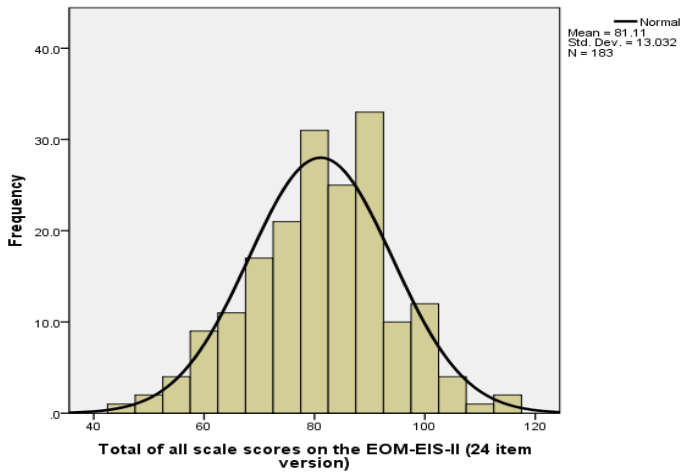


Figure 1. Histogram of the total EOM-EIS-II scale scores.

The Vancouver Index of Acculturation can be found in Figures 2 & 3 below.

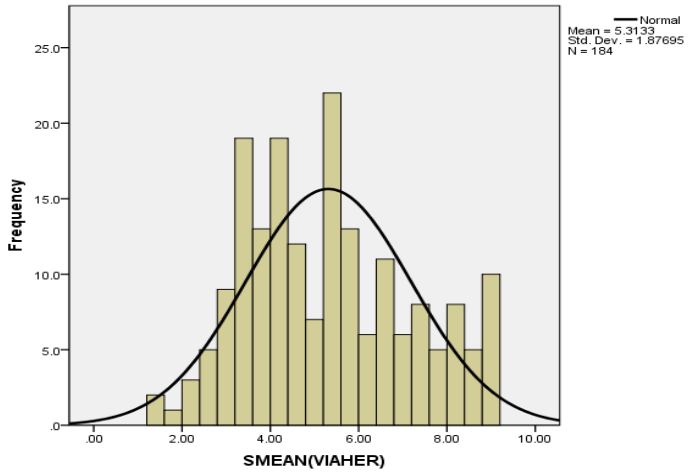


Figure 2. Histogram of the Vancouver Index of Acculturation heritage subscale mean scores.

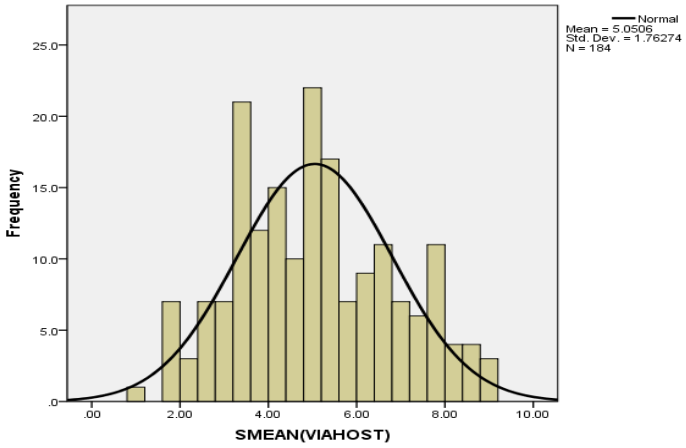


Figure 3. Histogram of the Vancouver Index of Acculturation Host mean subscale scores.

The Multi-group Ethnic Identity Measure (MEIM) can be found in Figure 4 below.

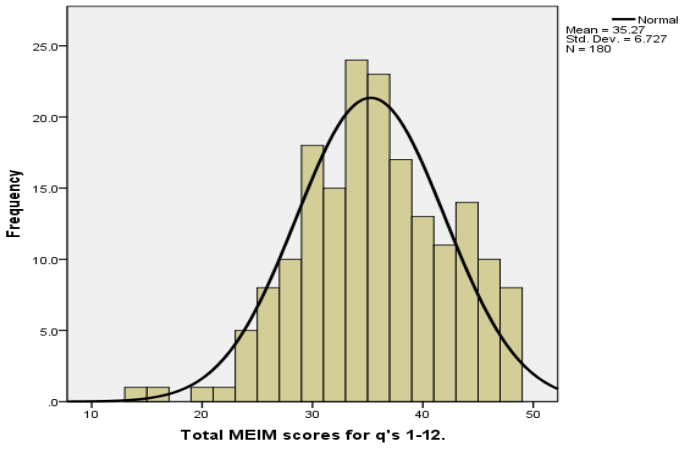


Figure 4. Histogram of the Multi-group Ethnic Identity Measure total scale scores (items 1-12).

The 'ethnic identity search' subscale can be found in Figure 5 below.

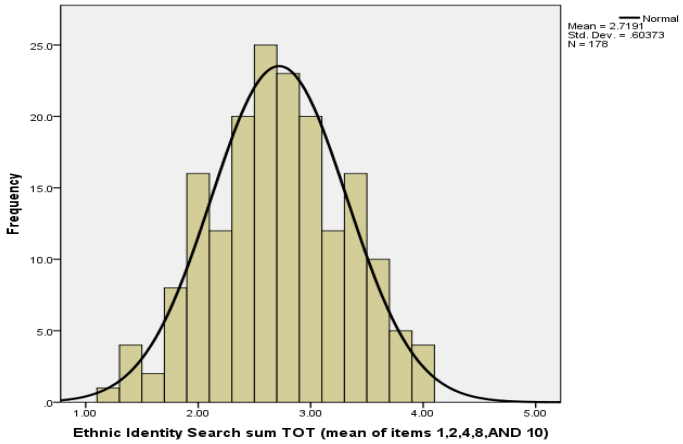


Figure 5. Histogram of the 'ethnic identity search' subscale from the MEIM.

The 'affirmation and belonging' subscale from the MEIM can be found in Figure 6 below.

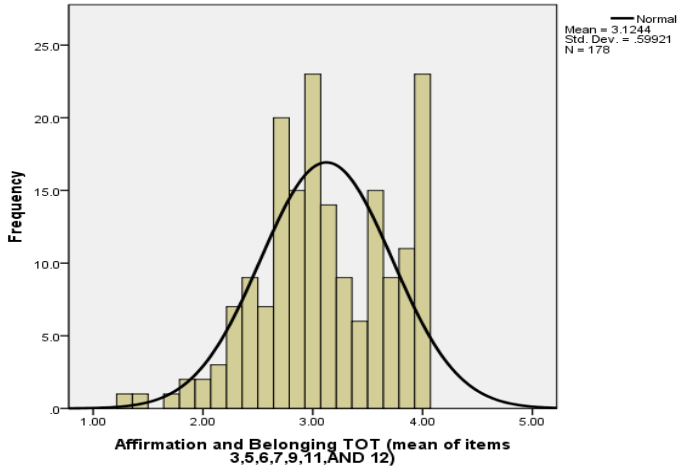


Figure 6. Histogram of total 'affirmation and belonging' subscale scores from the MEIM.

And, the 'out-group orientation' scale from the MEIM can be found in Figure 7 below.

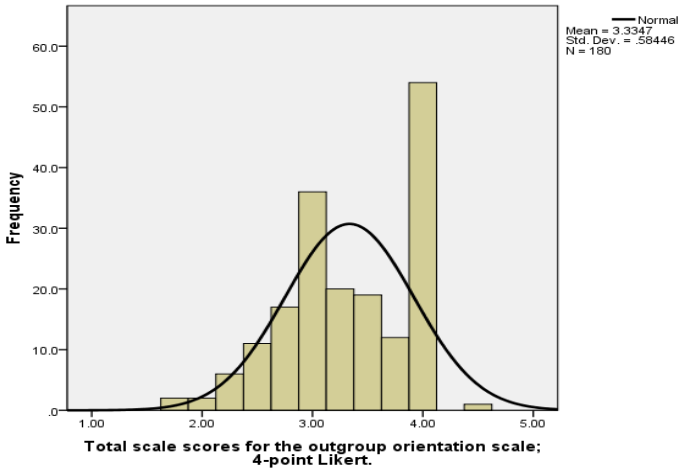


Figure 7. Histogram of total scale scores for the Multi-group Ethnic Identity Measure 'out-group orientation' scale.

Each of these distributions were examined and the means and standard deviations for these variables appear to be consistent with the scales that each measure represents (see normative data in Ryder et al. (2000) for the VIA; Bennion & Adams (1986) for the EOM-EIS-II; and Phinney et al. (1992) for the MEIM.

Further examination of each demographic variable also provided information about skew and kurtosis, which informs the reader of the degree of symmetry of the distribution around the mean and the degree of peakedness of the distribution. A sample of positive skew for 'age in months" (2.49) can be found in Figure 8 below. Refer to skew and kurtosis values for all of the variables in Table 2.

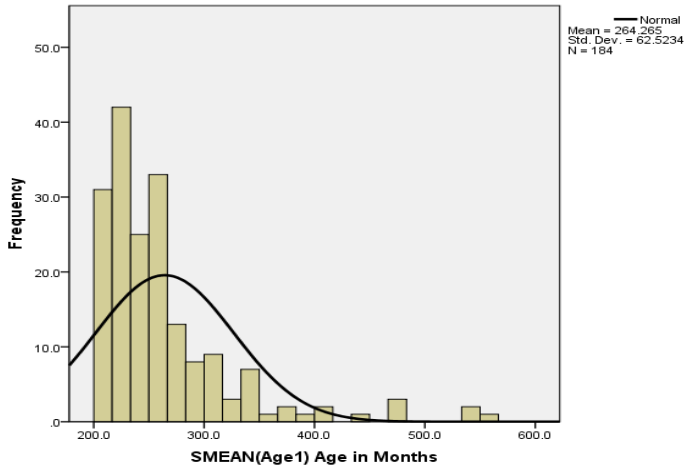


Figure 8. Histogram of smean imputation for age in months.

Of the 184 cases in the data set, eight cases have missing values on some of the demographic variables, representing .03% of the data. Two of these cases are missing data on all of the demographic variables, representing 1.2% of the data. 'Age in months' and 'belonging' have three missing values for .02% of the data, 'gender', 'ethnic affiliation', 'language', 'language preference', 'language fluency', 'marital status', 'recent immigration', 'generation since immigration', 'customs', 'heritage', and education level' have two missing values for .01% of the data, while 'most important person,' 'first generation since immigration', 'American identity' and 'important person' have five and six missing values for .03% of the data, respectively.

Missing values were replaced with the mean of all available cases (mean imputation) for each of the demographic variables containing less than 5% missing values, even though this creates some risk of suppression of the standard deviation. This decision was made in order to maintain as high a response rate as possible, given the *n* size needed to run the structural equation model. Evaluation of the data after mean

imputation of the missing data shows that substituting the mean had an overall effect on skewness and kurtosis for each variable.

Exceptions to the mean imputation method were ETHNGRP with 13.6% missing data, VIAHOST with 7.6% missing data, VIAHER with 6.00% missing data, and the EOM STATUS variable with 15.2% of the data missing. The estimation method used on these variables was to replace missing values with the linear trend for that point. The existing series was regressed on an index variable scaled 1 to *n*, where missing values were replaced with their predicted values (regression imputation). Despite the risk of suppressing the true value of the standard deviation (and the standard error), the risk of smaller standard errors leading to significant results that are a product of data replacement rather than a genuine effect is not as serious with a large sample and a small number of missing values (Field, 2005). Since EQS uses regression equations to produce the structural equation model anyway, the values for the missing data points are replaced with the regression mean and sample size is maintained.

To further explore the reasons behind the distributions, each quantitative variable was examined for univariate outliers. Four outliers were found in the data set for the total scale score for the EOM-EIS-II (cases 3, 10,109, & 166) by gender and can be found in Figure 9 below.

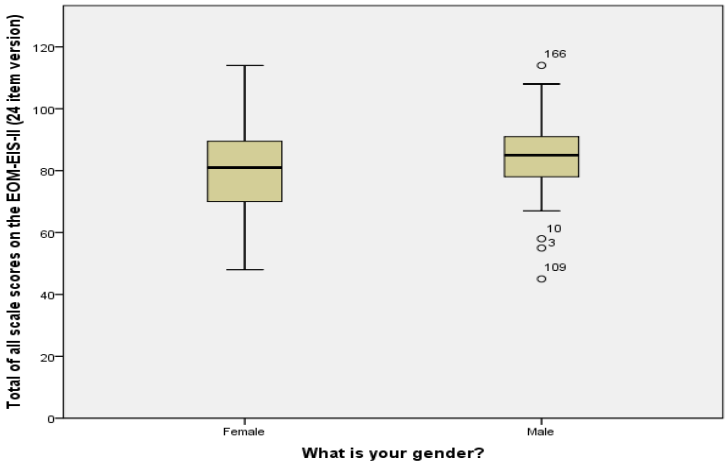


Figure 9. Box plots of Total Scale Scores on the EOM-EIS by Gender with Outliers.

The tests of normality (Kolmogorov-Smirnov Test and Shapiro-Wilk's Test) were non significant, which tells us the distribution of the sample is not significantly different from a normal distribution. Two outliers were also found in the data set for the total scale score for the MEIM (cases 81 & 87) in the female category and one outlier (case 81) was found in the data set for the total subscale score for affirmation and belonging on the MEIM in the female category. These outliers can be found in Figures 10 and 11 below.

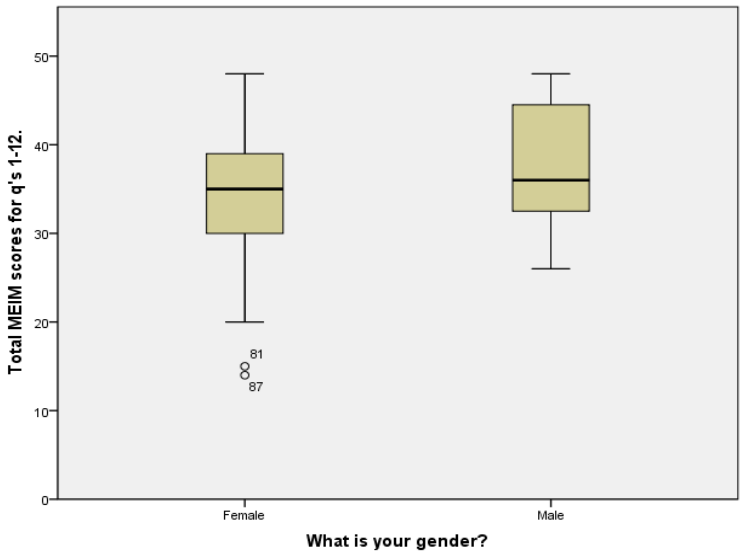


Figure 10. Boxplot of Total Scale Score on the MEIM by Gender with outliers.

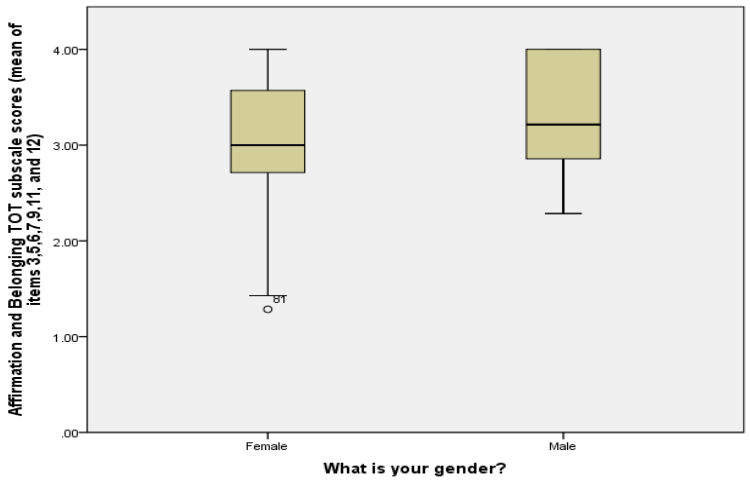


Figure 11. Boxplot of Total Subscale Score on the MEIM for Affirmation and Belonging by Gender with outlier.

Box plots were further evaluated on the EOM-EIS-2 for those who "prefer customs of their ethnic group", those who "prefer some of the customs of their ethnic

group", and those who "do and do not prefer customs of their ethnic group" and can be found in Figure 12 below.

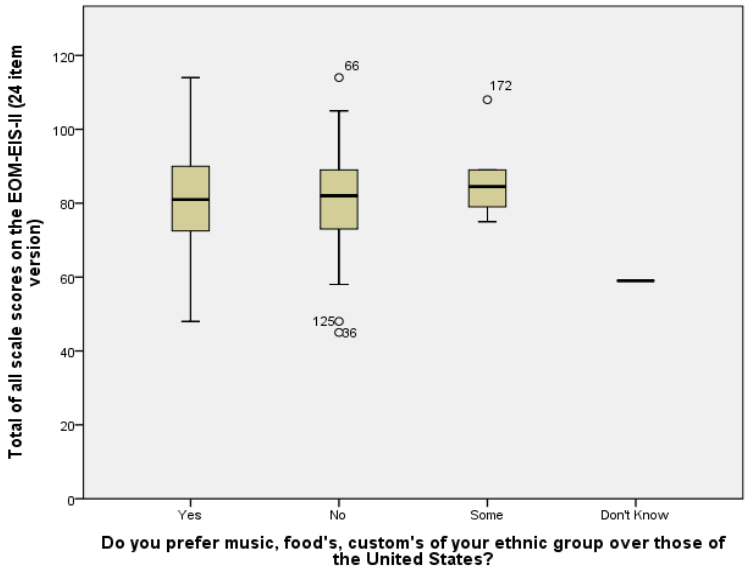


Figure 12. Box plot of EOM Total Scores by Preference for Customs of Your Ethnic Group with outliers.

Four outliers are outside the upper and lower quartile range for "those who prefer (cases #36, 66, 125) and do not prefer (case #172) customs of their ethnic group."

For those who "prefer customs of their ethnic group", mean differences are found between those who "prefer customs of their ethnic group" and those who "do not or only prefer some of the customs of their ethnic group" with several outliers present and can be found in Figure 13 below.

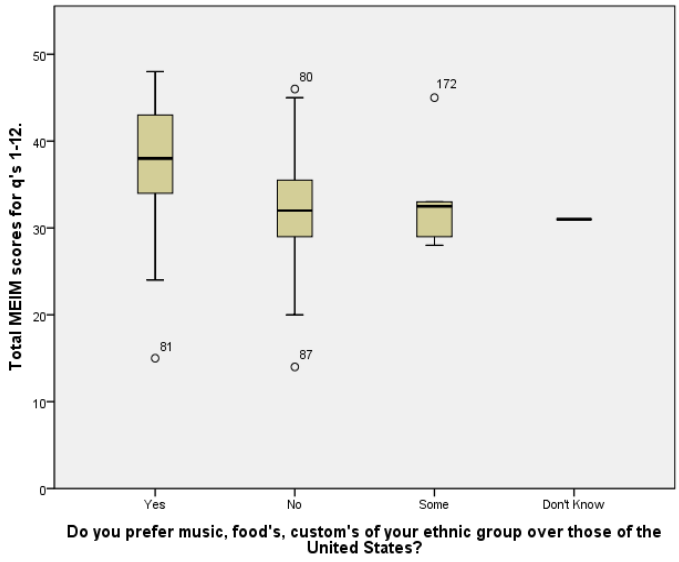


Figure 13. Box plot of MEIM Total Scores by 'Prefer Music, Food's, and Custom's of Your Ethnic Group' with outliers.

Those individuals who prefer customs of their ethnic group are higher in ethnic identity achievement, while those who do not are lower in ethnic identity achievement, and those who prefer some of the customs of their ethnic group are higher in ethnic identity achievement than those who do not prefer customs of their ethnic group.

For those who prefer customs of their ethnic group on the Affirmation and Belongingness Scale from the MEIM, we find mean differences between those who prefer customs of their ethnic group and those who do not or prefer only some customs. A number of outliers are depicted and can be found in Figure 14 below.

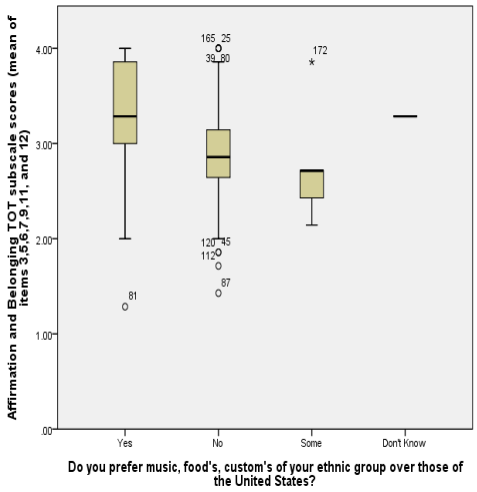


Figure 14. Box plot of Affirmation and Belongingness mean subscale scores from the MEIM by 'prefer customs of your ethnic group' with outliers.

Those individuals high in preference for customs are high in affirmation and belongingness, while those who have a preference for only some of the customs of their ethnic group are low in affirmation and belongingness. Those who do not prefer the customs of their ethnic group are higher in affirmation and belongingness than those who prefer only some of their customs, but lower than those who do prefer customs of their ethnic group.

Box plots on the EOM-EIS-2, which indicate the frequency of responses for "are you currently active in your ethnic culture and heritage" can be found in Figure 15 below.

Figure 15. Box plot of EOM Total Scale Scores by 'currently active in ethnic culture and heritage' with outlier.

Frequency of responses for those who are only active in some of their culture and heritage are greater than for those who are and are not active in their culture and heritage. Those who are not active have a slightly higher mean difference than those who are active in their culture and heritage.

For those currently active in their ethnic culture and heritage on the MEIM, mean differences are found between those who are currently active in their ethnic culture and heritage and those who are not, with only two outliers present (case #81, 87) and can be found in Figure 16 below.

Figure 16. Box plot of MEIM Total Scale Scores by 'currently active in ethnic culture and heritage' with outliers.

Those individuals currently active in their culture and heritage are higher in ethnic identity achievement than those who have some activity in their culture and heritage, and compared to those who are not active in their culture and heritage, who are low in ethnic identity achievement.

For those currently active in their culture and heritage on the affirmation and belongingness scale from the MEIM, we find mean differences between those who are active and those who are not active in ethnic culture and heritage. Several outliers (cases #81, 87, 112, 148, 155, 166) are seen above and below the first and third quartile ranges in Figure 17 below.

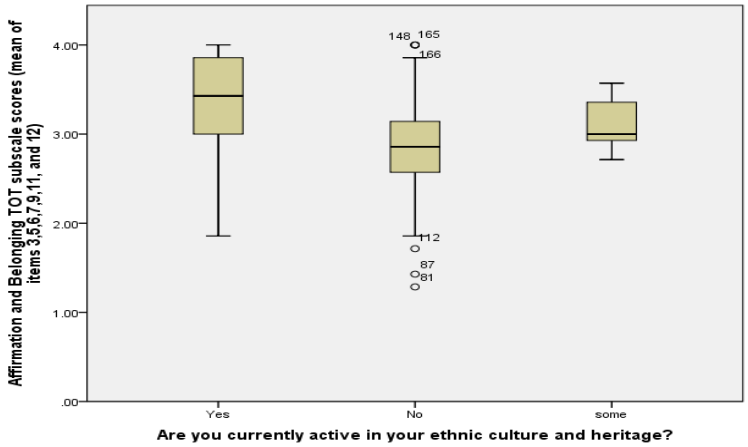


Figure 17. Box plot of Affirmation and Belongingness Subscale Scores by 'currently active in ethnic culture and heritage' with outliers.

Those individuals who are active in their culture and heritage are higher in ethnic identity achievement, while those who are not active in their culture and heritage are lower in ethnic identity achievement, and those who have some activity in their culture and heritage are higher in ethnic identity achievement than those who are not currently active. The remaining variables in the data set appear to be nearly symmetrical, but a few outliers are present that are exerting an influence on that symmetry.

Subsequent Analyses

An examination of univariate outliers for each quantitative variable was assessed using mean, log, square root, and reciprocal transformations. For the EOM-EIS-2, positive skewness on custom resulted in square root transformations (which were not particularly useful) and for the MEIM total scale scores with heritage and for affirmation and belonging subscales (which was again, not very useful). Log and reciprocal

transformations were also not found to have an overall effect on any of the variables in the analysis.

Minimum/maximum value replacement for outliers resulted in a more normal distribution for the EOMTOT_2 as seen in a sample reproduction of the histogram and can be found in Figure 18 below. Some negative skew and kurtosis is still present.

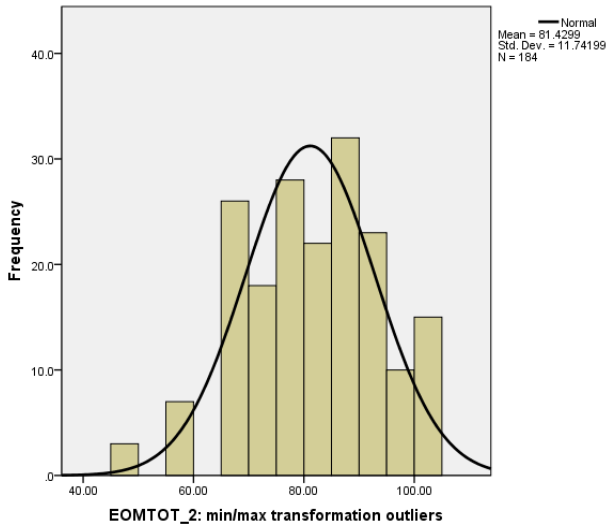


Figure 18. Histogram of EOMTOT_2 Scale Scores with outlier removal showing more normality in the distribution.

For the sVIAHER_2 subscale and sVIAHOST_2 subscale, slight negative skew and high kurtosis values can be found in Figures 19 & 20 below.

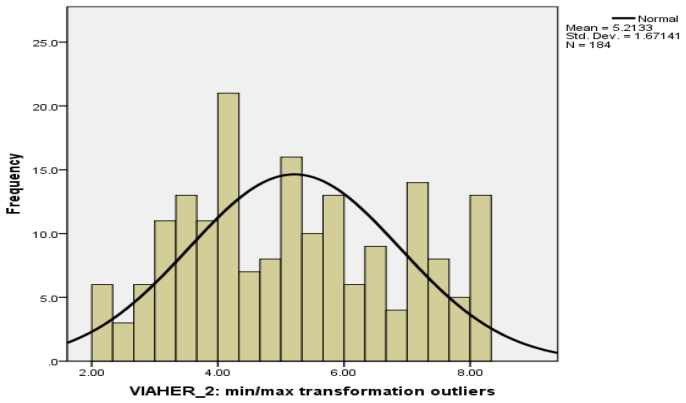


Figure 19. Histogram of VIAHER_2 Subscale Scores with outlier removal showing more normality in the distribution.

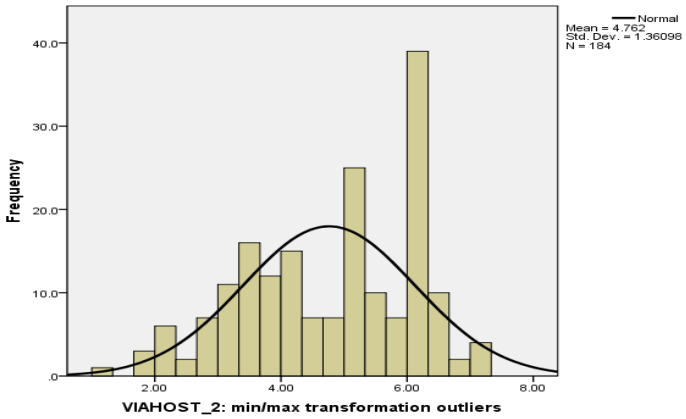


Figure 20. Histogram of VIAHOST_2 Subscale Scores with outlier removal showing more normality in the distribution.

For the series mean MEIM total scale scores, some positive skew and kurtosis can be found in Figure 21 below.

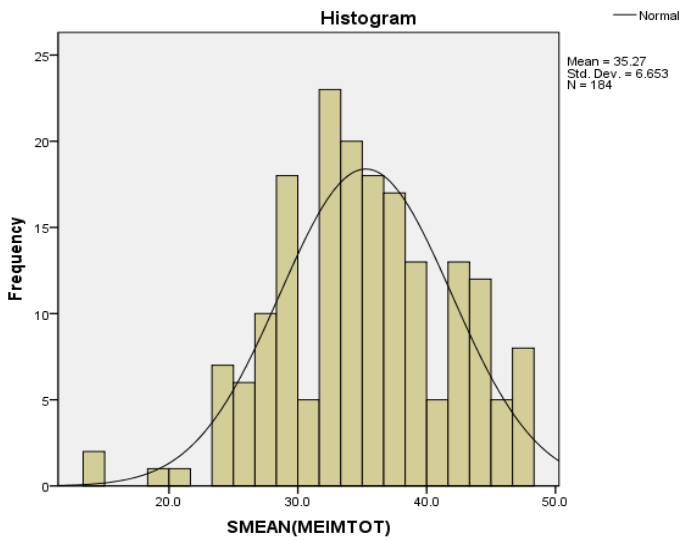


Figure 21. Histogram of Series Mean MEIMTOT Scale Scores with outlier removal showing more normality in the distribution.

ETHNIDSEAR3 also resulted in some positive skew and slight negative kurtosis after outlier value transformation.

Normal Q – Q plots support these findings, as the observed values deviate somewhat from the straight line for the EOMTOT_2, and both skew and kurtosis can be observed in a deviation for both VIAHER_2 and VIAHOST_2 subscales on the extreme negative end of the line. For the MEIMTOT_2, series mean transformation provided observed values that are closest to the expected values.

A summary of extreme values was then generated in SPSS to explore the number of outlying cases for each variable. Given the small number of extreme cases, the outliers were recoded into different variables and transformed using minimum/maximum values (depending on the direction of the outliers) that fall within the extreme tails of the accepted distribution (Mertler & Vannatta, 2002). Re-evaluation of box plots after

transformations revealed a vast improvement in the number of extreme outliers; however, some extreme outliers still remained for Age_1, customs, heritage, and belonging on each of the dependant variables in the analysis.

Next, ***z*** scores were created to standardize the data set and express the scores in terms of a distribution that has a known mean and standard deviation. Doing so established benchmarks (cutoffs) for the distribution to determine if more than 5% of the distribution was above a cutoff value of 1.96 (one standard deviation from the mean), 1% above the cutoff value of 2.58 (two standard deviations from the mean), and the potential for values above the cutoff value of 3.29 (three standard deviations above the mean) on the dependant variables. On the EOMTOT_2, two cases (#125, 131) were above two standard deviations (2.76), while on the VIAHOST_2, two cases (#176, 177) were 2.10 and two cases (178, 103) were 2.02 standard deviations, and one case (100) was 1.95 standard deviations from the mean of scores in the distribution. The variable AFFBEL_2 had one case (#46) at 1.98 standard deviations, and the MEIMTOT_2 had two cases (#87, 112) at 2.14 standard deviations from the mean in the distribution. While cases (125, 131, 176, 177, 178, 103) were above their (respective) cutoff scores, cases (100, 46) were, arguably, worthy of retention in the analysis because they were within one standard deviation of the mean of all cases and not as likely to have an effect on the overall distribution, due to sample size.

With a large sample size ($n > 100$), the rule of a ***z*** value greater or less than +3.00/-3.00 could have been extended to +4.00/-4.00 because it is likely that few respondents could have ***z*** scores in excess of +3.00 (Stevens, 1992). However, a preliminary screening of each of the above cases using graphical methods (box plots)

suggested that these cases were still extreme values in comparison to the rest of the distribution even after the scores were changed. Thus, prior to deleting these extreme cases, a qualitative analysis was conducted on cases (46, 87, 91, 98,100, 103, 112, 125, 131, 176, 177, 178), to assess for differences and patterns in their responses.

Some similarities were found in each case on the variable age (22-23 years), gender (female), marital status (married or significant other), preference for an American identity (despite parents mixed ethnic background and preference for native origins), and generation since immigration was 4 or 6 generations in the United States. Notably, each participant indicated they were not currently active in their heritage and did not consider themselves as belonging to an ethnic minority group, but did prefer their ethnic customs. In all cases, one or both parents identified themselves as belonging to an ethnic group and were actively participating in their ethnic origins.

In that 1) the cases were determined to be from the target population, 2) the data was re-checked for accuracy without discrepancy, and 3) variable transformations and change of scores were ineffective, the best course of action was to delete these cases because sometimes a few cases were still far away from the others. The potential for distortion of the results in any direction, if they were allowed to remain, was not deemed an attractive alternative. Cases # 87, 91, 112, 125, 131, 176, and 177 were deleted from the data set.

The next step was to examine the quantitative variables together for multivariate outliers by conducting regression to test Mahalanobis distance. The resulting output indicated a critical value of x^2 at $p < .001$ and $df = 7$ at 18.48. Although Mahalanobis distance is not a perfectly reliable indicator of multivariate outliers, a conservative

probability estimate for a case being an outlier would be $p < .001$. Thus, cases with Mahalanobis distance greater than 18.48 are considered multivariate outliers; and in this instance, seven cases (# 10, 23, 61, 63, 66, 91, 115) were considered extreme values and identified as multivariate outliers.

Prior to further analysis, the data set was checked again for each case to make sure the data was entered correctly. A data entry error was found and corrected for case #23 on ENGBAS; cases #61 and 63 were both unusual in their response to language preference; (they were the only two cases in the data set that have a preference for eastern dialect, whereas, all other cases chose English or Spanish as the preferred language) indicating that their responses were a genuine artifact of the study population; case #115 was a subject identification entry error and corrected; and case #66 did not indicate any problems.

Although multivariate outliers are often detected by using mahalanobis distance, some research (Egan & Morgan, 1998) indicates leverage values (mahalanobis distances) alone are not perfectly reliable. A decision was made to use other statistical measures to identify and assess multivariate outliers (Tabachnick & Fidell, 2007) by measuring leverage, discrepancy, and influence. As a cautionary note, however, leverage is related to mahalanobis distance, but is measured on a different scale (significance tests based on a x^2 statistic distribution do not apply).

To determine the outliers that would have leverage, (how far the observed values for the case are from the mean), discrepancy (predicted versus observed values on the dependant variables (DV), and influence (the amount regression changes when case is removed), a linear regression was conducted creating a LEV_1 variable in the data set to

identify cases with leverage values substantially higher than the others. A cutoff value of 3 times the number of predictors divided by the number of subjects (3k/n or 3(17)/184) was used on the centered leverage values (values above .202 and were considered substantial). Seven cases (#87, 91, 112, 125, 131, 176, 177) with unusual values were found on the independent variables.

To evaluate what would happen to the regression line if each outlier case were dropped from the analysis, externally studentized residuals (ESR) were examined for cases with much larger values than the other ESRs values. The resulting scatter plot provides evidence of one extreme outlier (case #91) and can be found in Figure 22 below.

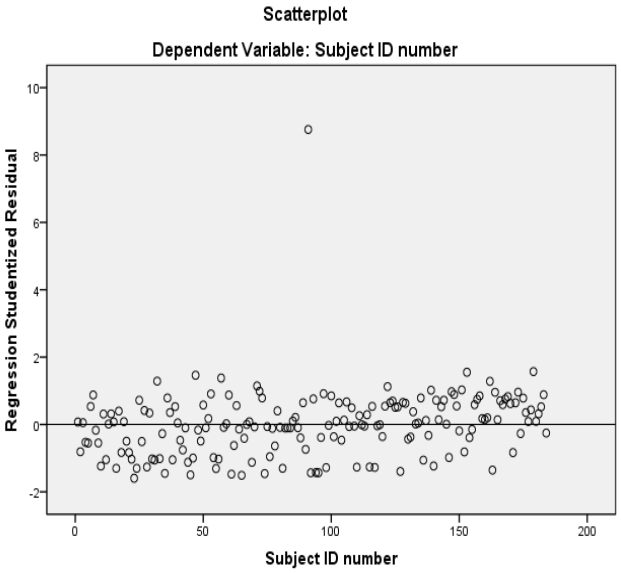


Figure 22. Linear regression of studentized residuals to examine extreme outliers.

Evaluating the extent to which the outlying case is in line with all other cases assessed the impact of this outlier on all other cases in the regression equation and can be found in Figure 23 below.

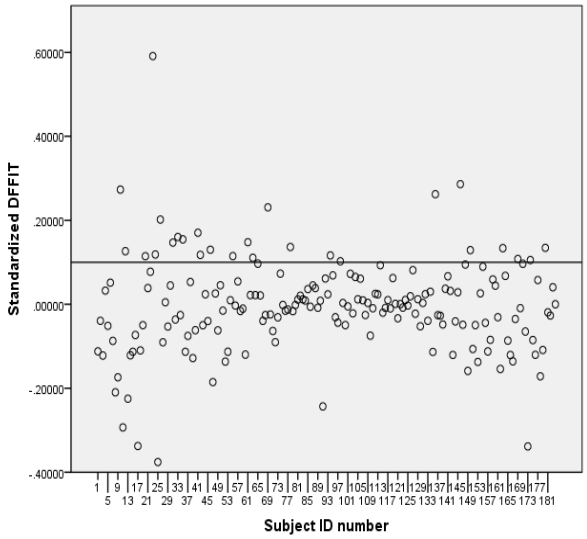


Figure 23. Scatter plot of standardized residuals of discrepancy (difference of fit) and the influence of outlier cases on all other cases using Y_{hat} estimates.

Influence is evaluated based on an estimate of the number of standard deviations by which Y_{hat} for this case would change if the case were deleted from the dataset and can be found in Figure 24 below.

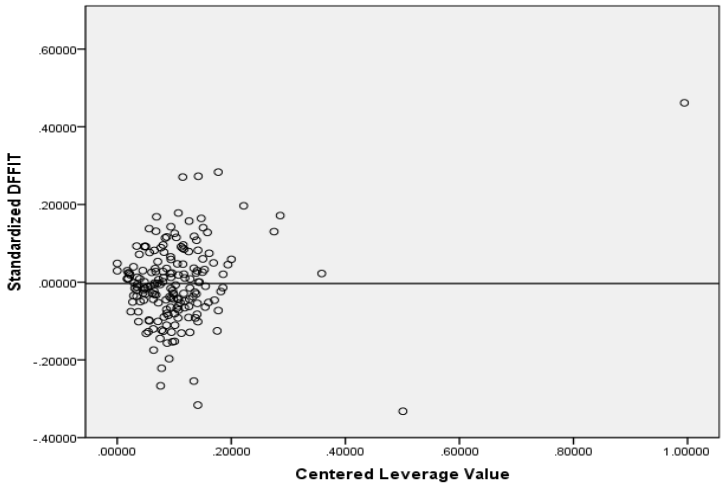


Figure 24. Scatter plot of the product of leverage and discrepancy identifying extreme cases as regression coefficients change.

Of the seven cases identified as multivariate outliers, cases #23 and #115 data entry errors were corrected, while case # 61 and 63 were left in the analysis. The quantitative variables were then re-examined together for multivariate outliers using mahalanobis distance as a leverage statistic. The resulting output indicated a critical value of x^2 at $p < .001$ and $df = 10$ at 29.588. The five highest cases shown on the extreme values table and output mah_6 box plot did not exceed the critical value of $x^2 = 29.588$ and can be found in Figure 25 below. All of these cases were retained in the data set.

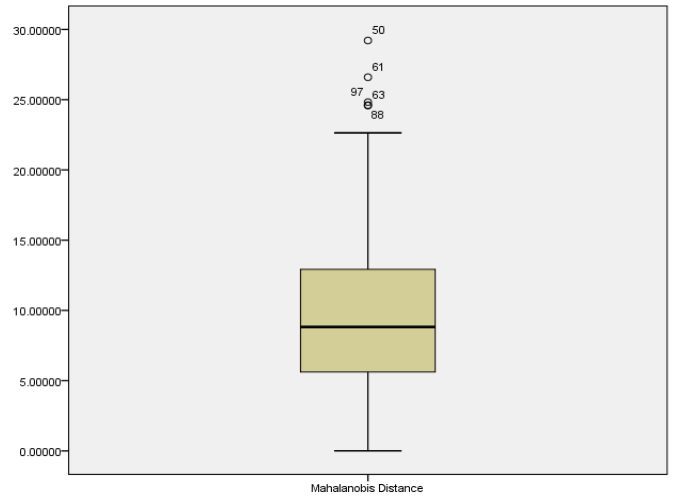


Figure 25. Box plot of Mahalanobis Distance (Mah-6) detecting no multivariate outliers that exceeded the x^2 value of 29.588.

Multivariate normality and linearity were next examined for the variable combinations. This was achieved through examination of scatter plots for all the variables in relation to one another and can be found in Figure 26 below.

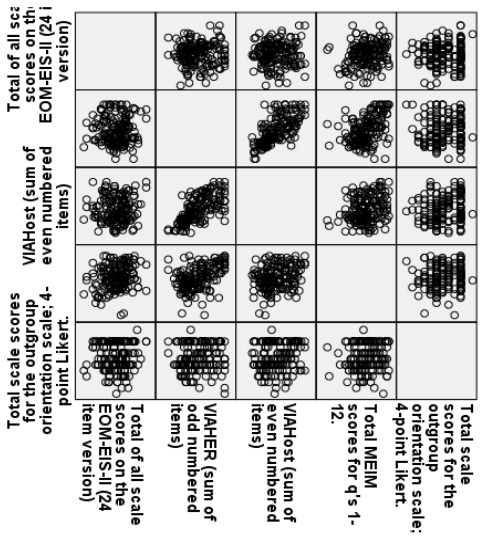


Figure 26. Scatter plot matrix of quantitative variables in the analysis

Since visual discrimination is somewhat subjective in examining linearity and the Out-group Orientation_1 scale appears somewhat non-elliptical (implying possible failure of normality and linearity), a comparison of the standardized residuals to the predicted values of these variables was also assessed. The resulting scatter plot of residuals should create a rectangular shape with scores concentrated in the center of the graph in order for assumptions of linearity, normality, and homoscedasticity to be met. For the EOMEIS-2_2 total composite score, the mean heritage_2 subscale score and mean host_2 subscale score from the VIA, the diffusion raw score, foreclosure raw score, moratorium raw score, achievement raw score from the EOMEIS, the Out-group orientation_1 total composite scale score, and the final collapsed EOMEIS_2 status scores, the residuals appear to be concentrated in the center of a rectangular area and display fairly consistent scores throughout the plot.

As can be seen in the residuals plot in Figure 27 below, the assumptions of linearity, normality, and homoscedasticity are met when residuals create an approximate rectangular distribution with a concentration of scores along the center.

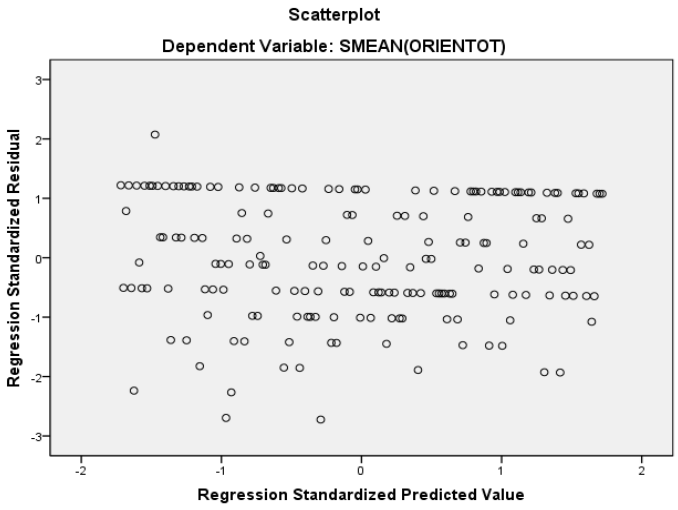


Figure 27. Standardized residuals plot for Outgrp_1 total composite scale score.

Grouped Data

Frequencies were calculated for the categorical grouping variable ‘gender’ to evaluate missing data and for the variables ‘age’, ‘ethnic affiliation’, ‘language’, ‘language preference’, ‘English fluency (engbas)’, ‘marital status’, ‘immigration status’, ‘generation since immigration’, ‘mother’s identification’, ‘father’s identification’, ‘important persons there’, ‘important persons here’, ‘customs’, ‘heritage’, ‘interpersonal variables’, ‘different identification’, ‘identification preference’, ‘belonging’, and ‘education level’. Mother’s identification and father’s identification were recoded into nine categories (Momethid_1 and Dadethid_1 because there were no responses on four of the ethnic group levels for each variable).

Missing data was found for each of the categorical variables, representing 3.3% or less of the total cases for each group. Missing values were transformed with an estimated value using the series mean for each variable. A check for univariate outliers was then

conducted for quantitative variables within each group by examining the variables for a 90-10 split between categories; discrepancy was not found. The table generated on extreme values indicated no missing values for any of the value ranges. However, box plots reveal a small to moderate number of outliers for the variables in the analysis and can be found in Figures 28-47 below.

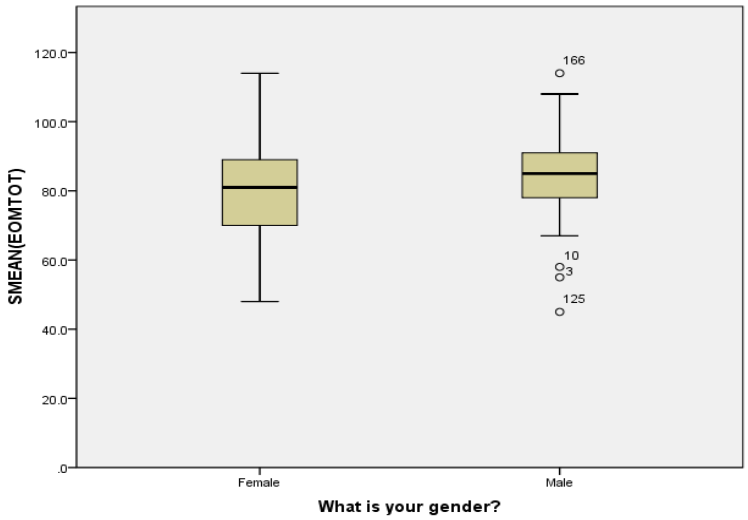


Figure 28. Box plot of total EOM-EIS scale scores by gender with outliers.

Figure 29. Box plot of total VIA Heritage subscale scores by gender with no outliers.

Figure 30. Box plot of total VIA Host subscale scores by gender with no outliers.

Figure 31. Box plot of total MEIM scale scores by gender with outliers.

Figure 32. Box plot of MEIM Ethnic Identity Search subscale scores by gender with no outliers.

Figure 33. Box plot of MEIM Affirmation and Belonging subscale scores by gender with outlier.

Figure 34. Box plot of total MEIM Out-group orientation scale scores by gender with no outliers.

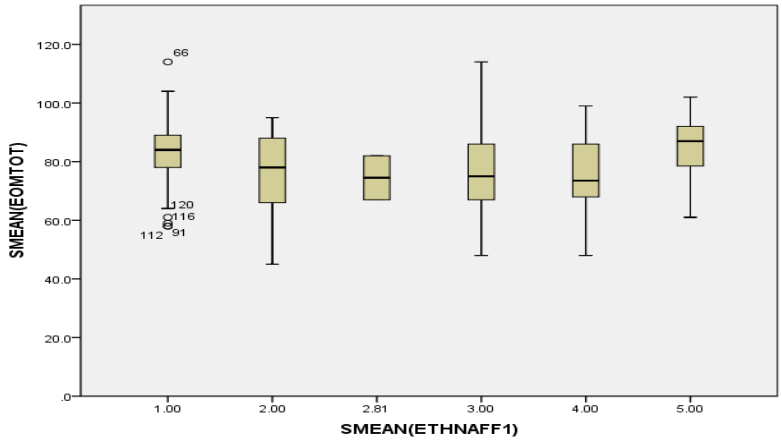


Figure 35. Box plot of total EOM-EIS scores by mean levels of Ethnic Affiliation with outliers.

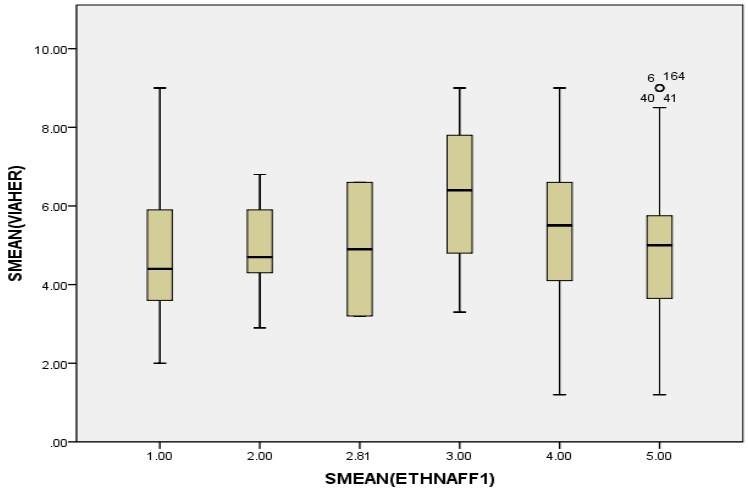


Figure 36. Box plot of VIA Heritage subscale scores by mean levels of Ethnic Affiliation with outliers.

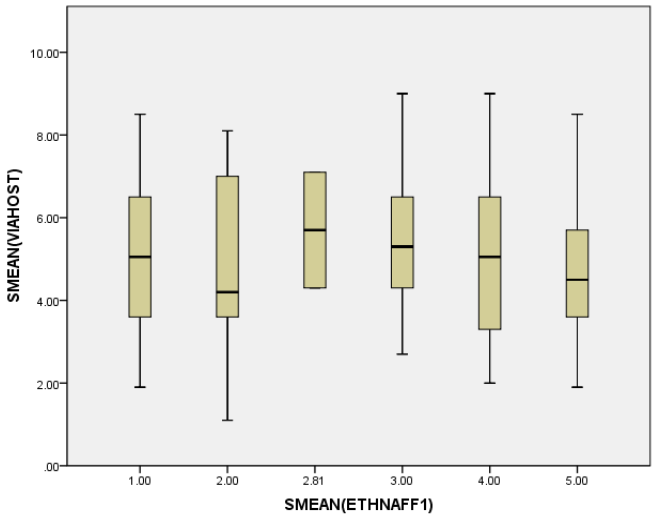


Figure 37. Box plot of VIA Host subscale scores by mean levels of Ethnic Affiliation with no outliers.

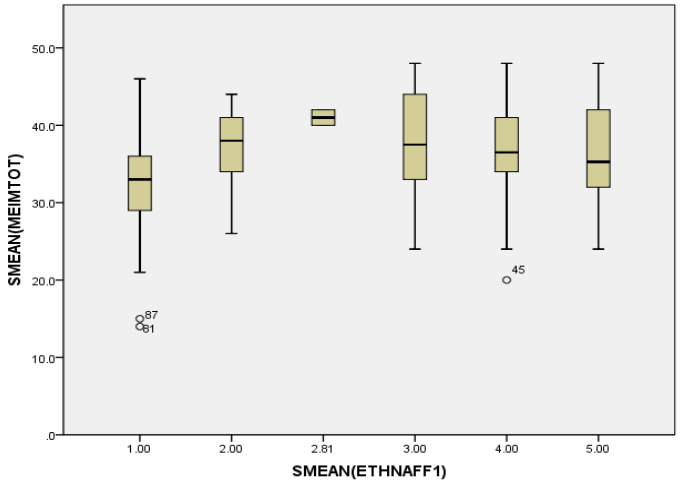


Figure 38. Box plot of total MEIM scale scores by mean levels of Ethnic Affiliation with outliers.

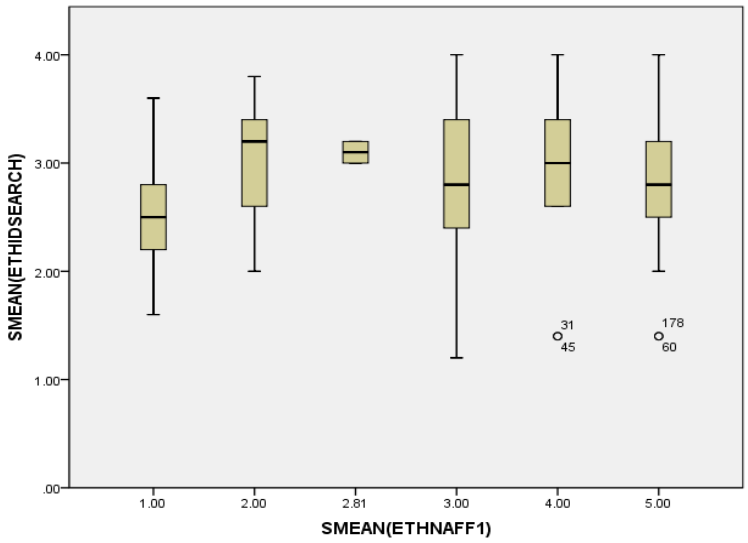


Figure 39. Box plot of MEIM Ethnic Identity Search subscale scores by mean levels of Ethnic Affiliation with outliers.

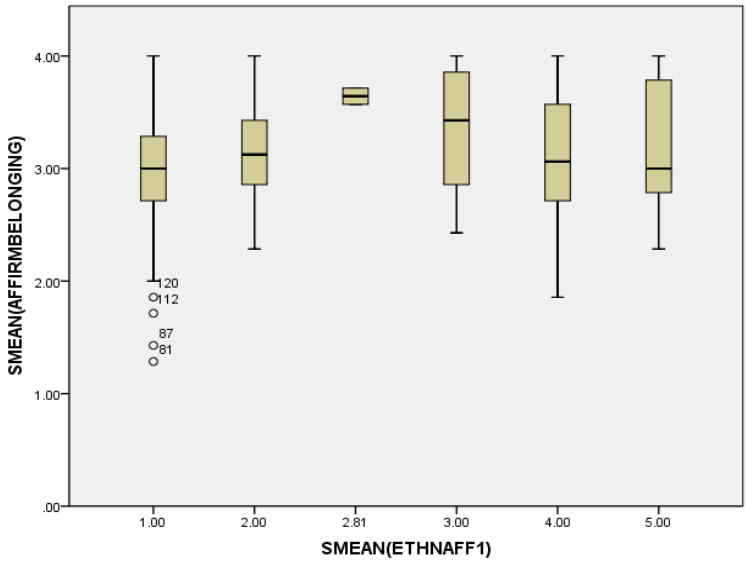


Figure 40. Box plot of MEIM Affirmation and Belonging subscale scores by mean levels of Ethnic Affiliation with outliers.

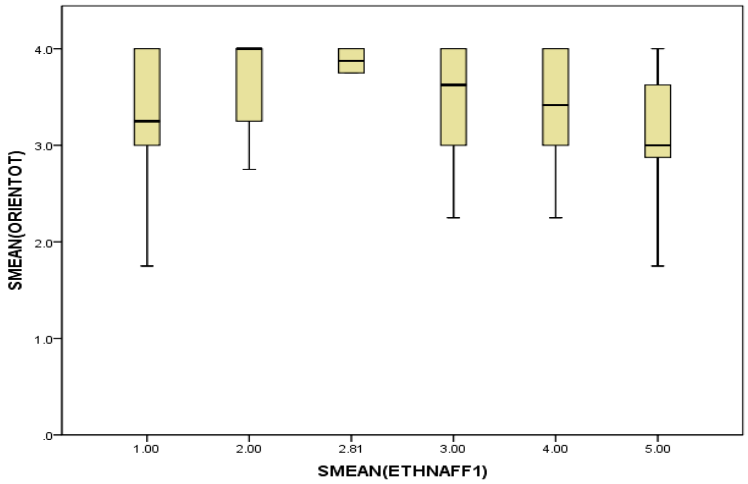


Figure 41. Box plot of MEIM Out-group orientation scale scores by mean levels of Ethnic Affiliation with no outliers.

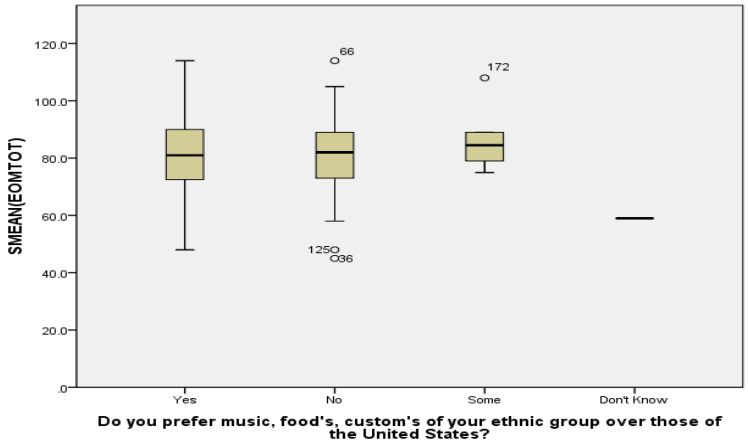


Figure 42. Box plot of EOM-EIS total scale scores by Custom's with outliers.

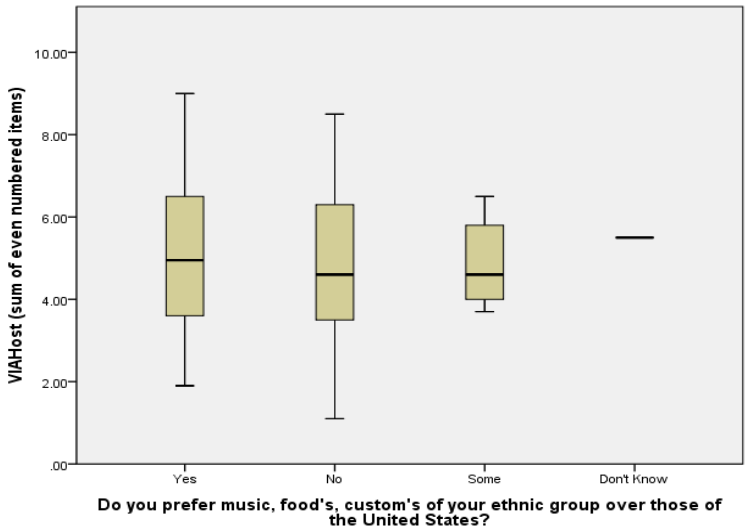


Figure 43. Box plot of VIA Host subscale scores by Custom's with no outliers.

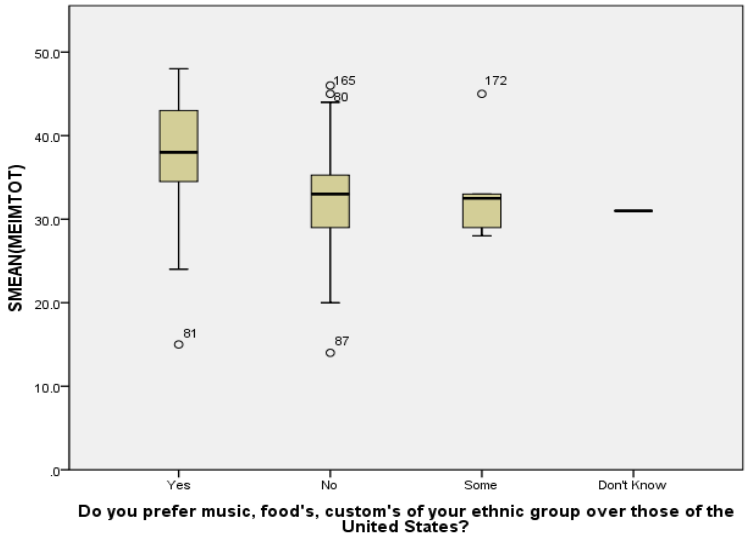


Figure 44. Box plot of total MEIM scale scores by Custom's with outliers.

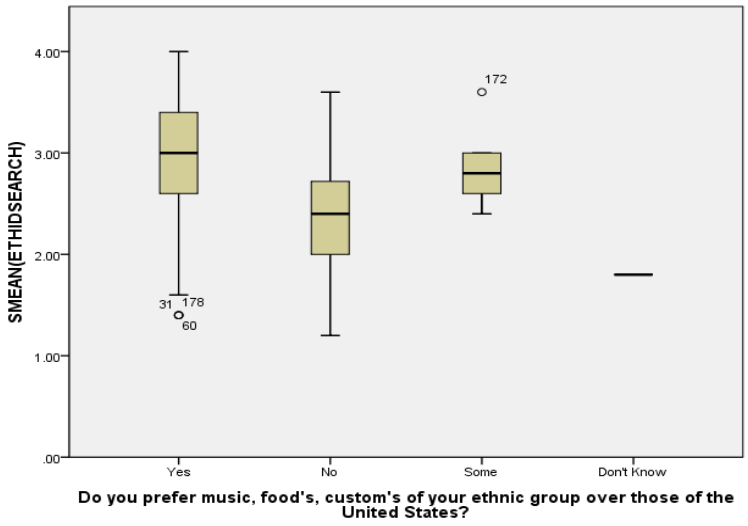


Figure 45. Box plot of MEIM Ethnic Identity Search subscale scores by Custom's with outliers.

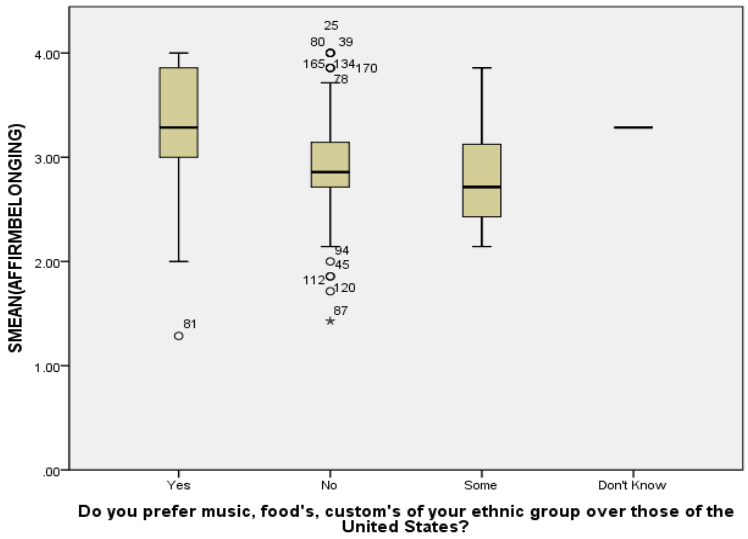


Figure 46. Box plot of MEIM Affirmation and Belonging subscale scores by Custom's with outliers.

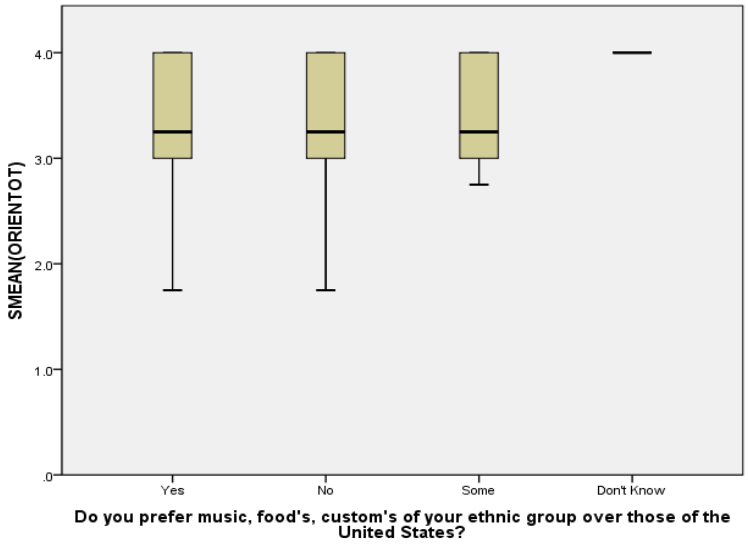


Figure 47. Box plot of total MEIM Out-group orientation scale scores by Custom's with no outliers.

Outliers were replaced with the minimum/maximum values for the distribution and normality was re-examined. Descriptive statistics present skew and kurtosis values for each of the variables and we can see that for gender the data are fairly normal with some negative skew for gender in both categories and EOM total scores minimum/maximum value transformation and can be found in Figures 48-54 below.

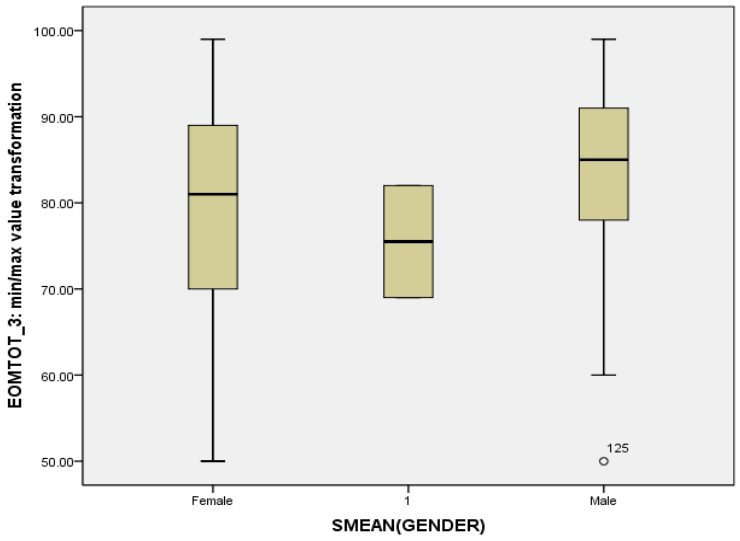


Figure 48. Box plot of total EOM-EIS scale scores by gender.

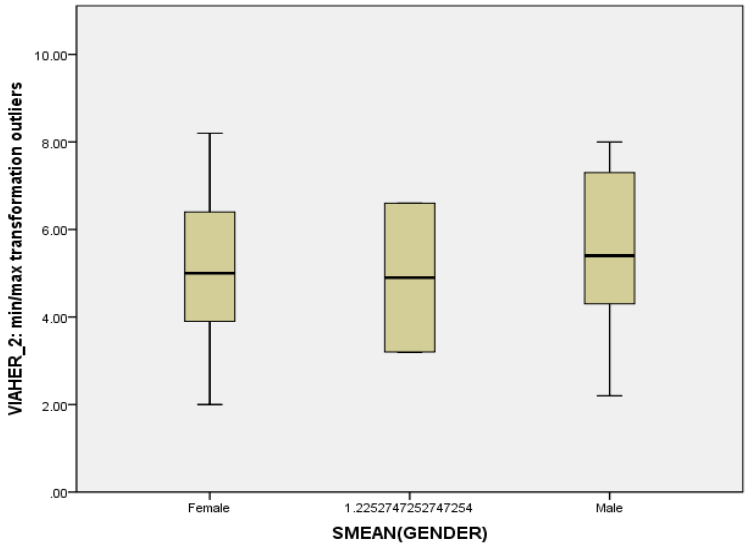


Figure 49. Box plot of VIA Heritage subscale scores by gender.

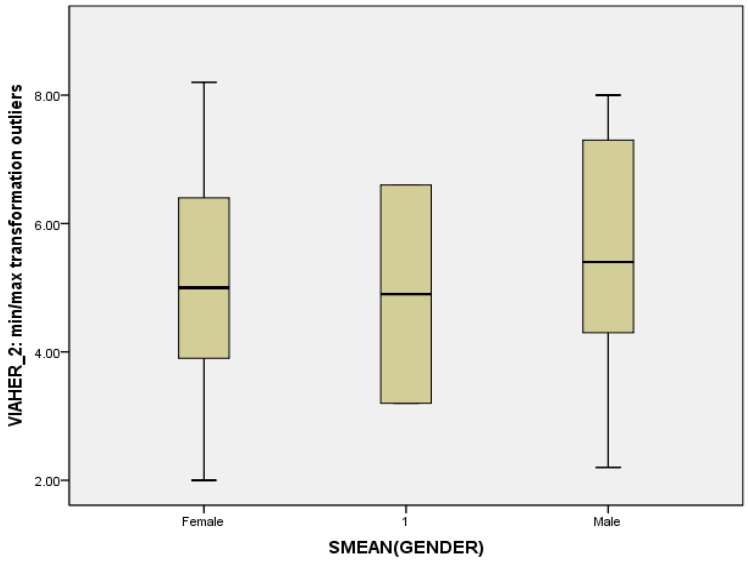


Figure 50. Box plot of total VIA Heritage subscale scores by gender.

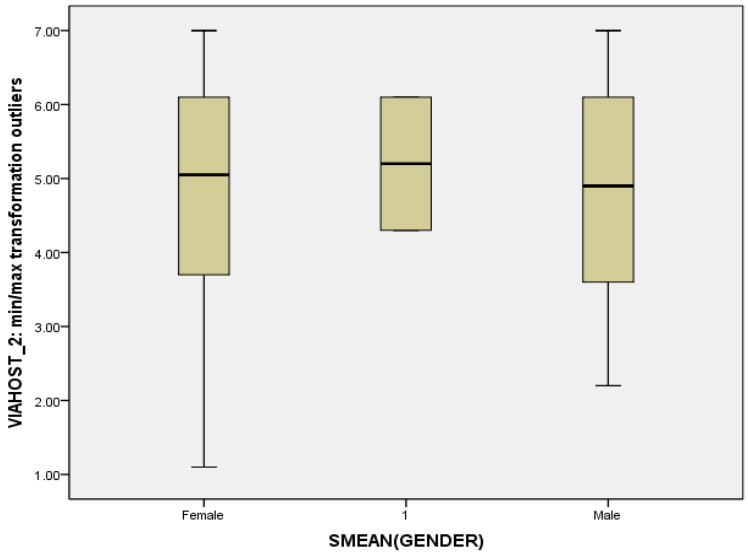


Figure 51. Box plot of VIA Host subscale scores by gender.

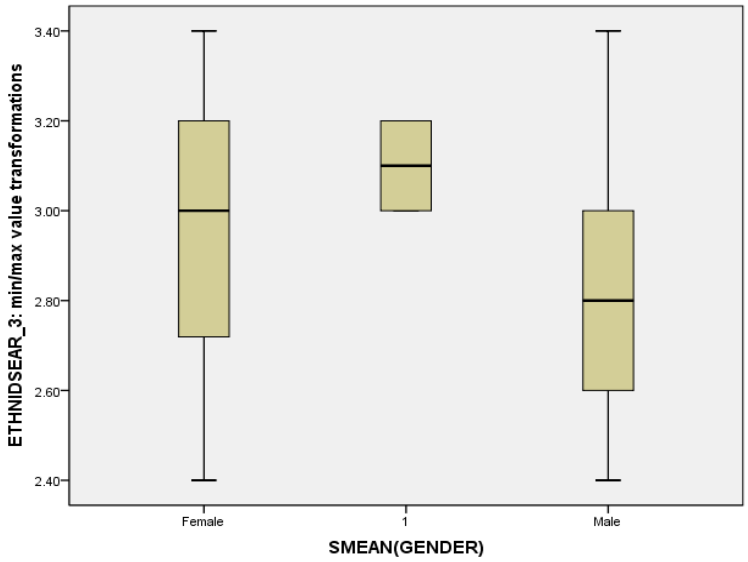


Figure 52. Box plot of the MEIM ETHIDSEAR subscale scores by gender.

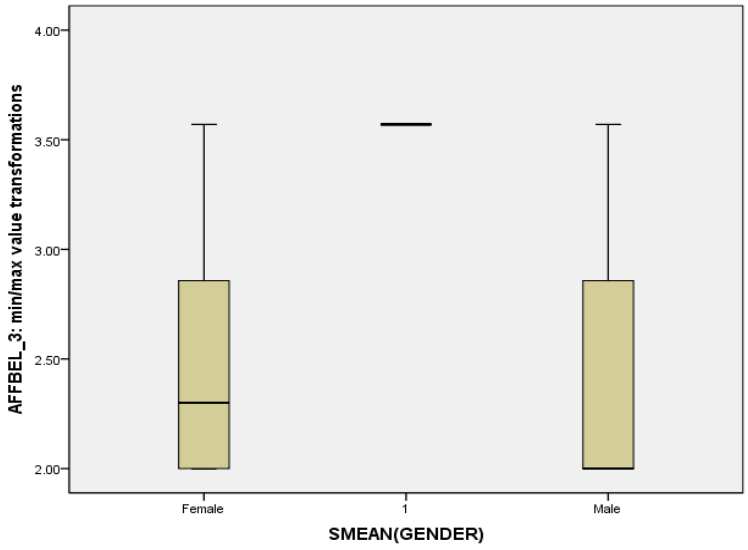


Figure 53. Box plot of the MEIM Affirmation and Belonging subscale scores by gender.

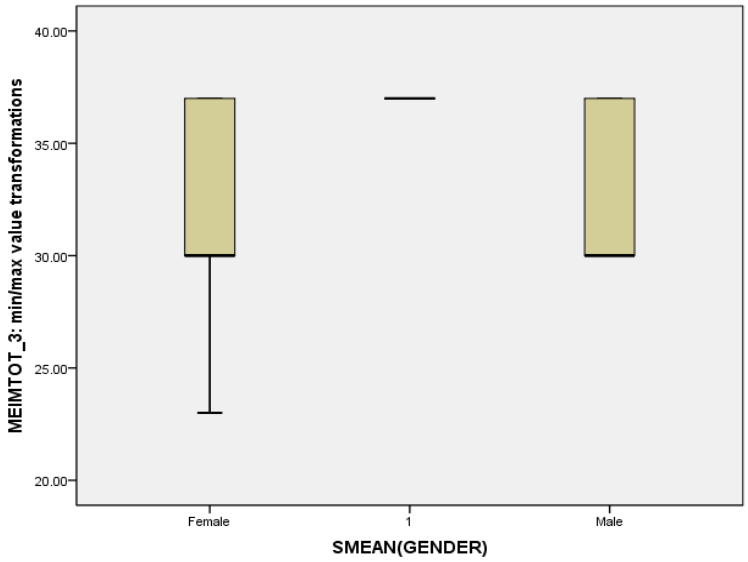


Figure 54. Box plot of total MEIM scale scores by gender.

From the skewed distributions on each of the variables, extreme values were replaced with the accepted minimum/maximum value in each distribution for the variables smeanMarstat, smeanImmigr, smeanGenimm, smeanMometh2, smeanDadeth2_1, smeanImpers, smeanImpersg, smeanHeritage, smeanDiffid, smeanIdpref2_1, smeanBelong, and smeanEDLEV. After extreme outliers were transformed by minimum/maximum values for the variables, univariate normality was re-examined. For the sake of parsimony, all of the quantitative variables within each group were very messy. The K-S tests for Age_1M, Gender_1M, Engbas_1M, Custom_3, Ethnaff_1M, Lang_1M, Langpref_1M, Marstat_1M, Immigr_1M, Genimm_1M, Impers_1M, Impersg_1M, Heritage_1M, Diffid_1M, Idpref_1M, Belong_1M, and Edlev_1M were only non-significant for the EOMTOT scale scores.

The VIAHER_3 subscale was only non-significant for gender_1M, Ethnaff_1M, Langpref_1M, while significance was observed for all other variables. The VIAHOST_2

subscale was only non-significant for Age_1M, Ethnaff_1M, Lang_1M, Langpref_1M, Immigr_1M, Genimm_1M, Mometh2-1M, Dadeth2_1M, Impers_1M, Impersg_1M, Heritage 1M, Diffid1M, and Idpref_1M. The Ethnid_3 subscale was only non-significant for Age_1M, EthnAff_1M, Lang_1M, Immigr_1M, Mometh2_1M, Dadeth2_1M, and Impersg_1M. The Affbel_3 subscale was only non-significant for Age_1M, and Mometh2_1M, while the MEIMTOT_3 total scale was significant for every variable in the analysis. Histograms and normal Q-Q plots support these findings and reveal a number of severe outliers still remaining in the data set which are, likely, contributing to the skewed, non-normal distributions.

Since the assumption of univariate normality for the quantitative variables within each group has not been met, the extreme values were again re-examined. Even though large samples can be more sensitive to issues of non-normality and still produce linear equations (Tabachnick & Fidel, 2007), the severity of these cases provided a reasonable assumption that these values are resulting in skewed distributions. In this case, any extreme value greater than three standard deviations from the nearest mean was deleted. For the VIAHER_3, four cases (#129, 164, 170,172) were deleted; for the VIAHOST_2, one case (#142) for Ethnidsear_3, three cases (# 21, 50, 159) were deleted; and for the MEIMTOT_3, four cases (#21, 69, 139, 149) were deleted from the data set. In total, eleven cases were deleted from the data set bringing the total number of participants in the multivariate analysis to $n = 173$.

Re-examination of the (transformed) variables after severe outlier deletion did not result in appreciable change. When the original (untransformed) smean total scale and subscale scores were entered into the analysis, the results were greatly improved. The

distributions were normal for the total scale and subscales (e.g., EOM, VIA, MEIM), Age_1M, gender_1M, Ethnaff_1M, lang_1M, langpref_1M, Immigr_1M, Genimm_1M, Engbas_1M, Marstat_1M, Mometh2_1M, Dadeth2-1M, Impers_1M, Impersg_1M, smeanCustom_1M, Heritage_1M, Diffid_1M, Idpref2_1M, Belong_1M, and Elev_1M. However, a number of outliers are still present among the variables.

The K-S tests for each of the variables were non significant; and all of the histograms indicate normal distributions, with the exception of a slight negative skew for total scales scores on the smeanMEIM and smeanOrient variables. The normal Q-Q plots support these findings, although none of the values shown are extreme. Square root transformations were applied to the MEIM total scale and the Orientation total scale scores and this improved skew and kurtosis for both variables and can be found in Figures 55 and 56 below.

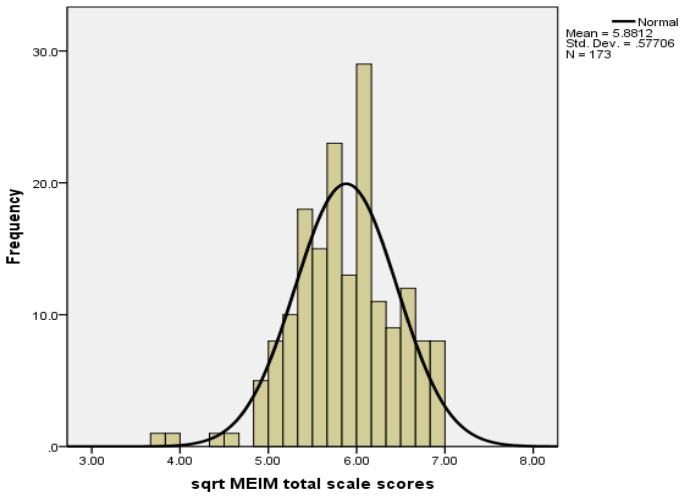


Figure 55. Square root transformation of MEIM total scale scores.

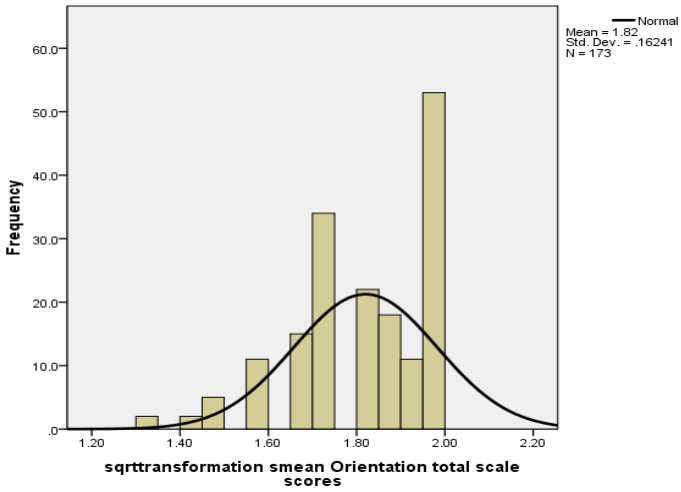


Figure 56. Square root transformation of Orientation total scale scores.

Square root transformations of Ethnaff_1M, Mometh2_1M, and Edlev_1M and log transformations of Marstat_1M and Impers_1M were also conducted and can be found in Figures 59-61 below.

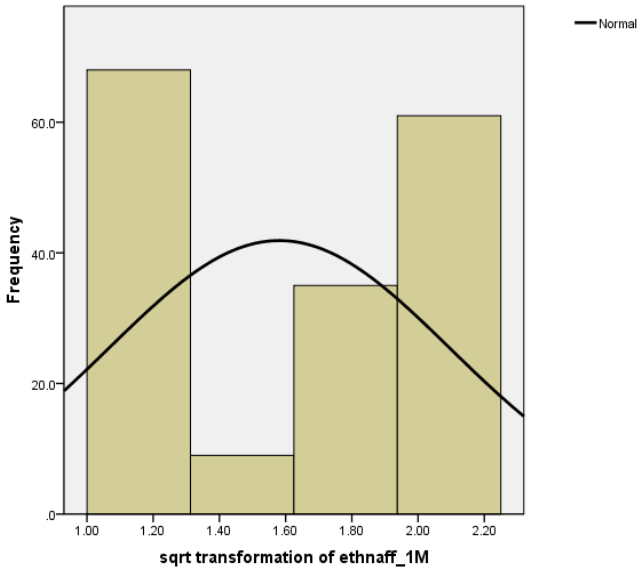


Figure 57. Square root transformation of ethnic affiliation (Ethnaff_1M).

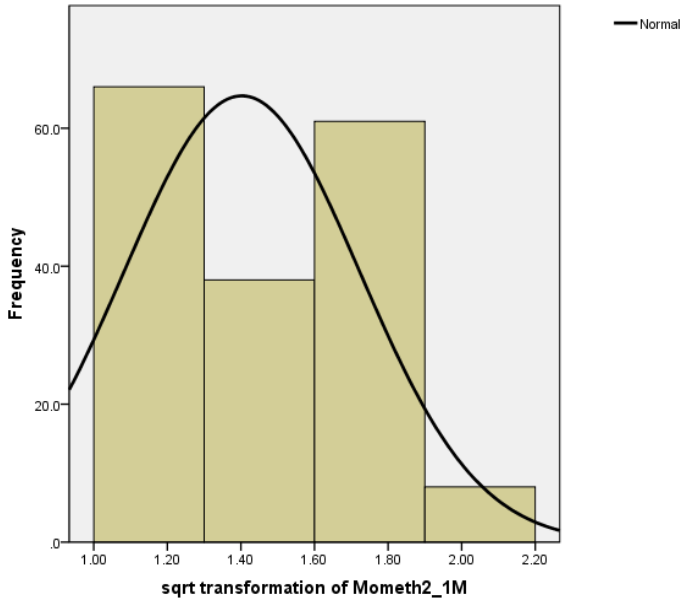


Figure 58. Square root transformation of mother's identification (Mometh2_1).

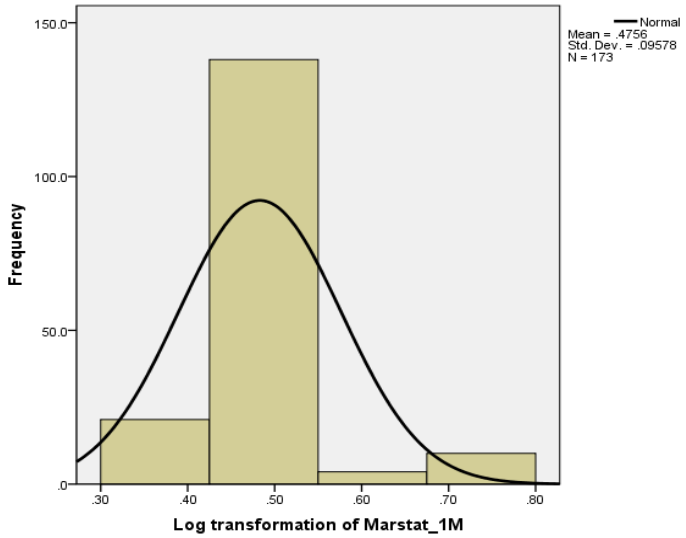


Figure 59. Log transformation of marital status (Marstat_1M).

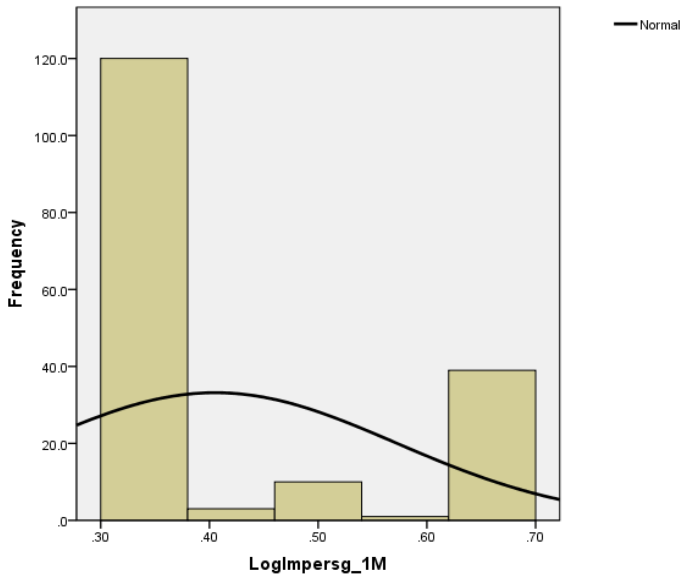


Figure 60. Log transformation of most important person to you (Impersg_1M).

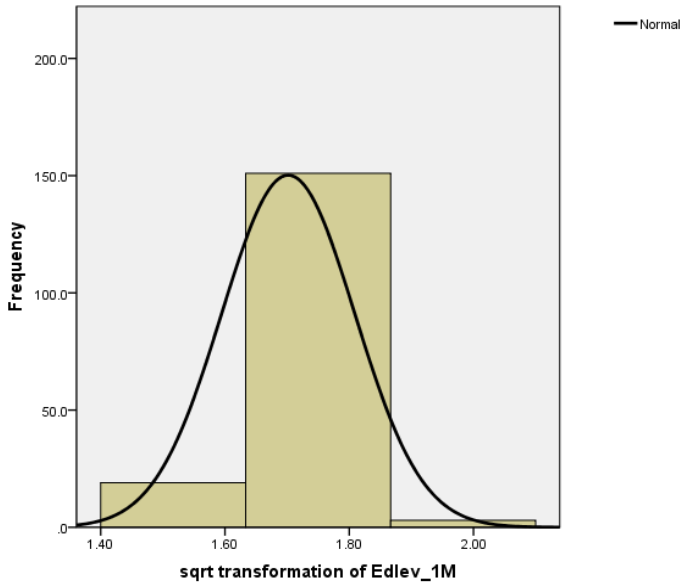


Figure 61. Square root transformation of education level (Edlev_1M).

Next, examination of univariate homogeneity of variances between/among groups was conducted by comparing means in an independent samples t-test. Levine's test

indicates homogeneity of variance for all the group variables that will be used in the multiple regression equations and a summary of these findings can be found in Table 3 (a) below.

Table 3 (a)

Independent Samples t-Test Assessing the Assumption of Homogeneity of Variance

Group 1	Levine's Test Statistic	**p** value	Assumption Met
Age_1M	-.343	.452	Y
Lang_1M	-.230	.640	Y
Langpref_1M	.854	.108	Y
Impers_1M	-.675	.173	Y
Impersg_1M	-2.650	.000	N
Heritage_1M	.514	.191	Y
Diffid_1M	.432	.342	Y

Note: It can be assumed that variances are fairly equal across groups if the assumption of homogeneity of variance has been met.

When the sample size is large, small differences in-group variance can produce a Levine's test that is significant. The variance ratio[21] for group means not meeting the assumption was evaluated. The highest value was then divided by the smallest value. If the ratio is less than 2, then it's safe to assume homogeneity of variance[22] (median difference was 1.63) (Field, 2005).

Each of the quantitative variables was then examined for multivariate outliers through regression to test Mahalanobis Distance, X^2 df (7) = 24.322. The table of extreme values generated the five highest and lowest values for *mah_14* for each of the variables.

[21] Variance ratio: the ratio of variances between the group with the biggest variance and the group with the smallest variance (Field, 2005; pp. 98).
[22] Field, A. (2005). Discovering Statistics Using SPSS. Thousand Oaks: CA, Sage Publishing

Two cases (#78, 84) [subjects #81 & 87] were found to be multivariate outliers, as they exceeded the chi square critical value of 24.322, $p < .001$ and can be found in Figure 62 below.

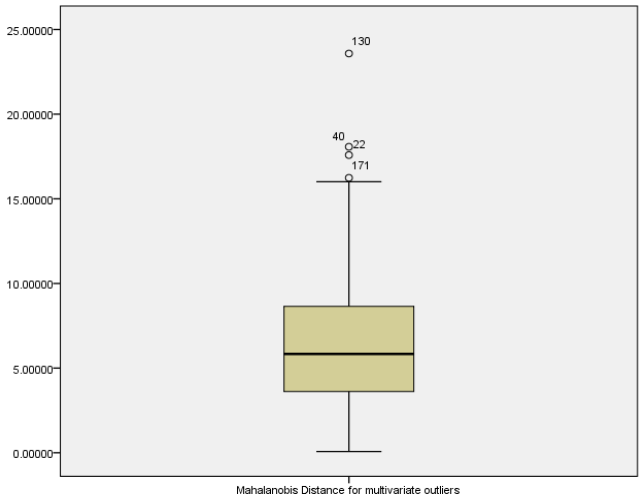


Figure 62. Mahalanobis Distance for multivariate outliers exceeding the critical chi square value of 24.332, $p < .001$, after extreme values were deleted.

With only two multivariate outliers in the entire data set, these cases were most appropriately deleted. For all possible variable combinations, a scatter plot matrix was examined to determine multivariate normality and linearity and can be found in Figure 63 below.

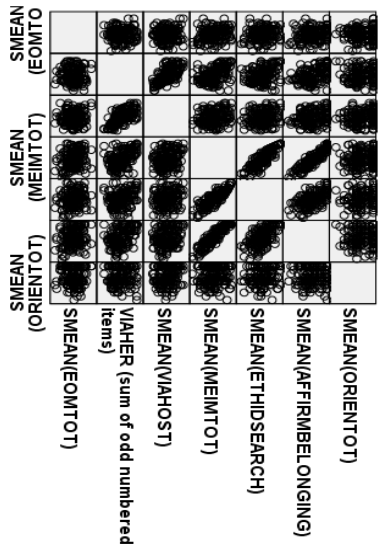


Figure 63. Bivariate Scatter Plot to Determine Multivariate Normality and Linearity.

The elliptical patterns in the scatter plot for most of the variables are an indication that multivariate normality and linearity exist. However, though some plots display enlarged oval shapes, multivariate normality and linearity are questionable. Multivariate Homogeneity of Variance-Covariance matrices was evaluated using MANOVA by calculating Box's Test of Equality between/among groups. A more critical value of .025 and .01 (respectively) was used to test the hypothesis of equal variances, rather than .05. For both significance levels, the observed co-variance matrices for the dependent variables are equal across groups with Gender_1M at the intercept [df (28), sig.185]. We can conclude that the covariance matrices for the dependent variables are fairly equivalent, meeting the assumption of homogeneity of variance-covariance.

Screening the Data for Final Analysis

Scatterplots

Individual scatter plots were conducted by gender for the smeanEOMTOT and smeanVIAHER, smean EOMTOT and smeanVIAHOST, smeanEOMTOT and the smeanMEIMTOT. A 3-D scatter plot was conducted of the EOM, VIA Heritage scales, and ethnic identity preference by gender, a 3-D scatter plot of the EOM and VIA Host scales, and ethnic identity preference by gender, and a 3-D scatter plot of the EOM and MEIM scales, and ethnic identity preference by gender, as a visual way to determine the distribution of the data. Samples can be found in Figures 64-69 below.

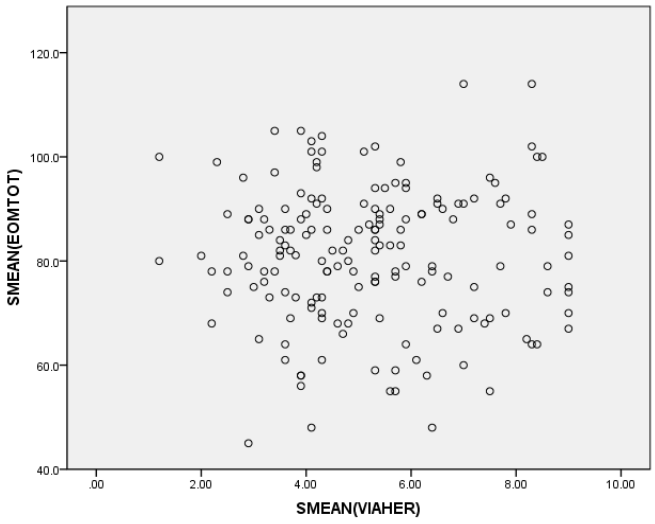


Figure 64. Scatter plot of smean EOM total scale score and smean VIA Heritage subscale scores by gender.

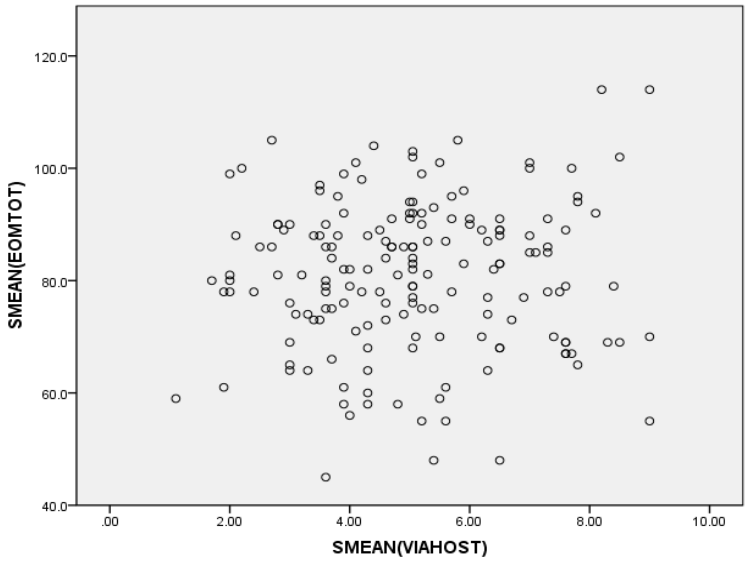


Figure 65. Scatter plot of smean EOM total scale score and smean VIA Host subscale scores by gender.

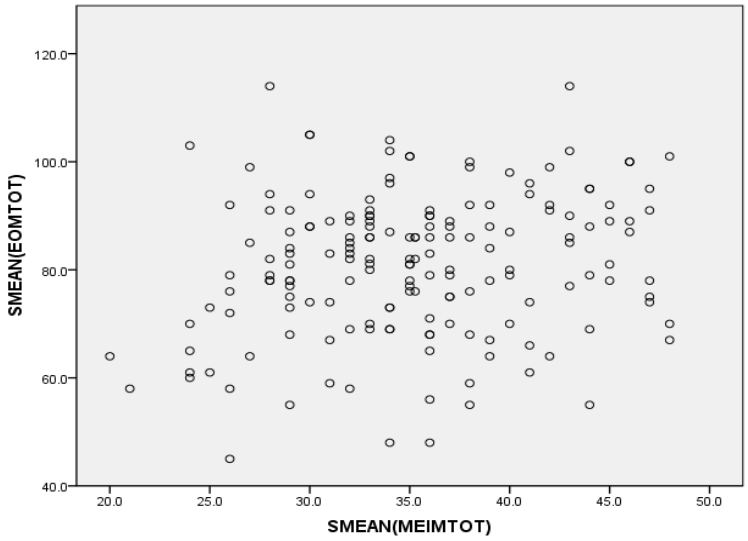


Figure 66. Scatter plot of smean EOM total scale score and smean MEIM total scale scores by gender.

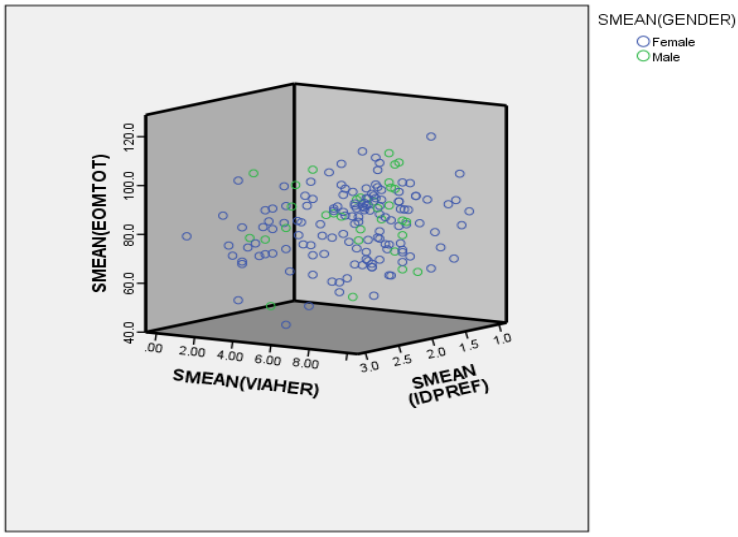


Figure 67. 3-D scatterplot of EOM and VIA Heritage scales and ethnic identity preference by gender.

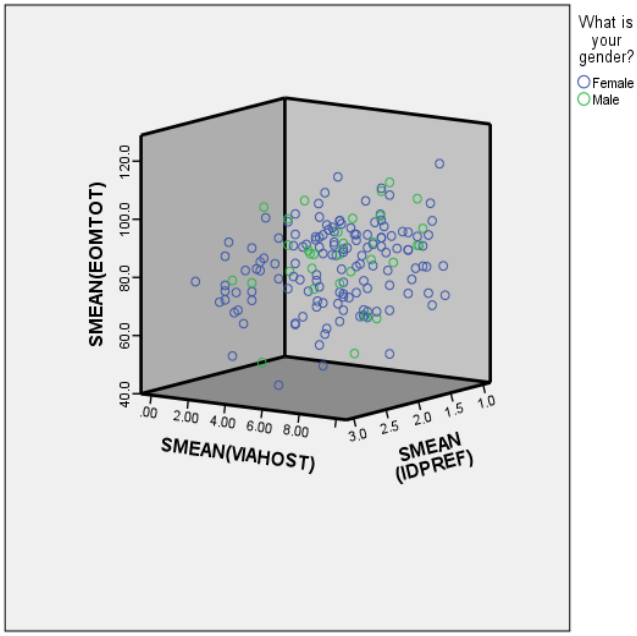


Figure 68. Scatter plot of EOM and VIA Host scales and ethnic identity preference by gender.

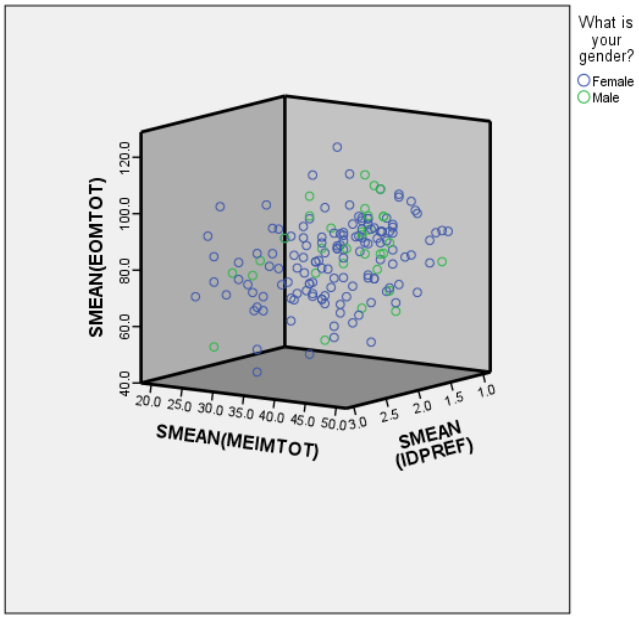


Figure 69. Scatter plot of EOM and MEIM scales and ethnic identity preference by gender.

Recapture of Hypotheses

The general trend of the data suggests associations exist that might explain factors connected to ethnic identity and self-identity and acculturation. The hypotheses first suggest that acculturation is associated with change in the perception of identity. If true, moderate correlations should be found between acculturation (VIA) and self-identity (EOM). Further, it is expected that as perceived social support and the sense of affirmation and belongingness increase, acculturation will positively mediate the relationship between these factors and self-identity, resulting in an identity that progresses from diffused toward moratorium or achievement status.

The hypotheses then suggest that acculturation will also have a positive mediating effect on ethnic identity as out-group orientation and interpersonal variables (e.g., friends, dating, sex roles) increase. Moderate correlations between the VIA and MEIM total scale,

and the VIA and MEIM Out-group Orientation scales are expected to be found. Then, the proposed relationships that exist between acculturation, ethnic identity, and self-identity can be applied to a structural equation model (EQS) to identify and/or confirm specific pathways for the proposed relationships.

A correlation analysis was then conducted and the most significant correlations found were between VIA heritage acculturation and affirmation and belonging (MEIM) (r= .452, p <. 001) and VIA heritage acculturation and ethnic identity search (MEIM) (r = .297, p <.001). Significant correlations were also found between VIA host acculturation and affirmation and belonging (r = .258, p <.001) and between VIA host acculturation and the ethnic identity (MEIM total scale) (r = .157, p <.001) and VIA host acculturation and out-group orientation (MEIM) (r = .132, p <.05). This is consistent with both hypotheses that affirmation and belonging, ethnic identity search, and out-group orientation are in some way associated with acculturation.

Inverse associations were also found between VIA heritage acculturation and identity on the EOM foreclosure raw scale score (r = -.189, p <. 001) and between VIA host acculturation and identity on the EOM foreclosure raw scale score (r = -.148, p <. 05), while a positive association was found between VIA host acculturation and identity on the EOM achievement raw scale score (r = .128, p <. 05). For those low in exploration and high in commitment (FOR) in the VIA heritage acculturation group, exploration and commitment decrease as acculturation increases. For those low in exploration and high in commitment (FOR) in the VIA host acculturation group, exploration and commitment decrease as acculturation increases. Finally, for those high in exploration and high in achievement (ACH) in the VIA host acculturation group, exploration and achievement

increase as acculturation increases. This is, in part, consistent with the both hypotheses that as acculturation levels change, identity changes.

Further, the association between MEIM ethnic identity and EOM self-identity (r = .194, p .001), MEIM ethnic identity and EOM interpersonal variable (r= .237, p < .001), ethnic identity search and EOMTOT self-identity (r = .153, p <. 005), ethnic identity search and interpersonal variables (r=. 276, p < .001), affirmation and belonging and EOMTOT self-identity (r = .180, p <. 001), support speculations that changes in identity co-occur with an increase in affirmation and belonging and ethnic identity search.

For ethnic identity search and VIA heritage acculturation, and affirmation and belongingness and VIA heritage acculturation, the expected associations are positive, as is the association between ethnic identity and VIA host acculturation and out-group orientation and VIA host acculturation. This means that as heritage acculturation increases, your time spent seeking and learning about your ethnic group increases and affirmation and belongingness to your ethnic group increases. Further, as host acculturation increases, you spend more time with people from other ethnic groups and out-group orientation increases, which is what was expected in the second hypothesis.

Other significant associations were considered as contributing factors in a second correlation analysis of the demographic variables. The most significant associations were between ethnic affiliation and mother's ethnic identity (r = .701, p <. 001) [your ethnic affiliation is associated with how mother identifies her ethnicity]; ethnic affiliation and father's ethnic identity (r = .600, p <. 001) [your ethnic affiliation is associated with how your father identifies his ethnicity]; ethnic affiliation and English is/not your a first language (r = .396, p <. 001) [your ethnic affiliation is associated with whether English is

a first language for you]; ethnic affiliation and language preference (r = .381, p <.001) [your ethnic affiliation is associated with your language preference]; ethnic affiliation and important persons to you back home (r = -.372, p <.001) [your ethnic affiliation is associated with people back home becoming less important to you]; ethnic affiliation and considering yourself as belonging to a specific ethnic group (r = -.330, p <.001) [your ethnic affiliation is associated with a decrease in considering yourself as belonging to a specific ethnic group]; ethnic affiliation and preference for an American or ethnic identity (r = .324, p <.001) [your ethnic affiliation is associated with an increased preference for an American identity or ethnic identity]; immigration and important persons to you back home (r = .527, p<.001) [if you have recently immigrated, people back home are more important to you]; immigration and most important person to you here (r = -.390, p <.001) [if you have not recently immigrated, people here are more important to you]; recent immigration and language preference (r = -.306, p <.001) [the longer it has been since you immigrated, decreases your preference for language]; English is/not your first language and recent immigration (r = -.512, p <.001), [If English is not your first language, you are more likely to be a new immigrant]; English is/not your first language and important persons to you back home (r = -.414, p <.001) [if English is a first language for you, people most important to you are here]; English is/not your first language and father's ethnic identity (r = .331, p <.001) [how father identifies his ethnicity is related to your first language usage]; mother's ethnic identity and your preference for an American or ethnic identity (r = -.512, p <.001) [mother's ethnic identity is inversely related to a decrease in your preference for American or ethnic identity]; mothers ethnic identity and belonging (r = -.405, p <.001) [mother's ethnicity

and whether you consider yourself as belonging to a specific ethnic minority group are inversely related]; ethnic identity and preference for customs of your ethnic group over those in the United States ($r = .399$, $p < .001$) [as your ethnic identity increases, your preference for music, food's, customs of your ethnic group over those in the United States increases]; ethnic identity and heritage ($r = -.354$, $p < .001$) [as your ethnic identity increases, your current activity in your ethnic culture and heritage decreases]; ethnic identity search and preference for customs of your own ethnic group over those in the United States ($r = -.356$, $p < .001$) [as your time spent seeking and learning about your ethnic group increases, your preference for food, music, customs of your ethnic group over the United States decreases]; ethnic identity search and heritage ($r = -.342$, $p < .001$) [as your time spent seeking and learning about your ethnic group increases, your current participation in your ethnic culture and heritage decreases]; and age and achievement (ACH) level ($r = -.305$, $p < .001$) [as age increases, exploration and commitment decrease].

Finally, the highest correlations found for the orientation (ORIENT) variable were between spending more time with people from other ethnic groups (ORIENT) and your preference for an American identity or ethnic identity (IDPREF) ($r = .266$, $p < .001$); spending more time with people from other ethnic groups and language preference (LANGPREF) ($r = -.222$, $p < .001$); spending more time with people from other ethnic groups and English is/not your first language (LANG) ($r = -.186$, $p < .001$); spending more time with people from other ethnic groups and the ethnic group you consider yourself belonging to (ETHNGRP) ($r = -.169$, $p < .001$); spending more time with people from other ethnic groups and education level (EDLEV) ($r = .161$, $p < .001$); spending

more time with people from other ethnic groups and EOM total identity status classification (ISC) ($r = .135$, $p < .05$); and spending more time with people from other ethnic groups and VIA host acculturation ($r = .132$, $p < .05$). This means that as you spend more time with people from other ethnic groups, your preference for an American identity or ethnic identity increases, your preference for language decreases, your first language use decreases, the ethnic group you consider yourself as belonging to will decrease, your education level will increase, (EOM) self-identity will increase, and you will acculturate toward the host group.

CHAPTER THREE

RESULTS

Correlation Analysis

Each of the statistical results in this section will conclude with a brief summary discussion and conclude with an end of chapter discussion. The correlation matrix shows that the strongest association is between MEIM subscales for ethnic identity search and affirmation and belonging ($r = .616$, $p <. 001$) with significant associations occurring between VIA heritage acculturation and both affirmation and belongingness ($r = .452$, $p <. 001$) and ethnic identity search ($r = .297$, $p <. 001$); between MEIM and VIA heritage acculturation ($r = .423$, $p<. 001$); between VIA host acculturation and affirmation and belongingness ($r = .258$, $p <. 001$) and ethnic identity search ($r = .157$, $p <.001$); between MEIM ethnic identity search and MEIM out-group orientation ($r = .149$, $p <.05$); between MEIM ethnic identity and interpersonal variables ($r= .237$, $p < .001$); between the EOM and MEIM ($r = .194$, $p <.001$), EOM and affirmation and belongingness subscale ($r = .180$, $p <.001$); EOM and ethnic identity search subscale ($r = .153$, $p <.05$); between interpersonal variables and ethnic identity search; and between EOM achievement status and VIA host acculturation ($r =.128$, $p <.05$) with significant inverse associations occurring between EOM foreclosure status (FOR) and both VIA heritage acculturation ($r = -.189$, $p <.001$) and VIA host acculturation ($r = -.148$, $p <.05$).

Regression Analysis

Statistical Analysis of Hypothesis (H_1)

Standard multiple regressions were performed between EOM foreclosure, achievement, diffusion, and moratorium identity status classifications and with affirmation and belongingness, heritage and host acculturation, and demographic variables (perceived social supports) as independent variables in the following analyses.

AFFBEL, Social Supports, and Acculturation (IVs) on Foreclosure Status (DV)

A standard multiple regression was performed between EOM foreclosure identity status as the dependent variable and affirmation and belongingness (subscale from the Multi-Group Ethnic Identity Measure (MEIM), VIA heritage and host (mainstream) acculturation (from the Vancouver Index of Acculturation subscales), and demographic variables for language, recent immigration, important persons to you back home, important persons to you here, heritage, and different identity (perceived social supports), as independent variables.

Analysis was performed using SPSS Regression and SPSS Explore for evaluation of assumptions. Results led to transformation of the variables to reduce skewness, reduce the number of outliers, and improve the normality, linearity, and homoscedasticity of residuals. With the use of a $p < .001$ criterion for Mahalanobis distance, two outliers was removed and minimum to maximum mean value replacement was used on all cases with missing data.

The correlation between the variables, the unstandardized regression coefficients (***B***) and intercepts, the standardized regression coefficients (***ℬ***), the semi-partial correlations (sr_1^2), R^2, and adjusted R^2 can be seen in Table 4 (a) below.

Table 4 (a)

Model Summary of the Standard Multiple Regression for Self-Identity with FOR [H_1]

Step	**R**	**R_2**	**$R_{2\ adj}$**	**$R_{2\ chg}$**	**F_{chg}**	**P**	***df_1***	***df_2***
1.	.392	.154	.106	.154	3.248	.001	9	161

R for regression was significantly different from zero, F (9, 161) = 3.248, $p < .001$, with R^2 at .154 and 95% confidence limits from .28 to 5.0. The adjusted R^2 value of .106 indicates that 10.6% of the variability in EOM foreclosure identity status is predicted by affirmation and belonging, social supports, and VIA heritage and host acculturation[23].

The nine independent variables in combination contributed another .45 in shared variability. Altogether, 15.4% (10.6% adjusted) of the variability in EOM foreclosure identity status was predicted by knowing scores on these nine independent variables. The size and direction of the relationships suggest that for those with foreclosure identity status (low exploration, high commitment), increased social supports (language, important persons to you here, having a different identity), an increased sense of

[23] For the five regression coefficients in Table 3 that differed significantly from zero, 95% confidence limits were calculated. The confidence limits for VIA heritage acculturation were –0.49749 to 0.01062, those for different identity were –0.55262 to 0.76662, those for important persons here were –0.63970 to 0.35170, those for language were –0.81002 to 1.39002, and those for affirmation and belonging were –1.16553 to 1.58353.

affirmation and belonging to their ethnic group, and VIA heritage acculturation are important. Between these nine independent variables, however, social supports (language, in particular) is much more important followed by affirmation and belonging, and heritage acculturation, as indicated by the squared semi-partial correlations.

The simple correlation between each independent variable and the dependent variable in the correlation matrix was then compared with the standardized regression coefficient (beta weight) for the independent variables to determine if suppressor variables were present and the standard regression coefficients can be found in Table 5 (a) below.

Table 5 (a)

Coefficients for Standard Multiple Regression Model for Self-Identity with FOR [H_1]

	B	**$\mathcal{B}$**	**t**	***Bivariate r***	***Partial R***
Affbel	.192	.209	2.81	.203	.216
Lang	1.82	.290	3.26	.193	.249
Immigr	-.148	-.021	-.224	-.083	-.018
Impers	-.106	-.043	-.459	-.064	.036
Impersg	-.429	-.144	-1.71	-.040	-.133
Heritage	-1.33	-.059	-.718	-.015	-.056
Diffid	.424	.107	1.27	.053	.100
VIAHER	-.306	-.221	-2.19	-.189	-.170
VIAHOST	.031	.021	.213	-.148	.017

Some cooperative or reciprocal suppression could be present between language and affirmation and belonging based on their positive correlation with the dependent

variable and negative correlation with each other (-.133). However, a second regression analysis did not indicate any increase in the predictive ability of language or affirmation and belonging with the dependent variable, after each independent variable was adjusted for the other.

Hierarchical regression was then employed to determine if addition of information regarding affirmation and belonging, then social supports (language, immigration status, important persons back home, important persons here, heritage, and different identity), and then VIA heritage and host acculturation improved prediction of EOM foreclosure identity status beyond that afforded by differences in affirmation and belonging. Table 4 (b) below displays the correlations between the variables, the unstandardized regression coefficients (***B***) and intercepts, the standardized regression coefficients (***ℬ***), the semi-partial correlations ($sr_1{}^2$), R^2, and adjusted R^2 after entry of all three (sets)[24] of IVs.

Table 4 (b)

Model Summary of the Standard Multiple Regression for Self-Identity with FOR [H_1]

Block	**R**	**R2**	**R2 adj**	**R2 chg**	**F chg**	**p**	**df1**	**df2**
1.	.203	.041	.035	.041	7.244	.008	1	169
2.	.336	.113	.075	.072	2.209	.045	6	163
3.	.392	.154	.106	.040	3.847	.001	2	161

R for regression was significantly different from zero at the end of each step. After step 3, with all IVs in the equation, R^2 = .154 with 95% confidence limits from .06

[24] In the sequential regression model, affirmation and belonging were entered into Block 1; social supports (language, immigration status, important persons back home, important persons here, heritage, and different identity) entered Block 2, and VIA heritage and host (mainstream) acculturation entered Block 3.

to .25, F (2, 161) = 3.847, $p < .001$. The adjusted R^2 value of .11 indicates that more than ten percent of the variability in EOM foreclosure identity status is predicted by affirmation and belonging, social supports, and VIA acculturation.

After step 1, with affirmation and belonging in the equation, $R^2 = .041$, F_{inc} (2, 161) = 7.244, $p < .008$. After step 2, with social supports added to the prediction of EOM foreclosure identity status by affirmation and belonging, $R^2 = .113$, F_{inc} (2, 161) = 2.209, $p < .045$. Addition of social supports to the equation, with affirmation and belonging, results in a significant increment in R^2. After step 3, with VIA heritage and host acculturation added to the prediction of EOM foreclosure identity status by affirmation and belonging and social supports, $R^2 = .154$, F_{inc} (2, 161) = 3.847. Addition of VIA heritage and host acculturation reliably improved R^2. This pattern of results suggests that over 7% of the variability in EOM foreclosure identity status is predicted by social supports. Affirmation and belonging contributes modestly to that prediction (4%); VIA heritage and host acculturation contributes another 4% to the prediction. Hierarchical regression coefficients are available for review in Table 5 (b) below.

Table 5 (b)

Coefficients for Hierarchical Multiple Regression Model for Self-Identity with FOR [H_1]

Block	B	$\mathcal{B}$	*t*	Bivariate r	Partial r
1. Affbel	1.90	.203	2.69	.203	.203
2.					
Affbel	2.19	.234	3.13	.203	.238
Lang	1.60	.254	.285	.193	.218
Immigr	-.202	-.029	-.301	-.083	-.024
Impers	-.074	-.030	-.317	-.064	.025
Impersg	-.429	-.144	-1.71	-.040	-.117
Heritage	-1.61	-.072	-.855	-.015	-.067
Diffid	.460	.117	1.36	.053	.106
3.					
Affbel	2.00	2.209	2.80	.203	..216
Lang	1.82	.290	3.26	.193	.249
Immigr	-.148	-.021	-.224	-.083	-.018
Impers	-.106	-.043	-.459	-.064	.036
Impersg	-.429	-.144	-1.71	-.040	-.133
Heritage	-1.33	-.059	-.718	-.015	-.056
Diffid	.424	.107	1.27	.053	.100
VIAHER	-.306	-.221	-2.19	-.189	-.170
VIAHOST	.031	.021	.213	-.148	.017

AFFBEL, Social Supports, and Acculturation (IVs) on

EOM Achievement Status (DV)

Standard multiple regression was performed between EOM achievement identity as the dependent variable and affirmation and belonging, language, recent immigration, important persons to you back home, important persons to you here, heritage, different identity, and VIA heritage and host acculturation as independent variables. Analysis was performed using SPSS Regression and SPSS Explore for evaluation of assumptions.

Results of evaluation of assumptions led to series mean replacement of missing values and minimum/maximum value transformations for outliers. R for regression was not significantly different from zero, $R^2 = .040$, F (9, 161) = .745, $p < .668$. Review of the beta weights confirms that none of the variables significantly contribute to explaining variance in EOM achievement identity status[25].

AFFBEL, Social Supports, and Acculturation (IVs) on

EOM Diffusion status (DV)

A standard multiple regression was performed between EOM diffusion identity status as the dependent variable and affirmation and belonging, language, recent immigration, important persons to you back home, important persons to you here, heritage, different identity, with language preference (lanpref_1M) added to the overall model[26], and VIA heritage and host acculturation as independent variables. Analysis was performed using SPSS Regression and SPSS Explore for evaluation of assumptions. The standard multiple regression results indicate that the overall model does not significantly predict EOM diffusion identity status, $R^2 = .078$, F (10, 160) = 1.355, $p < .206$. Review of the beta weights confirms that none of the variables significantly contribute to explaining variance in EOM achievement identity status.

[25] The simple correlation between each independent variable and the dependent variable in the correlation matrix for DIF, FOR, MOR, and ACH regression models was compared with the standardized regression coefficient (beta weight) for the independent variable to identify the presence of any suppressor variables, even though the results were non-significant for DIF, MOR, ACH. Net suppression is suspected for VIA heritage (with ACH, FOR) and with host acculturation and language (FOR).

[26] Language preference was added to the model based on theoretical relevance and prior knowledge of the variable correlation.

AFFBEL, Social Supports, and Acculturation (IVs) on

EOM Moratorium (DV)

A standard multiple regression was performed between EOM moratorium identity as the dependent variable and affirmation and belonging, language, recent immigration, important persons to you back home, important persons to you here, heritage, different identity, with age, custom, and language preference added to the overall model[27] and VIA heritage and host acculturation as independent variables. The standard multiple regression results indicate that the overall model does not significantly predict EOM moratorium identity status, F (12, 158) = 1.402, $p < .170$, with $R^2 = .096$. Review of the beta weights confirms that none of the variables significantly contribute to explaining variance in EOM moratorium identity status.

Statistical Analysis of Hypothesis (H_2):

Standard multiple regressions were performed between ethnic identity as the dependent variable and the square root of out-group orientation, heritage and host acculturation, and the interpersonal variable as independent variables.

Out-group Orientation, Interpersonal Variable, and Acculturation

(IVs) on Ethnic Identity (MEIMTOT) (DV)

A standard multiple regression was performed between ethnic identity (MEIMTOT) as the dependent variable and the square root of out-group orientation (an independent scale derived from the Multi-Group Ethnic Identity Measure), VIA heritage

[27] Age, custom, and language preference were added to the overall model based on theoretical relevance and prior knowledge of the variable correlations.

and host (mainstream) acculturation (subscales from the Vancouver Index of Acculturation), and INTERPER as independent variables. Analysis was performed using SPSS Regression and SPSS Explore for evaluation of assumptions.

Results of evaluation of assumptions led to transformation of the variables to reduce skewness, reduce number of outliers, and improve normality, linearity, and homoscedasticity of residuals. Square root transformations were used on the measure of multi-group ethnic identity and on the measure of out-group orientation. With use of $p < .001$ for Mahalanobis distance two outliers were found. Missing values were replaced with series mean transformation.

The correlations between the variables, the unstandardized regression coefficients (***B***) and intercepts, the standardized regression coefficients (***ℬ***), the semi-partial correlations (sr_1^2), R^2, and adjusted R^2 can be found in Table 6 (a) below.

Table 6 (a)

Model Summary of the Standard Multiple Regression for Ethnic Identity [H_2]

Step	***R***	***R_2***	*$R_{2\ adj}$*	*$R_{2\ chg}$*	***F_{chg}***	***p***	***df_1***	***df_2***
1.	.488	.238	.219	.238	12.810	.001	4	164

R for regression was significantly different from zero, $F (4, 164) = 12.810$, $p < .001$, with R^2 at .238 and 95% confidence limits from .08 to .30. The adjusted R^2 value of .219 indicates that more than 21% of the variability in ethnic identity is predicted by out-group

orientation, Host and Heritage VIA acculturation, and the interpersonal variable[28]. The size and direction of the relationships suggest that ethnic identity is greater among those individuals with more heritage acculturation who have ideas about their roles, values, and friendships, when they have more contact with those outside their ethnic group. Between those four, however, heritage acculturation is much more important, followed by roles, values, and friends (interpersonal variable), as indicated by the squared semi partial correlations. The coefficients for the standard multiple regressions are found in Table 7 (a) below.

Table 7 (a)

Coefficients for Standard Multiple Regression Model for Ethnic Identity [H_2]

	B	***β***	***t***	***Bivariate r***	***Partial r***
Orient	.253	.076	1.110	.093	.086
Interper	.188	.239	3.502	.237	.264
VIAHER	.147	.485	5.239	.412	.379
VIAHOST	-.034	-.110	-1.182	.230	-.092

Review of the beta weights confirms that VIA heritage and host acculturation, interpersonal variables, and out-group orientation significantly contribute to explaining variance in ethnic identity.

The simple correlation between each independent variable and the dependent variable in the correlation matrix was then compared with the standardized regression

[28]For the two regression coefficients that differed significantly from zero, 95% confidence limits were calculated. The confidence limits for VIA heritage acculturation were 0.088 to 0.195 and for the interpersonal variable confidence limits were from 0.082 to 0.295.

coefficient (beta weight) for the independent variables to determine if suppressor variables were present. Of beta weights that were significantly different from zero, VIA Heritage acculturation had a substantially smaller absolute value of the simple correlation between the IV and the DV, and the simple correlation and beta weights had opposite signs for VIA Host acculturation. VIA Host and Heritage acculturation, Orient, and Interpersonal were among the congruent variables, so each congruent IV was left out of the equation and changes in regression coefficients for the IVs with inconsistent regression coefficients were examined.

With VIA Host acculturation left out of the regression equation, changes in beta weights occurred for Orient (.139 to .129) and VIA Heritage (.345 to .284). When Orient was left out of the regression equation, changes in beta weights occurred for Interpers (-.041 to .082). When Interpers was left out of the regression equation, changes in beta weights occurred for Orient (.139 to .121), When VIA Host acculturation was left out of the equation, no changes in beta weights occurred for any of the variables.

Hierarchical regression was then employed to determine if addition of information regarding interpersonal variables, and then out-group orientation, improved prediction of ethnic identity beyond that afforded by differences in VIA heritage and host acculturation. Analysis was performed using SPSS Regression and SPSS Explore for evaluation of assumptions. All of the variables met the assumptions of normality, linearity, and homoscedasticity of residuals. With the use of $p < .001$ criterion for Mahalanobis distance, no outliers among the cases were identified. No cases had missing values and no suppressor variables were found, $N = 170$.

Table 6 (b) below displays the correlations between the variables, the unstandardized regression coefficients (***B***) and intercepts, the standardized regression coefficients (***ß***), the semi-partial correlations ($sr_1{}^2$), R^2, and adjusted R^2 after entry of all three (sets) of IVs.

Table 6 (b)

Model Summary of the Hierarchical Regression for Ethnic Identity [H_2]

Block	***R***	***R_2***	***$R_{2\ adj}$***	***$R_{2\ chg}$***	***F_{chg}***	**p**	**d*f*$_1$**	**d*f*$_2$**
1.	.417	.174	.164	.174	17.474	.000	2	166
2.	.482	.232	.218	.058	12.559	.001	1	165
3.	.488	.238	.222	.017	1.231	.054	1	164

R was significantly different from zero at the end of each step. After step 3, with all IVs in the equation, $R^2 = .238$ with 95% confidence limits from 5.073 to 5.565, $F(4, 168) = 17.474$, $p < .001$. The adjusted R^2 value of .222 indicates that over 22% of the variability in ethnic identity is predicted by heritage and host acculturation, out-group orientation, and the interpersonal variable.

After step 1, with VIA heritage and host acculturation in the equation, $R^2 = .174$, $F_{inc}(2, 166) = 17.474$, $p < .001$. After step 2, with the interpersonal variable added to the prediction of ethnic identity by VIA heritage and host acculturation, $R^2 = .232$, $F_{inc}(1, 165) = 12.559$, $p < .001$. Addition of interpersonal variables to the equation with VIA heritage and host acculturation results in a significant increment in R^2. After step 3, with out-group orientation added to the prediction of ethnic identity by heritage and host

acculturation and interpersonal variables, R^2 = .238 (adjusted R^2 = .219), F_{inc} (1, 164) = 1.231. Addition of out-group orientation to the equation did not reliably improve R^2.

The pattern of results suggests that more than 17% of the variability in ethnic identity is predicted by heritage and host acculturation. Interpersonal variables contribute significantly in this prediction with an additional 6%; out-group orientation does not add significantly to this prediction. Review of the beta weights confirms that VIA heritage and host acculturation and interpersonal variables contribute significantly to explaining variance in ethnic identity. Coefficients for the hierarchical multiple regressions can be found in Table 7 below.

Table 7 (b)

Coefficients for Hierarchical Multiple Regression Model for Ethnic Identity [H_2]

	B	***β***	**t**	**Bivariate r**	**Partial r**
Block					
1.					
VIAHER	.138	.471	4.931	.412	.357
VIAHOST	-.027	-.088	-.917	.230	-.071
2.					
VIAHER	.140	.478	5.179	.412	.374
VIAHOST	-.030	-.096	-1.043	.230	-.081
Interper	.191	.242	3.544	-.237	.266
3.					
VIAHER	.142	.485	5.239	.412	.379
VIAHOST	-.034	-.110	-1.182	.230	-.092
Interper	.188	.239	3.502	.237	.264
Orient	.253	.076	1.110	.093	.086

Summary

The regression analyses for both hypotheses supported the strength and direction of the relationships between VIA heritage and host (mainstream) acculturation with self- and ethnic identity. Both VIA heritage and host acculturation correlated with demographic variables in the expected direction, with the exception of heritage acculturation and EOM foreclosure status. Hierarchical regressions for H_1 indicated those with 'foreclosure' identity status (low exploration, high commitment; representing adopting goals, values, and beliefs from parents or other authority figures without much critical thought) have increased social supports (language, important persons to you back home, having an American identity that is different from your ethnic identity), an increased sense of affirmation and belongingness to their ethnic group, and increased heritage acculturation. Hierarchical regressions for H_2 indicated ethnic identity was best predicted by interpersonal variables (e.g., friends, dating, sex roles), as VIA acculturation increased, while out-group orientation did not significantly contribute to the prediction of ethnic identity.

Post Hoc Analysis

Post hoc pair-wise comparison tests of adjusted group means were conducted for between subjects effects using a Bonferroni correction procedure to adjust the observed significance level based on the independent samples t-tests. The results of the Bonferroni correction procedure are found in Table 3 (b) below.

Table 3 (b)

Post hoc Comparisons of the Difference Between Group Means Bonferroni Correction

	F	**Sig**	*t*	***df***	Mean dif	Std Error	CI	
							L	U
Age_1M	.693	.406	-.458	169	-5.53	.207	-29.36	18.30
Lang_1M	.295	.588	.266	169	.021	.079	-13.59	.178
Impers_1M	17.73	.000	-2.06	169	-4.27	.164	-.752	-.103
Heritage	1.74	.188	.518	169	.011	.022	-.03	.05
Diffid	.042	.838	.539	169	.068	.126	-.181	.317

The test of between subjects effects was significant for Impersg1_M by gender, df (169) F = 17.73, p < .000000; t = -2.063. The sample mean difference was -.427, SE = .164 with confidence interval of the difference limits at -.752 to -.103. Multiple comparisons were significant by gender for Langpref1_M between the English and eastern dialect group with a mean difference of (-.49), SE= .199, p < .048 with a 95% confidence limit at .00 to .97; and Age1_M in group #5 (45-55 years of age), mean difference (.24), SE= .072, P < .072. For the Impersg1_M variable, more females than males endorsed having important persons back home, but there were also more females in the sample population than males. For langpref1_M, more males than females in the eastern dialect group preferred to speak eastern dialect, while females preferred English. For the Age1_M group, group #5 (ages 45-55) had more females than males in this age group. The reader may refer to Table 2 to obtain confidence intervals and standard error terms.

Structural Equation Modeling

Pre-Screening Analysis

Prior to running an analysis of the full structural equation model, a path analysis of Factor 4 (social supports) was conducted to determine if the items comprising the SOCSUP construct were tenable in the EQS program. While SPSS 18.0 allows categorical, dichotomous, and continuous variables to run in a linear regression, when the indicators are categorical in SEM, the conventional measurement model would need to be modified to account for variables that are intrinsically categorical. In using categorical variables in SEM, the conventional measurement model is specified for multivariate normal 'latent responses' or 'underlying variables' for continuous indicators.[29] Since the social support factor is based on categorical responses, the estimation is considerably more complex for these models than for conventional structural equation models. It requires the construction of pairs of coefficient matrices from the latent variables that act as response sets for each category of the (categorical) indicator and makes pair-wise comparisons of each set of responses.

While it is possible to run multiple pair-wise comparisons for each variable in a nested design, one limitation is the ability of SEM to protect against Type I error levels. To date, there are no available adjustments in SEM to correct for this problem as in ANOVA. Since new data is not available for cross-validation of this sample, specifying coefficients and running analyses on these coefficients becomes difficult when a separate error term has to be developed in computing the correlation between estimated

[29] See for full review. Skrondal, A. & Rabe-Hesketh, S. (2005). Structural Equation Modeling: Categorical Variables. *Entry for the Encyclopedia of Statistics in Behavioral Science*, Wiley.

parameters and parameters from the hypothesized model. In all likelihood, this would require a larger sample size than is currently available for this study.

A priori power analysis indicated a sample size for the structural equation model at a 10:1 ratio would require a minimum of 107 participants for the ten variables in the data set to be examined. The actual sample size after cleaning and screening procedures is N=171. The pair-wise procedure for the three categorical variables would require doubling the sample size to ensure each cell in the SEM matrices had responses. This would require at a minimum a ratio of 20:1 (sample size of 200+ participants). Since it was not possible to obtain more participants for this study, the social support (SOCSUP) factor, its indicators, and out-going pathways were dropped from the structural equation model.

Structural Equation Model

Two structural modifications were made to the proposed hypothesized model. First, the perceived social supports factor, its indicators (language, different identity, and important persons back home), and pathways were removed from the model because of the complexity of using categorical variables in EQS. In the figure below, circles represent latent variables and rectangles represent measured variables. Absence of a line connecting variables implies lack of hypothesized direct effect. The original hypothesized model is found in Figure 70 below.

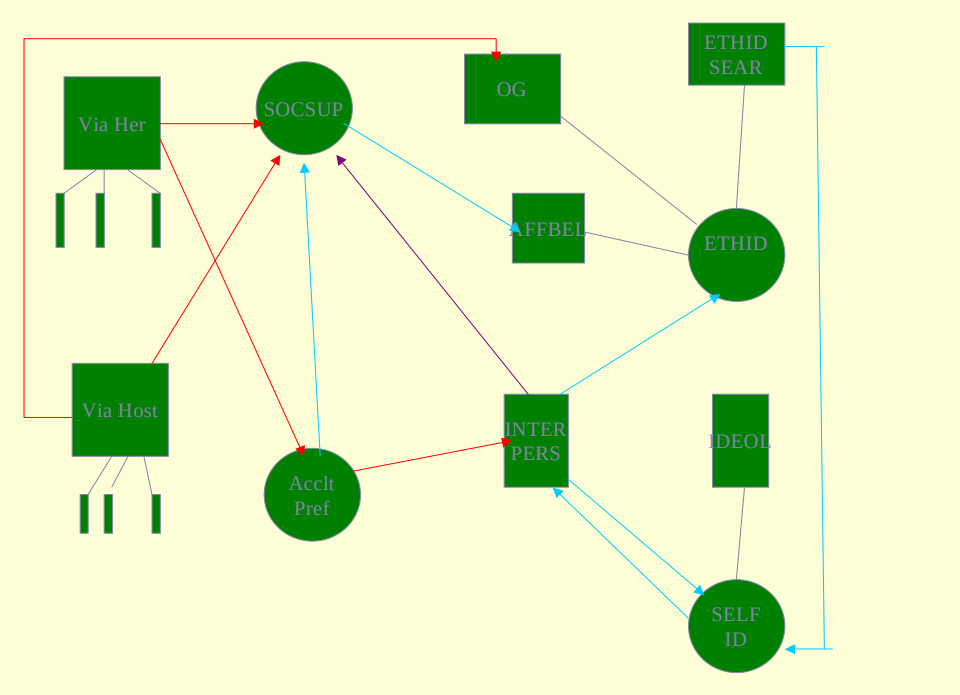


Figure 70. Original Proposed SEM Model.

Second, the arrow going from the interpersonal variables indicator (V1) to the self-identity factor (F3) was removed, leaving an arrow from the self-identity factor (F3) to V1 because estimating both parameters created a non-recursive model in EQS. The modified hypothesized model can be found in Figure 71 below.

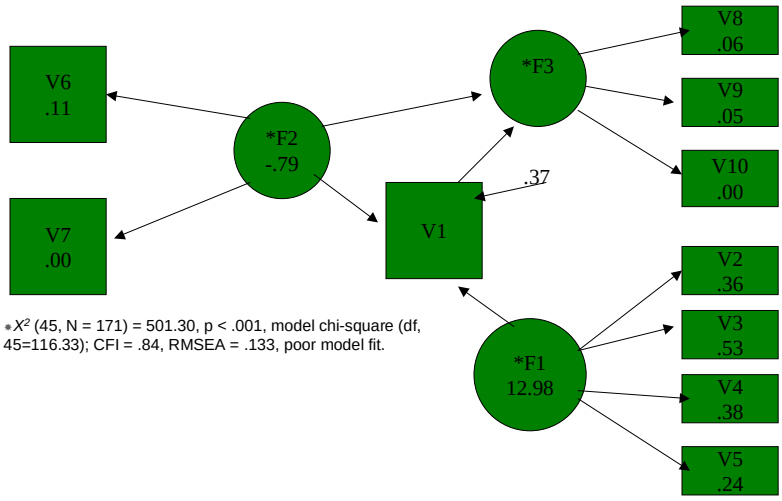


Figure 71. Model 1. Modified proposed structural equation model.

The *modified hypothesized model* examined the predictors of self-identity and ethnic identity and preferred level of acculturation. It was hypothesized that acculturation is a factor, which mediates, self-identity as affirmation and belonging increase (H_1) and that acculturation is a factor which mediates ethnic identity as out-group orientation and interpersonal variables increase (H_2). Self-identity is a latent variable with four indicators (diffusion, foreclosure, moratorium, and achievement identity status); ethnic identity is a latent variable with three indicators (ethnic identity search, affirmation and belonging, and out-group orientation); and preferred level of acculturation is a latent variable with two indicators (heritage culture acculturation and host culture acculturation).

The 'interpersonal variable' (a total mean subscale score derived from the EOM)[30] represents key aspects of interpersonal values/beliefs and is an independent variable in the model. Although other researchers (Grotevant & Adams, 1984; 1987) have evaluated these items, reliability and item analysis were conducted in Bentler-Weeks EQS program. The reliability analysis Chronbach's alpha was .833 and the subscale histogram distribution appears normal. A histogram of the INTERPERS variable distribution can be found in Figure 72 below.

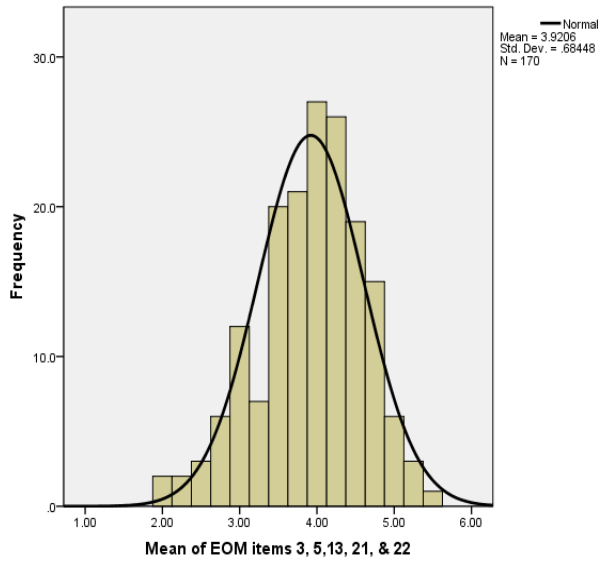


Figure 72. Histogram of Interpersonal variable from the EOM.

[30] Item#3: "my ideas about men's and women's roles are identical to my parents'. What has worked for them will obviously work for me"; item#5: "There are a lot of different kinds of people. I'm still exploring the many possibilities to find the right kind of friends for me"; item #13: "There are many reasons for friendship, but I choose my close friends on the basis of certain values and similarities that I've personally decided on"; item #21: "My parent's know what's best for me in terms of how to choose my friends"; item #22: "I've chosen one or more recreational activities to engage in regularly from lots of things and I'm satisfied with those choices."

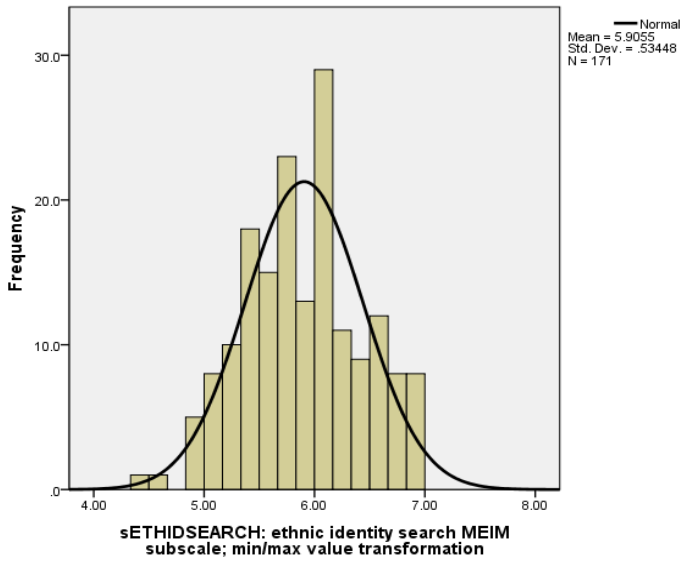


Figure 73. Histogram of the ethnic identity subscale from the MEIM.

The remaining variables in the SEM structural model were evaluated for assumption of normality, linearity, and homoscedasticity through SPSS 18.0 (see Figures 73-74). The dataset contains responses from 171 men and women with complete data for all participants on the ten variables of interest. No missing data was found on the measures.

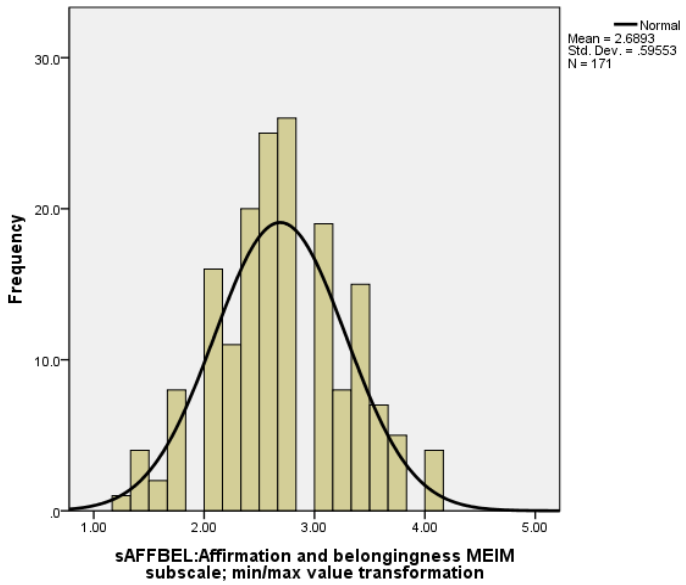


Figure 74. Histogram of affirmation and belonging (AFFBEL) subscale from the MEIM.

Given the number of measured variables and the hypothesized relationships, the sample is determined to be adequate, but bordering on the lower limit of acceptability for the full model. Normality and linearity was assessed through summary descriptive statistics. The means and standard deviations were within range for all variables. Some negative skew and kurtosis was found for ACH (V5 = -1.3208, 2.52), VIAHER (V6 = kurtosis, -1.0623), and ORIENT (V10 = kurtosis, -1.05). Marda's coefficient = 4.78, $p < .001$ and a normalized estimate of the coefficient = 2.01, $p < .001$, suggesting that these measured variables are not distributed normally. No univariate or multivariate outliers were found.

Examination of pair-wise scatter plots was conducted using SPSS GRAPHS. Transformations were conducted without much improvement; however, it is reasonable to expect these variables to be skewed in the population (esp. ACH). Given the sample

size (N=171), the decision is made to use provisions in the EQS program to take the non-normality into account when assessing X^2 statistics and standard errors by use of maximum likelihood estimation with the Santorra-Bentler scaled chi-square and adjustment to the standard errors to the extent of non-normality. This was requested from EQS by ME=ML, ROBUST. All other variables appeared to be normally distributed and selected pairs of scatter plots in SPSS did not provide contrary evidence of linearity (see Table 8 below for descriptive and model change statistics).

Table 8

Structural Equation Model Comparison: Testing for Difference (Ethnic and Self-Identity)

Construct/Indicator	**M**	**SD**	**Model Change**	**Model Change**	**Model Change**
			1(32)df	*3(31)*	*3(34)df*
	SelfIdentity				
Interpersonal Variables	3.920	.684	4.260	4.205	--------
Diffusion	81.159	13.061	.824	.831	2.921
Forclosure	21.200	3.300	.740	32.286	--------
Moratorium	17.479	2.537	7.884	2.688	7.884
Achievement	22.866	1.929	2.855	2.855	2.855
	VIA Acculturation				
Heritage	2.829	1.142	-------	32.286	-------
Host	5.238	1.834	.026	1.383	.000
	Ethnic Identity				
Ethnic identity search	5.904	.536	2.687	.695	.466
Affirmation and belonging	2.687	.596	.695	2.688	-------
Out-group orientation	2.890	.272	.464	.260	.021

Model Estimation, Partial Model

A preliminary path analysis was conducted that hypothesized a relationship between the variables VIA heritage acculturation (V6) and VIA host acculturation (V7) on Ethnic identity search (V8), Affirmation and belonging (V9), Out-group orientation (V10), and Interpersonal variable (V1), for the full model prediction of mediation effects on ethnic- and self-identity and can be seen in Figure 75 below.

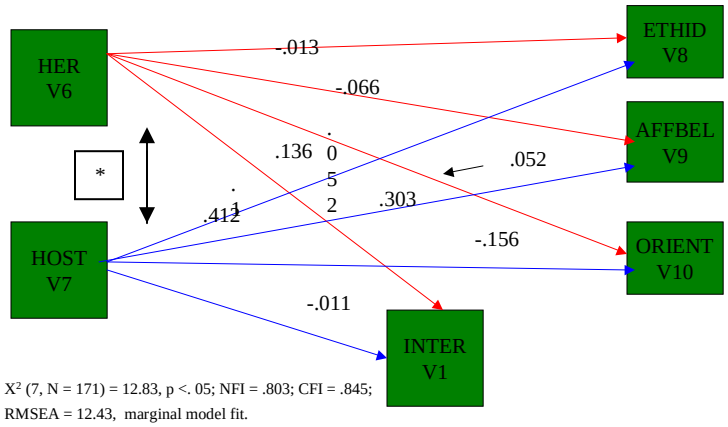


Figure 75. Preliminary path analysis diagram with standardized path coefficients.

The Bentler-Bonett fit index (NFI) of the estimated model to the independence model indicates a normed fit index of .803, which is a marginal fit for the model, X^2 (7, N = 171) = 12.83, p <. 05, as is the comparative fit index (CFI) of .845, with RMSEA = 12.43. Of the four dependent measures in the partial model three parameters were found to be significant. The measurement statistics that are significant at the 5% level are for

ETHIDSEA (V8), AFFBEL (V9), and ORIENT (V10). In the full model, VIAHOST (V7) acculturation was assessed as a predictor of V8, V9, and V10.

Full Model

The full model including the self-identity factor and measured variables for this construct were then added to the modified proposed structural equation model (Model 1) (Figure 71). The independence model that tests the hypothesis that all variables are uncorrelated was easily rejectable, X^2 (45, N = 171) = 501.30, p < .001, but the model chi-square is also significant (df, 45=116.33). The comparative fit index (CFI) of .84 assessing fit relative to other models and an estimation of the lack of fit in the model compared to a perfect model by the root mean squared error of approximation (RMSEA) = .133, indicate a poor model fit.

Significance tests for each parameter of the measurement portion of the model indicate DIF =6.656, FOR=6.149, and ACH =5.065 are significant to the model; however, VIAHER and VIAHOST are not only non-significant, but the standard error for the parameter between VIAHER (.670) and VIAHOST (13.346) is vastly different. This suggests heritage culture effects and host culture effects are not relative to each other and the two variables are measuring different aspects of acculturation.

Significance tests for ETHNID =3.494 and AFFBEL =3.312 are significant to the model and each other, but ORIENT = .002 is clearly not a good fit as part of the ethnic identity (F3) construct or with ETHNID (V8) and AFFBEL (V9). The ORIENT (V10) construct will need to be separated from the ethnic identity (F3) factor as an independent measured variable. The maximum likelihood of the variances of the independent

variables tests for significance in predicting factors from other factors was significant for INTERPER (8.960), FOR (8.505), MOR (8.723), ACH (9.02), VIAHER (9.120), AFFBEL (3.836), and ORIENT (9.192), but not VIAHOST (.000).

Post hoc model modifications were performed in an attempt to develop a better fitting and possibly more parsimonious model. In the second factor model, the interpersonal variable (INTERPERS) was removed to assess more clearly the relationships between each factor. The independence model chi-square is significant at 439.01, but the model chi-square is also significant (df, 45= 87.68). The CFI value assessing fit relative to other models is 0.87, indicating a slightly improved model fit, but the model is still misspecified. The root-mean squared error of approximation (RMSEA) is 0.12 and confirms a marginal model fit.

Because it is hypothesized that acculturation is a mediating factor in the relationships between both identities and interpersonal variables, affirmation and belonging, and out-group orientation, a decision was made to separate the two acculturation subscales into independent measured variables in the model. In this (the 3rd full SEM model) parameter changes were made and can be found in Figure 76 below, as follows:

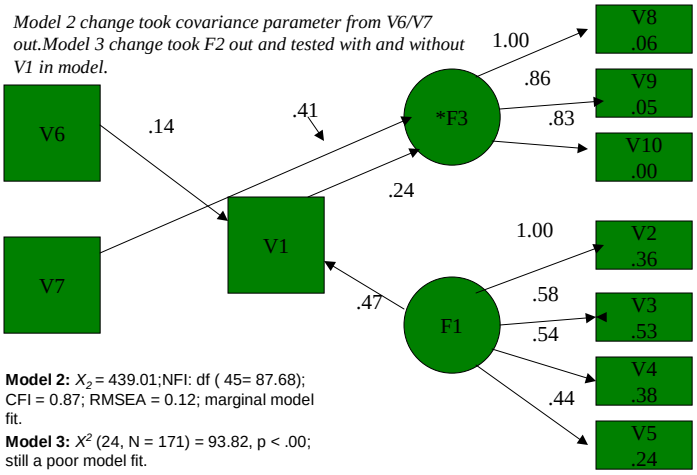


Figure 76. Model 3. Modifications to the full structural equation model.

Factor 2 (acculturation) was removed and VIAHER (V6) and VIAHOST (V7) were entered into the model as separate independent variables representing two different aspects of the preferred level of acculturation. The INTERPERS (V1) variable was added back into the model and direct pathways were run from VIAHOST (V7) to F3 (ethnic identity); from VIAHER (V6) to INTERPERS (V1); from INTERPERS (V1) to F3, and from F1 to INTERPERS (V1).

The test of improvement between independence and model chi-square is assessed with a scaling correction between nested and comparison models because the data were non-normal; the Satorra-Bentler scaled chi-square was used. The scaling correction was then employed with the ML X^2 values to calculate the S-B scaled X^2 difference test statistic value. This chi square difference was evaluated with degrees of freedom equal to $df_{\text{nested model}} - df_{\text{comparison model}} = 45 - 24 = 21$. The adjusted S-B X^2 (N = 171, 24) = 384.98.

$p < .001$. The chi square difference test is significant therefore the model is a significant improvement over the independence model.

However, the Satorra-Bentler scale chi square test of the Robust ML estimation is also significant X^2 (24, N = 171) = 93.82, $p < .001$, indicating a significant difference between the estimated and observed covariance matrices. Additionally, none of the fit indices indicates a good fitting model. The reliability coefficients Cronbach's alpha is lower than in Model 1 (from 0.443 to 0.425) but is still high. This indicates the reliability of the measured variables in the analysis and the proportion of variance in the variables that is accounted for by the factors is slightly improved, but still not a good fit. Because this is the third model evaluation and the hypothesized model does not fit the data well, further inspection of the parameters to be estimated in EQS was deferred and the decision was made to move the model to a pathway model of analysis. The rationale for this decision is based in the researchers position that further corrections to this model border on exploratory, rather than, confirmatory analysis. Refer to the test of model difference/model change statistics found in Table 8.

Path Analysis

The overall lack of good fit of the structural equation models and relationships between the variables and factors, led to a decision to re-structure the design of the model and use path analysis to examine the set of variables. In the path diagram found in Figure 77 below, path parameters were entered from VIAHER (V6) to ETHNID (V8), AFFBEL (V9), and ORIENT (V10); path parameters were entered from VIAHOST (V7) to

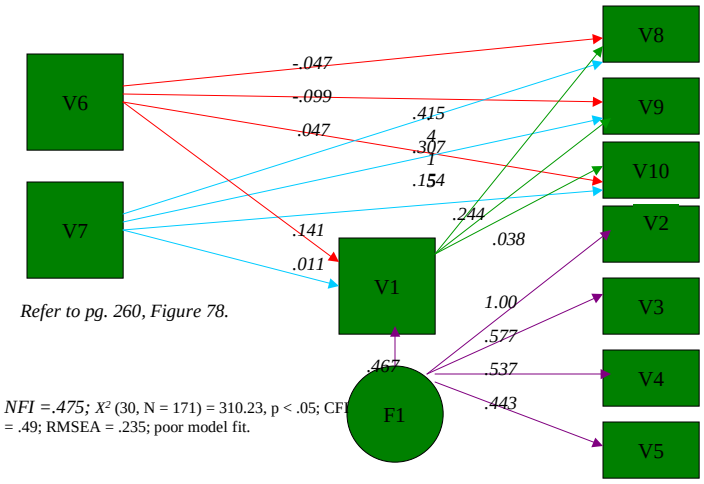


Figure 77. Full Path Model 1 diagram.

ETHNID (V8), AFFBEL (V9), and ORIENT (V10). Pathways were added from VIAHER (V6) and VIAHOST (V7) to INTERPERS (V1); from INTERPERS (V1) to ETHNID (V8), AFFBEL (V9), and ORIENT (V10). F1 (self-identity) was included in the pathway model with its four indicators (DIF, FOR, MOR, ACH), with a parameter to be estimated going from F1 to INTERPERS (V1).

Pathway Model Estimation

Only marginal support was found for the first hypothesized pathway model. The Bentler-Bonett fit index (NFI) of the estimated model to the independence model indicates a normed fit index of .475 which is a poor fit for the model pathways, X^2 (30, N = 171) = 310.23, p < .05, as is the comparative fit index (CFI) of .49 and the root mean square error of approximation (RMSEA) = .235 estimating the lack of fit in the model

compared to a perfect model fit. Parameter estimates were then examined in the measurement and equations with standard errors and test statistics section. All of the path coefficients between measured variables and factors that are significant at the 5% level are for INTERPER (6.68), DIF (5.86), FOR (5.50), MOR (5.29), ACH (4.69), ETHIDSEA (3.622), AFFBEL (3.463), VIAHER (9.192), and VIAHOST (9.192); but ORIENT (.498) is clearly not significant.

The standardized ML solution R^2 indicates 47% of the variance in INTERPERS (V1) is accounted for by F1; 23.4% of the variance in ETHIDSEA (V8) is accounted for by VIAHOST (V7) (41.5%), INTERPERS (V1) (24.4%), and VIAHER (V6) (4.7%); 16.3% of the variance in AFFBEL (V9) is accounted for by VIAHOST (V7) (30.7%), INTERPERS (V1) (24.4%), and VIAHER (V6) (9.9%); 2.7% of the variance in ORIENT (V10) is accounted for by VIAHOST (V7) (15.4%), VIAHER (V1) (4.7%), and INTERPERS (V1) (3.8%). Evaluation of these standardized solutions support the pathways from VIA host culture acculturation as the best predictor of ethnic identity search, while VIA heritage acculturation contributes marginally. The same is true for the prediction of affirmation and belonging, as well as for the prediction of orientation.

Path parameters from VIA host to ethnic identity search and affirmation and belonging is supported by examination of the covariance matrix. The relationship between VIA host and orientation is the inverse of what was expected and marginal support is found for the parameter from VIA host to the ‘interpersonal’ variable. While some support is found for the parameter between VIA heritage and the ‘interpersonal’ variable, the parameters between VIA heritage and affirmation and belonging, VIA

heritage and ethnic identity search, and VIA heritage and out-group orientation is not supported.

The ORIENT (V10) parameter from ETHIDSEA (V8) and AFFBEL (V9) was then moved to VIAHOST (V7) by adding a direct parameter from V7 to V10 and can be found in Figure 78 below.

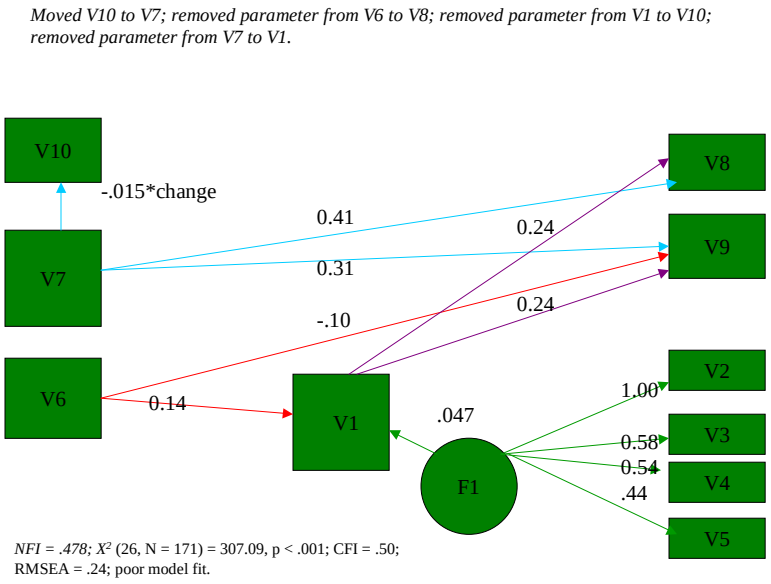


Figure 78. Path model modification diagram.

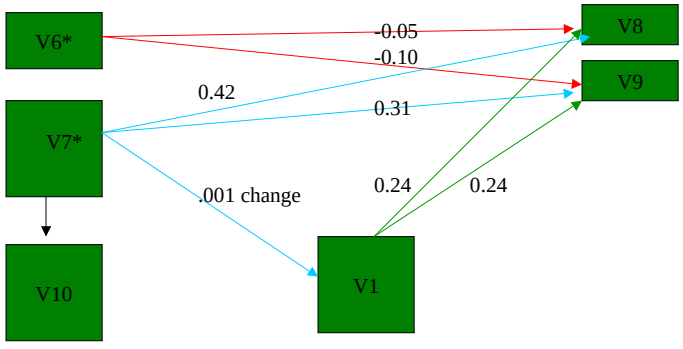
The parameter from VIAHER (V6) to ETHIDSEA (V8) was removed; the parameter from INTERPER (V1) to ORIENT (V10) was removed; and the parameter from VIAHOST (V7) to INTERPER (V1) was removed. The Bentler-Bonett normed fit index (NFI) of the estimated model to the independence model indicates a fit index of .478 which is a poor fit, X^2 (26, N = 171) = 307.09, p < .001, with a comparative fit index

(CFI) of .50, and RMSEA = .24. Evaluation of the standardized solutions supports the pathways from VIA host culture acculturation as the best predictor of ethnic identity search; the same is true for the prediction of affirmation and belonging; and for the prediction of orientation. An examination of the covariance matrix also supports these pathways.

Next, the parameter from VIAHER to ETHIDSEA was added back and the path from VIAHER to INTERPERS was removed to examine change in path parameter coefficients for the second path model modification and can be found in Figure 79 below. For the purpose of parsimony and model clarity, the positions for V6 and V7 in the model diagram were switched to eliminate the parameter from V7 to V1 crossing over parameters from V6 to V8 and V9.

V6 to V8 was added back; V6 to V1 was removed to observe change.

Figure 79. Second path model modification diagram.



NFI = .474; X^2 (32, N = 171) = 310.94, p < .001; CFI = .49; RMSEA = .23, poor model fit.

Figure 79. Second path model modification diagram.

The Bentler-Bonett fit index of the estimated model to the independence model indicate a normed fit index of .474 which is still a poor fit for the model pathways, X^2

(32, N = 171) = 310.94, p < .001, with the comparative fit index (CFI) of .49, and RMSEA = .23. Parameter estimates were then examined in the measurement and equations with standard errors and test statistics section, as well as the standardized solution. The parameter estimates significant at 5% are the same as the previous model, with one exception. The ORIENT (V10) parameter is now significant at 5% (-1.975). The standardized ML solution R^2 indicates 21.8% of the variance in INTERPERS (V1) is now accounted for by F1, while all other variances remained the same.

The parameter from VIAHOST (V7) to INTERPERS (V1) was then added back in the model to evaluate change in this parameter, but resulted in a non-significant chi square change = .026 (.001). The Bentler-Bonett normed fit index = .474 is still a poor fit for the model pathways, X^2 (31, N = 171) = 310.91, p < .001, with a comparative fit index (CFI) of .49, and RMSEA = .23. Parameter estimates were then examined in the measurement and equations with standard errors and test statistics section, as well as the standardized solution. All variables in the analysis are still significant at the 5% level.

The standardized ML solution R^2 indicates several changes in variance accounted for by the variables. 21.9% of the variance in INTERPER is accounted for by F1 (47.6%) and VIAHOST (V7) (1.1%); 23.6% of the variance in ETHIDSEA (V8) is accounted for by VIAHOST (V7) (41.5%), INTERPERS (V1) (24.4%), and VIAHER (V6) (4.7%); and 16.5% of the variance in AFFBEL is accounted for by INTERPER (V1) (24.4%), VIAHOST (V7) (30.6%), and VIAHER (V6) (9.9%). The LaGrange multiplier test recommended improved path model performance by adding a parameter from VIAHER (V6) to INTERPERS (V1), with a chi square change of 32.86; while the Wald test recommended removing the parameter from VIAHOST (V7) to INTERPERS (V1).

Additional parameter changes were also made based on theoretical relevance for the final path model and can be found in Figure 80 below.

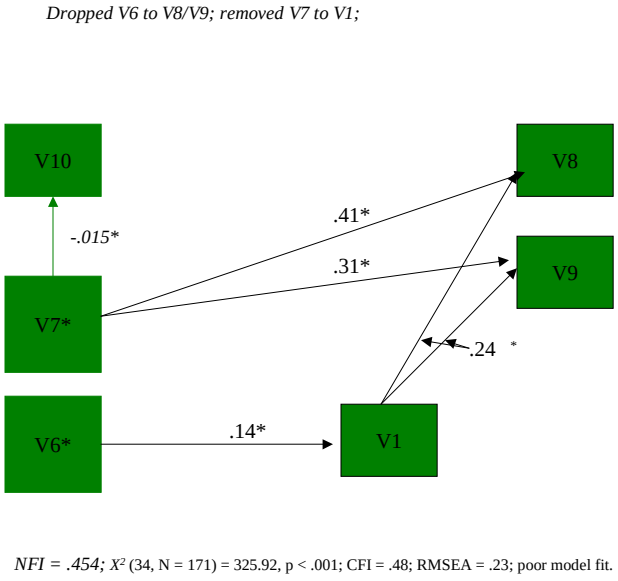


Figure 80. Final pathway modification model.

Pathways from VIAHOST (V7) to ETHNIDSEAR (V8) and AFFBEL (V9) remained; the paths from VIAHER (V6) to ETHNIDSEAR (V8) and AFFBEL (V9) were removed; the path from INTERPERS (V1) to VIAHOST (V7) was dropped; the path from VIAHER (V6) to INTERPERS (V1) was added back; the pathways from INTERPERS (V1) to AFFBEL (V9) and ETHNIDSEAR (V8) were retained; and the path from VIAHOST (V7) to ORIENT (V10) was retained.

The Bentler-Bonett fit index of the estimated model to the independence model indicate a normed fit index of .45 which is a slight improvement, but still a poor fit, X^2 (34, N = 171) = 325.92, p < .001, as is the comparative fit index (CFI) of .48 and the root

mean square error of approximation (RMSEA) = .23. Parameter estimates were then examined in the measurement and equations with standard errors and test statistics section, as well as the standardized solution. Variables significant to the model at 5% are INTERPERS (V1) (2.091); DIF (V2) (5.570); FOR (V3) (5.255); MOR (V4) (5.065); ETHIDSEA (V8) (3.526); AFFBEL (V9) (3.102); ORIENT (V10) (-1.975); VIAHOST (V7) (9.192); and VIAHER (V6) (9.192).

The standardized ML solution R^2 indicates 23.9% of the variance in INTERPER (V1) is accounted for by F1 (46.6%) and VIAHER (V6) (14.0%); 22.7% of the variance in ETHIDSEA (V8) is accounted for by VIAHOST (V7) (41.2%) and INTERPERS (V1) (23.8%); 5.4% of the variance in AFFBEL is accounted for by INTERPERS (V1) (23.2%); and 2.3% of the variance in ORIENT (V10) is accounted for by VIAHOST (V7) (-15.0%). The final path analysis indicates that VIAHOST acculturation effects are not mediating the relationship between ethnic identity search and affirmation and belonging; rather, the effects of VIAHOST acculturation are direct.

Direct Effects

The determinant with the largest total causal effect on ethnic identity indicators was VIAHOST (V7) acculturation on ETHIDSEA (V8) (.41); the determinant with the second largest effect was VIAHOST (V7) acculturation on AFFBEL (V9) (.31); and the determinant with the third largest effect was VIAHOST (V7) on ORIENT (-.15). The first two path parameters are positive, but direct, confirming that VIAHOST acculturation is not mediating an effect on ethnic identity; rather, it has a direct effect on ethnic identity. Thus, mediation by acculturation on ethnic identity is not supported. The third

path parameter confirms a relationship exists between VIAHOST (V7) and ORIENT (V10), but the effects of acculturation are direct and inverse from what was expected. In short, as acculturation increases, out-group orientation decreases.

The determinant with the largest total causal effect with the Interpersonal indicator was INTERPER (V1) on ETHIDSEA (V8) (.24) and AFFBEL (V9) (.24). The determinant with second largest effect was VIAHER (V6) on INTERPER (V1) (.14). The path parameters from VIAHER (V6) to INTERPER (V1) and INTERPER (V1) to ETHIDSEA (V8) and AFFBEL (V9) are an *indirect* path, suggesting INTERPER is an intervening variable, possibly providing a partial mediation effect.

Summary

Structural equation models did not demonstrate the full model prediction of self- and ethnic identity through mediation by VIA heritage and host acculturation. Path analysis did, however, provide partial support for the hypotheses by demonstrating specific path parameters in which VIA host acculturation predicts ethnic identity search and affirmation and belongingness directly (no mediation), and that an inverse association exists between VIA host acculturation and out-group orientation. The results suggest that host culture acculturation has an effect on the degree to which an individual will explore one's ethnic identity, and that, as host acculturation increases, exploration of one's ethnic identity will also increase.

As indicated by the results of Whitehead et al. (2009) [assessing the association between identity achievement and affirmation in an inter-group context where Euro American, Asian American and Latino adolescents reported on their feelings toward their

own ethnic group as well as those toward other ethnic groups], the impact of host acculturation on affirmation and belongingness can serve as a basis for establishing a secure attachment to one's ethnic group, which in turn has implications for feelings toward one's own and other groups. This position is supported by Ghavami et al. (2011), who proposed a model in which exploration of what it means to be a member of an ethnic group provides an important foundation for developing one's sense of belongingness to an ethnic group. The importance of these understandings conveys how psychological and social phenomena relate to ethnic identity perceptions; and this may confer specific benefits on emerging-adult ethnic minority immigrants under going the acculturation process and in the simultaneous process of identity formation. Furthermore, the association found between VIA host acculturation and out-group orientation was the inverse. That is, as host culture acculturation increases, feelings about the differences between one's own ethnic group and other ethnic groups diminish.

Interestingly, a lack of significance was found for VIA heritage and host acculturation in the first latent variable model, whereby, both appeared to be unrelated to each other and measuring different aspects of acculturation. This is consistent with the theoretical views of Ryder et al. (2000), in that VIA Heritage and Host culture domains are independent and distinctive measurements of two cultural identity constructs, which reside within the same person. Once the perceived level of acculturation factor (F2) was removed from the overall model and replaced by VIA heritage and host acculturation as two independent indicators, the path and effects of these indicators are more clearly seen. The results of this study support the independent and distinctive dimensions of VIA heritage and host acculturation as two separate cultural identity constructs.

Path analysis also provided partial support for the hypotheses by demonstrating specific path parameters in which VIA heritage acculturation predicts ethnic identity search and affirmation and belongingness indirectly through the interpersonal variable. The size and direction of the predictions suggest that the interpersonal variable serves as an intervening variable between VIA heritage acculturation and ethnic identity search and affirmation and belongingness. Therefore, it was proposed that increased heritage acculturation would predict an increase in the interpersonal variable, which would predict increased ethnic identity search and an increase in affirmation and belongingness to one's own ethnic group.

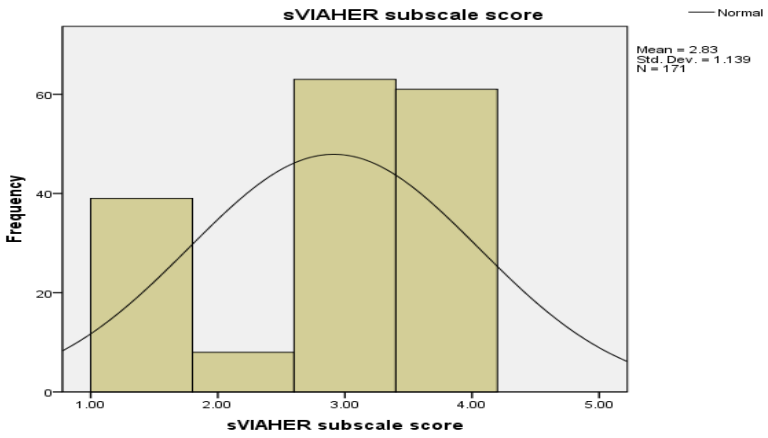
Mediation Model

The outcome of primary interest for the mediation model was originally hypothesized to determine if acculturation has a mediating effect on self and ethnic identity. Pathway analyses have shown that INTERPERS is the intervening variable between VIA Heritage acculturation and ethnic identity variables: ethnic identity search and affirmation and belongingness. Thus, it can be stated that the independent variable VIA heritage acculturation predicts the mediator INTERPERS and the dependent variable AFFBEL, that the mediator INTERPERS predicts the dependent variables AFFBEL and ETHIDSEAR, and that the link between the independent variable VIAHER and the dependent variables decreases when the mediator INTERPERS is controlled. The significance of the intervening variable was evaluated using EQS 6.1 and by using the mediating variable approach (Baron & Kenney, 1986).

Overview

Each of the variables in the mediation analysis was assessed for violations of normality, linearity, and homoscedasticity through descriptive statistics. All of the variables met these assumptions, except for some positive skew and kurtosis on VIAHER. Square root transformation of VIAHER was successfully applied and can be found in Figure 81(a) and (b) below.

Before transformation (a)



After transformation (b)

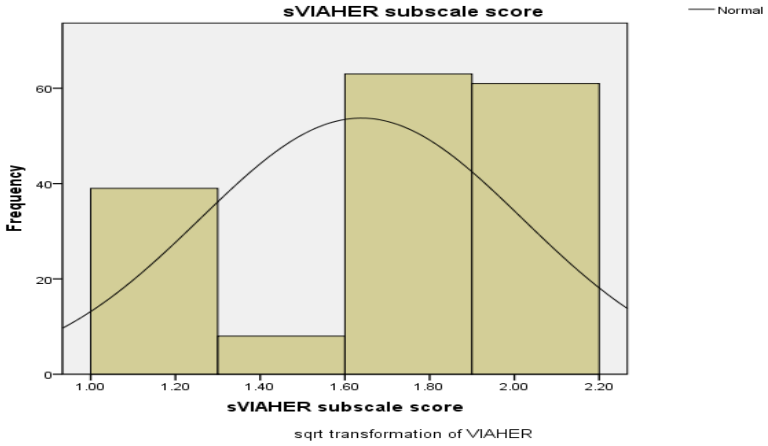


Figure 81. VIAHER distribution before and after square root transformation.

Inter-correlations among the independent variables were evaluated and can be found in Table 9 (a) below.

Table 9 (a)

Descriptive Statistics and *Intercorrelations Among Interpersonal Variables, Affirmation and Belonging, and VIA Heritage Acculturation in Model 1 Mediation Analysis*

Mean	Std	Intercorrelations	Interpers	VIA Heritage	Affbel
3.923	.683	Interpers	1	.143	.233**
1.639	.381	VIA Heritage	.143	1	-.040
2.690	.596	Affbel	.233**	-.040	1

**Correlation is significant at .01.

VIAHER is correlated with INTERPERS and both are correlated with AFFBEL, but VIAHER is not strongly correlated with AFFBEL.

Indirect Effects

To test for mediation, it was established that the independent variable VIAHER is associated with the mediator INTERPERS by evaluating zero-order correlations, r = .143, p= .05; and then a standard multiple regression was conducted with the independent variable VIAHER in Block 1, and the mediator INTERPERS as the dependent variable. A graphic display of the first mediation model can be found in Figure 82 below.

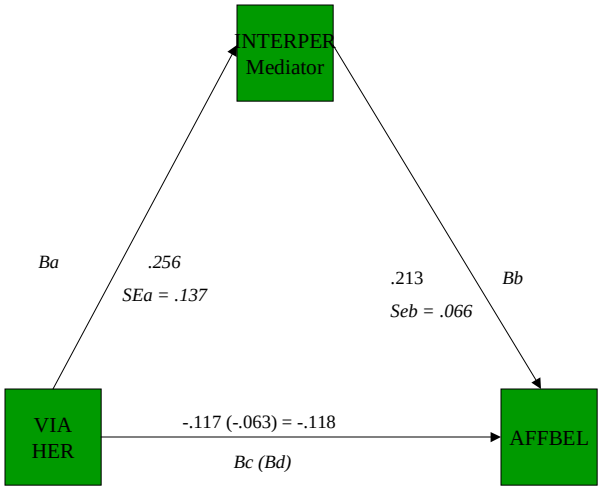


Figure 82. Mediation Model With Affirmation and Belongingness.

The independent variable VIAHER did not account for significant variance in the mediator INTERPERS, $R^2 = .020$, F = 3.527, p = .062. The coefficient for the independent variable VIAHER was not significant, beta = .143, p = .062.

Hierarchical regression was then conducted with the independent variable VIAHER in Block 1 and the mediator INTERPERS in Block 2 with the dependent variable AFFBEL and can be found in Table 10 (a) below.

Table 10 (a)

Coefficients for Hierarchical Multiple Regression for Mediation Model 1

Block	B	ℬ	*T*	Sig	R^2_{chg}
1.					
VIAHER	-.063	-.040	-.523	.602	.002
2.					
VIAHER	-.117	-.075	-.993	.322	.002
INTERPER	.213	.244	3.225	.002	.058

The independent variable VIAHER did not account for significant variance in the dependent variable AFFBEL, R^2 = .002, F = .273; and the coefficient for the independent variable VIAHER was not significant, beta = -.040, p = .602. In Block 2, the mediator INTERPERS did add significance to the variance accounted for in the dependent variable AFFBEL, R^2_{chg} = .058, F = 5.345. The coefficient for the mediator INTERPERS was significant, beta= .244, p= .002. When the mediator was entered in Block 2, the coefficient for the independent variable VIAHER decreased to beta = -.075, p = .322. A Sobel test (Sobel, 1982) was then calculated on whether this decrease is significant/reliable at www.danielsoper.com (Soper, 2011) as a test of INTERPERS as a mediator of the relationship between VIAHER acculturation and affirmation and belongingness. In this analysis mediation is significant if the test statistic reaches 1.96 or over. The test of significance was = 1.61710519 (one-tailed significance level = 0.05292779) and (two-tailed significance level = 0.10585558) indicating the amount of change when the mediator is in the model is not statistically significant. Although the decrease in the standardized beta coefficient for VIAHER from Block 1 to Block 2 (when

the mediator was in the model) does drop, it is not significantly different. The results can be found in Table 11 (a) below.

Table 11 (a)

Regression Coefficients, Standard Errors, and Sobel Z Statistics for the Association Between VIA Heritage Acculturation and Affirmation and Belongingness After Controlling For INTERPERS In A Mediation Model

Study	*B*	SE	Sobel Z
1. College students			
VIAHER	-.075	.118	
INTERPERS	.244	.066	1.617

The total effect of VIA heritage acculturation on affirmation and belongingness was not statistically significant (TE= -.063, SE= .120, $p < .602$), nor was the direct effect (DE= -.117, SE = .118, $p < .322$).

However, it is possible (since c' path is now the opposite in sign to *ab*) that *inconsistent mediation* has occurred (MacKinnon et al., 2007). In this case, the mediator acts like a suppressor variable. When the direct effect of VIAHER on AFFBEL is negative (DE= -.117) the total effect is likely to be very small (TE= -.062472) because the direct and indirect effects (IE= .054528) will cancel each other out. The diminished total effect could lead to interpreting a lack of significance when mediation has actually occurred.

A second mediation analysis was then conducted with VIAHER as the independent variable, INTERPER as the mediator variable, and ETHIDSEAR as the dependent variable. Assumptions for the violations of normality, linearity, and

homoscedasticity were met. Descriptive statistics and inter-correlations were examined in SPSS and are found in Table 9 (b) below.

Table 9 (b)

Descriptive Statistics and Intercorrelations Among Interpersonal Variables, Ethnic Identity Search, and VIA Heritage Acculturation in Model 2 Mediation Analysis

Mean	Std			Inter-	Correlations
			Interpers	VIA heritage	Ethidsear
3.923	.683	Interpers	1	.143	.239**
1.639	.381	VIA heritage	.143	1	.016
5.906	.535	Ethidsearch	.239**	.016	1

**Correlation is significant at .01.Table 9 (b)

VIAHER is correlated with INTERPERS (.143), ETHIDSEAR and INTERPER are significantly associated (.239**) at a .01 significance level. ETHIDSEAR and VIAHER are not significantly associated (.016).

To test for mediation, it was established that the independent variable VIAHER is associated with the mediator INTERPERS by evaluating zero-order correlations, r = .143, p= .05. Then standard multiple regressions were conducted with the independent variable VIAHER in Block 1, and the mediator INTERPERS as the dependent variable. A graphic display of the second mediation model can be found in Figure 83 below.

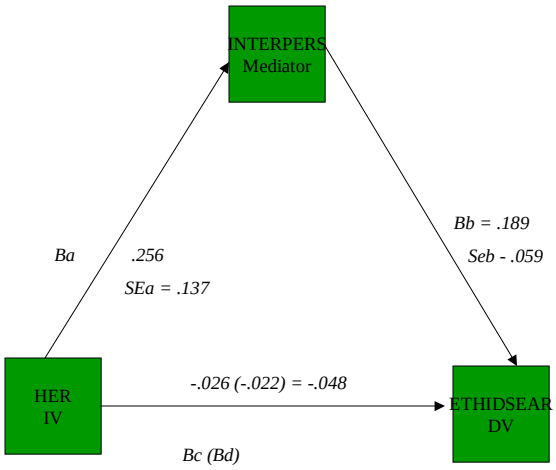


Figure 83. Mediation Model With Ethnic Identity Search

The independent variable VIAHER did not account for significant variance in the mediator INTERPERS, $R^2 = .020$, F = 3.527, p = .062. The coefficient for the independent variable VIAHER was not significant, beta = .143, p = .062.

A hierarchical regression was then conducted with the independent variable VIAHER in Block 1 and the mediator INTERPERS in Block 2 with ETHIDSEAR as the dependent variable (see Table 10 (b) below).

Table 10 (b)

Coefficients for Hierarchical Multiple Regression for Mediation Model 2

Block	B	Β	*t*	Sig	R^2_{chg}
1.					
VIAHER	.022	.016	.206	.837	.000
2.					
VIAHER	-.026	-.019	-.247	.805	.000
INTERPERS	.189	.242	3.193	.002	.057

The independent variable VIAHER did not account for significant variance in the dependent variable ETHIDSEAR, R^2 = .000, F = .042, and the coefficient for the independent variable VIAHER was not significant, beta = .022, p = .837. In Block 2, the mediator INTERPERS did add significance to the variance accounted for in the dependent variable ETHIDSEAR, R^2_{chg} = .057, F = 5.119. The coefficient for the mediator INTERPERS was significant, beta= .189, p= .002. When the mediator was entered in Block 2, the coefficient for the independent variable VIAHER decreased to beta = -.019, p = .805. A Sobel test (Sobel, 1982) was then calculated on whether this decrease is significant/reliable at www.danielsoper.com (Soper, 2011) as a test of the mediational model of INTERPERS as a mediator of the relationship between VIAHER acculturation and ethnic identity search. In this analysis mediation is significant if the test statistics reach 1.96. The test of significance was = 1.61407539 (one-tailed significance level = 0.05325554) and (two-tailed significance level = 0.10651108) indicating the amount of change when the mediator is included in the model is not statistically significant. The standardized beta coefficient for VIAHER from Block 1 to Block 2

(when the mediator was in the model) does decrease and can be found in Table 11 below, but is not significantly different.

Table 11 (b)

Regression Coefficients, Standard Errors, and Sobel Z Statistics for the Association Between VIA Heritage Acculturation and Ethnic Identity Search After Controlling for INTERPERS In A Mediation Model

Study	***b***	***SE***	***Sobel Z***
1. College students			
VIA HER	-.019	.106	
INTERPERS	.016	.059	1.614

The total effect of VIA heritage acculturation on ETHIDSEAR was not significant (TE= .022, SE= .108, $p < .837$), nor was the direct effect (DE= -.026, SE = .106, $p < .805$).

Summary

The present research did not provide consistent support for a mediation model of the construct 'interpersonal variable' as a mediating variable between heritage acculturation and ethnic identity search and affirmation and belongingness. It was initially proposed that heritage and host acculturation effects would mediate the association between increased social supports and affirmation and belonging, and self-identity. It was also hypothesized that heritage and host acculturation would mediate the association between increased out-group orientation and interpersonal variables, and ethnic identity.

Although hierarchical multiple regressions confirmed the expected prediction of, and strength and direction for the associations between the variables, the full model prediction of mediation effects on identities was not fully supported. Path predictions did confirm that host (mainstream) acculturation has a direct effect on ethnic identity search and affirmation and belongingness, to the extent that as host culture acculturation increases, ethnic identity search and affirmation and belongingness to one's own ethnic group also increase. The parameter from host acculturation to out-group orientation was consistent with theoretical expectations. The final results confirm that VIA host acculturation does not produce a mediating an effect on ethnic identity; rather, it has a *direct* effect.

It was also proposed that increased heritage acculturation would predict an increase in the interpersonal variable, which would predict increased ethnic identity search and an increase in affirmation and belongingness to one's own ethnic group.

The first mediation model for the prediction of interpersonal variables on the association between heritage acculturation and affirmation and belongingness did not account for statistically significant variance. The second mediation model for the prediction of interpersonal variables on the association between heritage acculturation and ethnic identity search did not account for statistically significant variance. Possible reasons for the lack of statistically significant results will be discussed in the following chapter.

Discussion

This study began with the proposition that acculturation involves changes in self-

and ethnic identity resulting from relationships that exist between social supports, affirmation and belongingness, ethnic identity search, and interpersonal variables. These changes were expected to reveal shifts in the degree of commitment and exploration exhibited by individuals in various stages of identity formation. These changes were also expected to reveal factors, which may serve to promote increased ethnic identity search and a sense of affirmation and belongingness to one's ethnic group. Although these findings do not provide full support for the hypothesized mediation model, path parameters have been confirmed that do provide information regarding self- and ethnic identity perceptions and acculturation that contribute to the body of knowledge on minority identity and well-being.

Standard and hierarchical regressions for hypothesis one predicted significant relationships for those low in exploration and high in commitment (foreclosure status). When social supports are present (language, important persons to you back home, and having an American identity that is different from your ethnic identity), and when affirmation and belonging and VIA heritage increase, 15.4% of the variance in EOM foreclosure status can be explained by these variables. For hypothesis two, regression equations were significant in explaining approximately 22% of the variance in ethnic identity, in relation to out-group orientation, and interpersonal variables. Ethnic identity appears to be predicted best by interpersonal variables (roles, values, friendship) as VIA heritage and host acculturation increase. It is important, however, to recognize that VIA heritage and host acculturation were entered into the same block for each regression equation. Thus, the unique contribution of heritage and host acculturation cannot be independently determined. In retrospect, entering VIA heritage and VIA host into two

separate blocks may have provided more information about different aspects of the acculturation process.

Regressions also provided sufficient support for the social supports construct. However, two design flaws prevented the use of this latent factor in the model process. First, demographic variables with significant associations used to define the construct were all categorical variables. Despite *a priori* power analysis for adequate *N* size, the loss of a significant amount of data during data collection contributed to the decision to omit the social supports factor from the analysis. Second, SEM has a limited ability to protect against Type I error levels when making pair-wise comparisons of the categorical variables, resulting in a high probability of producing empty cells in parameter estimation. The loss of a factor which provided information about language competence, having important person's to you back home, and having an 'American' identity that is different from your ethnic identity was a necessary component for defining aspects of healthy acculturative transition.

Next, although structural equation model estimation in EQS indicated a marginal to poor fit for each model, the lack of significance of VIA heritage and host acculturation to each other (as Factor 2) supported the research of Ryder et al. (2000), suggesting VIA heritage and host acculturation are two independent aspects of acculturation. Additionally, parameter estimates also supported Phinneys' (1997) research regarding out-group orientation as an independent measured variable from the ethnic identity (F3) construct. Separating VIA heritage and host acculturation from a latent factor (F2) to independent measured variables (V6 & V7) in the model, as well as, out-group

orientation from the ethnic identity factor to an independent measured variable (V10), clarified the strength and direction of path parameters.

The eventual move toward path analysis allowed for an examination of path coefficients for each measured variable. It was made clear that paths from V7 to V8, V9, and V10 were directly related (no mediation). Acknowledging that an increase in host acculturation results in an increase in ethnic identity search, and the sense of affirmation and belonging to one's own ethnic group, tells us that acculturation does have an effect on ethnic identity.

Further, path parameters from V6 to V1 and V1 to V8 and V9 were related, allowing for an examination of V1 as a mediator in the mediation model. The strength of the relationship between interpersonal variables (friends, dating, values) and ethnic identity search and affirmation and belonging to one's own ethnic group is undeniably significant. We have observed an intervening variable, which represents aspects of self-identity, involved in mediating the relationship between heritage acculturation and ethnic identity search and affirmation and belonging. These observations are important because they suggest that heritage acculturation has some effect on self-identity, which in turn, mediates the response toward the degree of involvement in searching for one's ethnic identity and sense of belongingness towards one's own ethnic group.

Although the decrease in coefficients for the independent variable (V1) from block one to block two in each mediation model was calculated using the Sobel test to determine if the decrease in beta is significantly reliable, the amount of change when the mediator was in the model was not statistically significant. Yet, the difference between

the Sobel statistic cutoff for significance and the observed value was .31 and .34, respectfully. So, one has to question what the difference is between .05 and .06.

The power of a test statistic resides in adequate power derived from sample size. Nearly 40 participants were lost in the analysis due to lack of responses, variable distribution problems, and procedural stringency levels, resulting in lower *N* size and loss of power. Thus, would the result have been different with responses from 40 more participants? Pathway and mediation models both suggest that V1 is in some way involved in the relationships between VIA heritage acculturation and ethnic identity search, and affirmation and belonging. Is it possible that suppression has occurred between V1 and V6, which minimizes the overall effect? If V1 has a mediating effect, does suppression cause inconsistent mediation?

Contributions

Research Contributions

The greatest importance of this study is derived from its contribution to a general body of knowledge in the field of psychology by observing the proposed relationships and changes that occur with the specific variables under study. The nature and direction of the proposed variables has been observed to be consistent with previous research. Path parameter estimations for the final mediation analysis support these relationships and path parameter changes have been observed.

However, acculturation did not prove to be the mediating factor in the analysis. In fact, the contribution of VIA host acculturation was direct (in relation to ethnic identity), while VIA heritage acculturation contributed indirectly (in relation to ethnic identity)

through aspects of self-identity (interpersonal variable). Because VIA host and heritage subscales appear to be measuring different aspects of acculturation as Ryder et al (2000) describe, how can we know for certain that these two subscales are measuring different aspects of the same thing (acculturation), to the same degree? Finally, Phinney (1997) describes the out-group orientation variable as a separate construct from components of the MEIM. Model and path analysis does support this finding, but we only observe orientation to the out-group in the context of increased host acculturation exhibiting decreased levels of out-group orientation.

Regression analyses also indicate that social supports are most important in explaining the variance in EOM foreclosure status individuals in the process of acculturation. For those low in exploration (accepting parental values/beliefs) and high in commitment to their own ethnic group, language preference, having friends, mentors, family back home, and having an 'American' identity that is different from your ethnic identity, emerge as important factors. Thus, ethnic identity was best predicted by those with more heritage acculturation and consolidated ideas about their roles, values, and friendships.

Finally, the direct and indirect relationships between VIA heritage acculturation and ethnic identity search and affirmation and belonging with the 'interpersonal' variable as a possible partial mediator, suggest the following: 1) as an individual becomes more highly acculturated to the host culture, the search for one's own ethnic identity and sense of affirmation and belonging to one's own ethnic group increases; 2) increased heritage acculturation produces an increase in the effect on interpersonal variables (roles, dating, friends) which, in turn, mediates the increase in the search for one's own ethnic identity

and sense of affirmation and belonging. In conclusion, if you are highly acculturated to the host culture, you will search and explore your ethnic identity and sense of affirmation and belonging to your own ethnic group. However, if you are highly acculturated to the heritage culture, roles, dating relationships, and friends become more important in determining an increase in the search for one's ethnic identity and sense of affirmation and belonging. Thus, the role of self-identity becomes a crucial variable for those high in heritage acculturation. Ultimately, understanding these relationships allow researchers to further explore how culture is manifested and how developmental practices influence our definitions of culture, as suggested by many researchers.

Clinical Contributions

Culture

Our self-concept is influenced by a repertoire of information derived from the cultural context in which we live. Our cultural experience shapes our actions, feelings, and behaviors, which define our subjective experience of the world. The present study looked at the individual's psychological membership in a distinct culture at the level of understanding of one's cultural experience and outside cultural influences, and as one's understanding of the world is changing in response to conflicting ideas and concepts.

A crucial indicator of attitudes and beliefs a person has about *themselves* (self-concept) are interpersonal variables (roles, values, friends). The resulting change in attitudes and beliefs (as acculturation is applied) can be found in the development of social networks and supports, which illustrate important adaptive strategies, as mechanisms for coping. When social supports (language, important persons to you back

home, and having an 'American' identity that is different from your ethnic identity) are present, an increase is found in affirmation and belonging if a person has high heritage acculturation.

As roles, values, and friendships change, an increase is found in the search for one's ethnic identity and sense of affirmation and belonging to one's own ethnic group. Ultimately, this has important implications when evaluating the *discrepancy* between one's personal cultural values and societal cultural values because greater discrepancy between the two may lead to greater psychological, emotional, and physical distress (Matsumoto et al., 1997).

Finally, family support, community relationships, cultural beliefs, roles, language competency, and degree of acculturation are central to the success of health-related services. Specifically, understanding the cultural context in which environmental and developmental changes occur leads to more culturally sensitive treatment approaches for people from diverse backgrounds.

Human Diversity

Cultures differ in their systems of rules for living, and their social and economic environments (Matsumoto, 2000). Because culture shapes our sense of self, it follows that different cultures produce different self-concepts. Thus, individuals from different cultures differ in their self-understandings, understanding of others, and interpretation of meanings. The specific contribution of this study to the area of human diversity has been observance of these understandings and interpretations by participants.

For example, in American society we have been socialized to be unique and independent to promote our personal goals; whereby, self is clearly separated from others (Matsumoto, 2000). In either non-Western or collectivist cultures, separateness is not highly valued. In fact, the norm in these cultures (e.g., Asian, Native American) is to fit in and to encourage interdependence, and promote harmony and balance (Matsuomoto, 1997). Therefore, those with interdependent selves are more likely to think about the self in particular social relationships and less likely to construe the self in terms of one's internal attributes (Bond & Tak-Sing, 1983).

This is important because individuals from interdependent cultures generate more relationships and groups to which they belong and these relationships are important for self-definition and self-referencing (Bochner, 1994). The salience of these self-definitions is evidenced by an increase in communication and interaction among people of different cultural groups and the increase in ethnic identity search as the individual becomes more acculturated to the host culture.

New Directions in Research

The study of minority identity can benefit greatly from approaches that focus on understanding the meaning of one's identity in the process of acculturation (host and heritage culture effects). Specifically, the ways in which acculturation imposes change on the perception of dual (ethnic and self-) identities. Further, increasing our understanding of the degree to which a person will explore what their ethnicity means to them; how the sense of affirmation and belongingness to one's own ethnic group develops; the need for exploring how culture is manifested in developmental and socialization processes; and

how these processes influence our definitions of culture are important factors in determining how all of this translates into healthy adjustment and a sense of well-being.

Ancillary Analyses

A primary issue with the full model prediction of ethnic and self-identity is the use of categorical variables as indicators of social supports, a lack of specificity of the full model prediction, and low sample size. First, the social support indicator was composed of either dichotomous or categorical responses and this is a problem with structural equation modeling within EQS. When the social supports variable was first proposed, it was based on a projected (theoretical) minimum sample size of 200 participants. It was believed the sample size would be sufficient for structuring paired-response sets for the social support items, from the covariance tables.

A priori power analysis based on Cohen's (1995) table for determination of sample size suggested a minimum participant pool of N=107; and this is the number of participants that was proposed. However, it was speculated, based on Tabachnick & Fidell (2007) and Mac Callum et al (1996) power analyses, that a good rule of thumb is a **minimum** of 200 participants. Yet, the data collection process only garnered 211 total participants (cleaning and screening resulted in N=174); and it was not possible to increase the participant pool. Thus, in the full model prediction the social supports variable and proposed associated pathways were dropped from the full model analysis.

Second, numerous model changes were required to specify the full model prediction. However, these changes were unsuccessful, because some of the full model parameter estimate variances and co-variances were unstable. Thus, the model was

moved to path analysis. Path analysis did provide specific pathways for the variables under study; however, numerous path changes resulted in paring the model down to the intervening variable and associated links to ethnic identity to support a mediation model of acculturation.

The self-identity factor was dropped from the analysis once the intervening variable was identified, because retaining the factor would have required adding additional path parameters to the ethnic identity construct and the current sample size would not have provided sufficient support for this. Thus, self-identity was represented in the path regression equations as the mediating variable (INTERPERS) between acculturation and ethnic identity indicators. In this way, it was possible to find partial support for the hypothesized relationships and direction of effect.

Limitations of the Present Study

Several limitations became evident in the course of conducting this research study. In any empirical study, the ability to generalize from the results is limited by the characteristics of the sample and characteristics of the researchers; and procedural controls which have an impact on data collection. In the present study, more than 60% of the participants from the University of Alaska are indigenous people. In terms of mode of acculturation, differences may exist between indigenous Alaska natives and other ethnic minorities living in Alaska, in comparison to other ethnic minorities residing in Southern California.

These differences could result in different perceptions or meanings attributed to ethnic identity, based on degree of exposure to heritage culture and level of ethnic

participation. Yet, both populations are reasonably similar in that, every participant does come from a similar student population, has a similar age distribution, and comparable range of ethnic experiences; therefore, heterogeneity does exist across the entire sample.

This does, however, raise the issue of the restricted range of the sample population. Any researcher wants a sample population to be representative of the population to which findings will be applied. However, when the range is restricted, for example, by use of a college population such factors as language competency, higher educational level, and motivation are factors that could influence the ability to generalize the results to the larger population. Yet, it is important to note that maximum likelihood estimations of the correlations during data analysis indicated an underestimation of r =, understating the effect, not overstating.

A second issue regarding generalizability is the geographic difference between the two sample populations. Motivation to participate and perception of identity may differ between groups, based on urban versus frontier lifestyle. Many Alaska participants live in remote, inaccessible areas with harsh winter climates. Their culture is defined by geographic boundaries and communities are closed to outsiders. In comparison, California participants do not have the same travel impediments or weather conditions as Alaskan residents. Life style and population size could result in perceptual differences, such as, interpreting different meanings from the same thing. In future research, this would be one area to consider in terms of evaluating differences and similarities within and between the groups.

Further consideration regarding generalizability relates specifically to cross-validation of the sample population. Stevens (1992); Tabachnick & Fidell (1996); and

MacCallum et al. (1996) recommend that an adequate ratio and number of indicators based on sample size and number of predictors in the model is about fifteen subjects for every predictor parameter. Cross-validation would require dividing the original sample into two 'sub-samples', so that one sub-sample could be used to develop the equation while the other would be used to cross-validate it. However, this would only be feasible if twice the sample size in this study were used. Since it was highly unlikely that another sample could be drawn from the same populations as before (Tatsuoka, 1988), the previously obtained regression equations could not be tested as to their predictive power, raising some question as to generalizability of the results. Despite this, it is clear from the results of this study that certain relationships (as evidenced by regression equations and parameter estimates) do exist and have some support in the empirical literature.

Several other considerations need to be addressed regarding procedural issues in the data collection process and the impact on statistical results. First, to obtain adequate sample size, several modifications had to be made to the original proposal by adding the University from the North Pacific. This resulted in a lengthened time frame for data collection and the necessity for hiring a student assistant to collect data at one site, while the SI collected data at the other site. While the overall process remained the same, protocol changes resulted in different technical approaches to data collection.

The primary approach with La Sierra students was in vivo consenting and presentation of materials by the SA. Safeguards were enacted for LSU to ensure the process remained the same as the prior quarter, but differences in researcher characteristics in handling procedural problems may have led to a negligible loss of complete responses on the measures. This may or may not have resulted in a net effect on

the statistical results; but if replicated the researcher should establish more stringent safeguards.

Secondary to this, the SI used a computer based on-line program to obtain participant responses in the data collection process through UAA. One of the primary issues in construction of the site web page was whether students should be allowed to page down through the questionnaires without restriction or be forced to respond to every question in order to get to the final page to obtain extra course credit. On one hand, the forced choice option elevates the importance of extra credit as a motivating factor and forces them to finish. Yet, if a participant chooses to leave the study at any time, they do not get extra credit, which contradicts consent procedures (stating participants can leave the study at any time without negative effects). On the other hand, the open page option allows participants to page through the study without responding and still get the extra credit.

The researcher's decision was to support the open page option; and this decision resulted in a loss of data from eleven respondents. In the final analysis, the loss of data from participants in both data collection processes may have resulted in the loss of potential significant statistical results for the mediation model. Approximately .04% of the participants navigated through the portal system without responding to any of the survey questions, while .002% of the participants answered only the demographic questionnaire. With an obtained value of 1.64 for the mediation model and a benchmark of 1.96 for significance, the loss of even 20 participants in the analysis may have had a net effect on the statistical significance of the results.

A second concern with this option is the difference between the LSU ‘in vivo’ format and UAA Internet format used in data collection. Specifically, since we cannot know for certain who filled out the internet questionnaires, is there a difference between the two group samples that has in some way altered the results of this experiment? As a final comment, it is not unusual for institutions to offer extra credit to students as an incentive for research participation. Thus, this is not an unusual source of bias in research. While incentives provide a basis for motivation, it is to some degree the same for all participants in this study.

Interestingly, it is hypothesized that for those motivated to complete the survey online, it was personally important for them to participate because they perceived this as contributing to a general body of knowledge regarding cultural heritage. The common thread for each of these participants was that they all were single, they had immigrated more than two generations ago, they speak, read, and write in the English language, and their education level was an average of two years of college.

While student populations are often used for research opportunities, it is still important to acknowledge other ways in which a student population may differ from the general population. One of the more common range restrictions in convenience samples is age, which may skew those at the extreme ends of the distribution. Furthermore, all of the participants are college students, so their higher educational level and fluency in the English language may confer some benefits on participants that are evident in their responses. In effect, these extremes may have different values for which the overall results do not fully represent the characteristics that make them different from or similar to others.

Importance of the Findings

One of the primary issues in this study has been whether or not differences exist between the two data collection methods. The potential for bias from differences in understandings and interpreting meanings for participants in the 'in vivo' process versus the 'on-line' process could be confounding the results. It is possible that the measures designed to assess the constructs in the study inadvertently measured something else as well. The relationship between the environmental variables that possibly confounded the analysis and the measured parameters can be studied in future research endeavors.

The second issue has been whether or not the results of this study would have been different with a larger sample size (e.g., greater power). Difficulties in obtaining adequate sample size, compounded with the loss of participants over the course of this study, contributed to the inability to reasonably detect an effect of statistically significant size. It would be advantageous to re-evaluate these predictions in future research.

The study of identity/formation processes poses several implications for research on emerging adult ethnic minority development. These implications are intended to generate ideas that focus on understanding healthy and adaptive responses to acculturation stress and to provide a basic understanding of the psychological, social, and cultural capacities of immigrating ethnic minority adolescents. Identity formation is a developmental construct that requires intervention programs and treatment planning for ethnic minority immigrant youth at risk designed to enhance factors found to be protective and to contribute to supportive adaptation strategies. Provisions should be made for cultural immersion programs in academic and community settings, which are tailored to ameliorate problem areas in the socio-cultural realm and assist the individual

in increasing their understanding and interpretation of meanings from a bicultural perspective.

This research study has confirmed that increased exposure to the host culture depicts the degree to which an individual will explore their ethnic identity. It has also been confirmed that the impact of host acculturation on affirmation and belonging to one's own ethnic group can serve as the basis for establishing a secure attachment to one's ethnic group. Furthermore, increased social supports (language, important person's to you back home, and having an American identity that is different from your ethnic identity) and sense of affirmation and belonging to one's own ethnic group is important in the prediction of those individual's without strong self-definitions of their identity. Finally, it has been confirmed that ethnic identity is greater among those individual's who have ideas about their roles, values, and friendships when they have higher heritage acculturation and increased contact with those outside their ethnic group. In conclusion, knowledge of these factors provides future directions for research, information about variables, which act as protective supports for immigrant youth in transition, and informs academicians of current trends/areas in research.

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APPENDIX A

INFORMED CONSENT FORM

You are invited to participate in a research project being conducted by Loma Linda University Department of Psychology entitled "Acculturation As A Mediating Factor Between Ethnic and Self-Identities In Ethnic Minority College Students." This is a dissertation project being conducted by Judith A. Hotvedt, a doctoral candidate at Loma Linda University under the supervision of Dr. Louis Jenkins, Chair of Loma Linda University Psychology Department

The purpose of this study is to evaluate the process of acculturation among ethnic minority college students and the degree to which this has an effect on the individual perception of self and ethnic identity. The information you provide by your responses on a survey questionnaire will help researchers and health care professionals to better understand the needs of those in your community. The results of this study should be available by fall quarter 2009.

This project was reviewed by Loma Linda University Institutional Review Board, the La Sierra University Institutional Review Board, the Research Participant Pool Coordinator, and your department faculty. These reviewers have defined steps necessary to protect your right to privacy and confidentiality if you decide to participate. Anyone eligible can participate and those who are currently registered as a student at LSU, are between 18-55 years of age, are able to read and write in the English language, and who identify with a specific ethnic group and have had exposure to traditions of this group are eligible for study participation.

You will be exposed to minimal risk if you choose to participate in this study, no more than daily life. As such, some of the risks involved may include breach of confidentiality. It is important for each participant to know that the principal investigator, faculty sponsor, Research Participant Pool Coordinator (RPPC) and department faculty at LSU will take steps to protect your privacy and confidentiality by using your ID number rather than your name on the research participation sign up sheet. In addition, only the RPPC will have information regarding which study you participated in. Finally, your completed survey information will be devoid of any identifying information and will be directly handled by your faculty sponsor, prior to being given to the researchers for analyses. All surveys given to the researchers will be anonymous surveys.

However, it is also important for you to know that because everyone has different experiences, history, and beliefs, some of the survey questions might bring up feelings of discomfort or anxiety. Because your participation is completely voluntary, you may stop participation in this study at any time, and no negative consequences are associated with doing this. At the end of the survey session (whether you finish the study or not), you will be advised to take this informed consent form with you because it includes referral information with a Patient Representative at Loma Linda Medical Center Office of Patient Relations (909558-4647), so that you may talk to someone, if needed. This referral information will also be given to your department faculty, faculty sponsor, and RPPC. In addition, although there are no direct benefits to you (other than participation credit given to you by your university) or your community, an indirect benefit could be that the information you provide will add to the body of scientific knowledge researchers have about self and ethnic identity.

Once you have made an informed decision about whether you wish to participate, you will be given the opportunity to fill out the survey questions in the packet given to you by the principal investigator. By filling out the survey you agreeing of your own free will to participate and your participation provides your consent. You may stop participation at any time if you feel uncomfortable about what is being asked of you on the survey and no negative consequences are associated with doing this. At the bottom of this form, you will find names, addresses, and telephone numbers of the principal investigator, faculty sponsor at LSU, in addition to the third party contact at LLU Office of Patient Relations, if you have questions or concerns.

The results of this study will be available and can be reviewed with the La Sierra University faculty member sponsor, Leslie R. Martin, PhD, when the study is complete in the fall of 2009.

Judith A. Hotvedt, MA (909-558-8577)
Graduate Investigator
Department of Psychology
Loma Linda University
11130 Anderson Street
Loma Linda, CA 92350

Louis Jenkins, PhD. (909-558-8572)
Principal Investigator
Department of Psychology
Loma Linda University
11130 Anderson Street
Loma Linda, CA 92350

Leslie R. Martin, PhD. (951-785-2099)
LSU Faculty Sponsor
Department of Psychology
La Sierra University
4500 Riverwalk Parkway
Riverside CA 92515-8247

Office of Patient Relations (909-558-4647)
Patient Representative
Loma Linda University Medical Center
1135 Anderson Street
Loma Linda, CA 92350

APPENDIX B

DEMOGRAPHIC QUESTIONNAIRE[31]

1. What is your age?

2. What is your gender?

3. What is your ethnic affiliation (e.g., Hispanic, East Indian, Asian, Indigenous…)?

4. Is English your first language? If not, what language do you prefer?

5. Can you read, write, and speak in the English language?

6. What is your marital status (e.g., married, single, divorced, separated)?

7. Have you recently immigrated to the United States? If not, how many generations since immigration has you or your family lived in the US?

8. How does/did your mother identify her ethnicity?

9. How does/did your father identify his ethnicity?

10. If you have recently immigrated (1st generation), who were some of the most important people to you there (e. g., friends, family, and mentors)?

11. If you have not recently immigrated (2nd. 3rd, 4th … generation), who are some of the important people to you here, or at this point in your life (e.g., family, friends, mentors)?

12. Do you prefer music, foods, custom's of your ethnic group over those of the United States?

13. Are you currently active in your ethnic culture and heritage?

14. Do you have an American identity that is separate from your ethnic identity, and if so, which do you prefer?

15. Do you consider yourself as belonging to a specific ethnic minority group?

16. What is your highest level of education?

---

[1] Native American Acculturation Scale: Informal Assessment/Interview adopted from Michael Garrett (2000) and modified to be used as a demographic questionnaire in this study.

APPENDIX C

LETTER OF AGREEMENT

LA SIERRA
UNIVERSITY

13 February 2009

Jude Hotvedt
Department of Psychology
Loma Linda University
Loma Linda, CA

Dear Jude,

This letter of agreement is to confirm our discussions regarding your project (titled "Acculturation as a Mediating Factor Between Ethnic and Self-Identities in Ethnic Minority College Students") and my understanding that, pending approval by LLU's IRB you will use the Research Participant Pool (RPP) here in La Sierra University's Psychology Department to gather data for your study. In order to use the RPP you will need to follow these steps (see also the Researcher Guidelines I provided to you when we first began talking about your using the RPP):

1) Submit the application form for using the RPP (including providing a copy of your approval letter from LLU's IRB; or, including first gaining approval from LSU's IRB);
2) Upon approval of your RPP application form, coordinate with our department secretary (Andrea Poblete; apoblete@lasierra.edu, 951-785-2099) to reserve research space for the dates/times you wish to collect data;
3) Post sign-up sheets on the RPP bulletin board in the Psychology Department (a copy of the blank template for this has been provided to you);
4) Collect data on the designated dates/times and at the locations indicated on the sign-up sheets you have posted;
5) Provide students whose first study is yours with a RPP card, signed for your study; sign off for your study on RPP cards of students who have previously participated in other studies (who will therefore already have the RPP card);
6) Submit your sign-up sheets to the department secretary, with records indicating who participated in the study and who was a "no-show".

Please let me know if you have any questions or if anything is unclear to you. I look forward to working with you to complete your doctoral project.

Best wishes,

Leslie R. Martin, PhD
Professor of Psychology
Research Participation Pool Coordinator

College of Arts and Sciences ▲ Department of Psychology ▲ (951) 785-2099 ▲ Fax (951) 785-2918 ▲ psychology@lasierra.edu
4500 Riverwalk Parkway ▲ Riverside, California 92515-8247 ▲ (951) 785-2000 ▲ Fax (951) 785-2901

APPENDIX D

BRIEF DESCRIPTION AND PURPOSE OF THE STUDY

La Sierra University ▲ Department of Psychology
Research Participation Sign-up Sheet

Experiment Title: _____

Experiment Number: ____ - ____ Experimenter: _____

Faculty Supervisor: _____ Phone: _____ - _____ Credit Hours: _____

Day: _____ Date: _____ Location: _____

Brief Description of Experiment: The purpose of this study is to evaluate the process of acculturation among ethnic minority college students and the degree to which this has an effect on the individual perception of self and ethnic identity. The information you provide by your responses on a survey will help researchers and health care professionals to better understand the needs of those in your community. If you are 18-55 years of age, can read and write in the English language, are currently registered as a student at LSU, and identify with a specific ethnic group and have had exposure to traditions of this group, you are eligible to participate in this study. The survey should take no longer than 35 minutes of your time and the results of this study will be available for review by fall quarter 2009. If you are interested in participating, please use the sign up sheet below by indicating your preferred time to appear for the consent/survey process for the date posted on this flyer. Please use your LSU ID number only.

Time	Your LSU ID number (print clearly)	Your Phone Number (print clearly)	ATT	NS	CR
_____ to _____					
_____ to _____					
_____ to _____					

APPENDIX E

IRB CHANGE REQUEST

RECEIVED
OCT 15 2009
SPONSORED RESEARCH

October 15, 2009

To: IRB Committee
From: Louis E. Jenkins, Ph.D., ABPP
PI: Research ID# 59028

Subject: Change Request

The changes to the existing protocol are as follows:

1. There are two requested modifications each with expanded sub-sections. These are detailed in the attached document, protocol modifications. This modification will also contribute to increasing the subject size of the study and increase diversity of the subject pool.
2. Attachment: Appendix F - Brief Description and Purpose of the Study
3. Attachment: Appendix G - Informed Consent Form
4. Attachment: Appendix H – Letter of Request to University of Alaska
5. Attachment: Letter of Approval from the University of Alaska

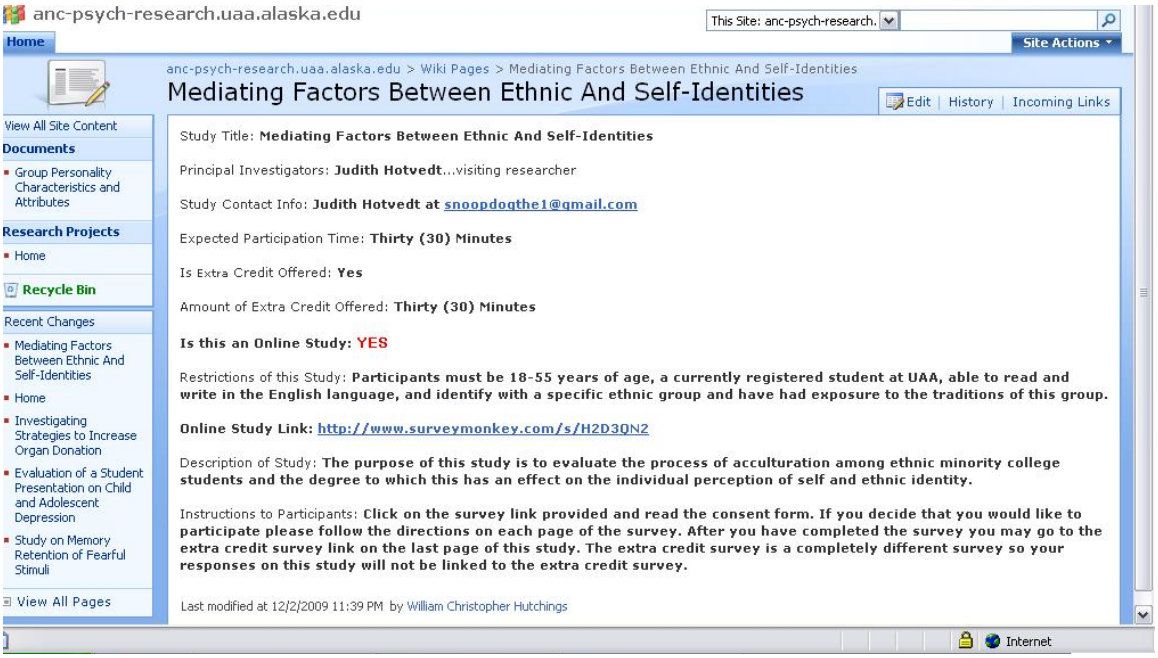
Thank you for considering this request for modification.

Loma Linda University
Adventist Health Sciences Center
Institutional Review Board
Approved RLR
Date 11/6/09

AMENDMENT DOES NOT CHANGE
[redacted] CATEGORY
REVIEW

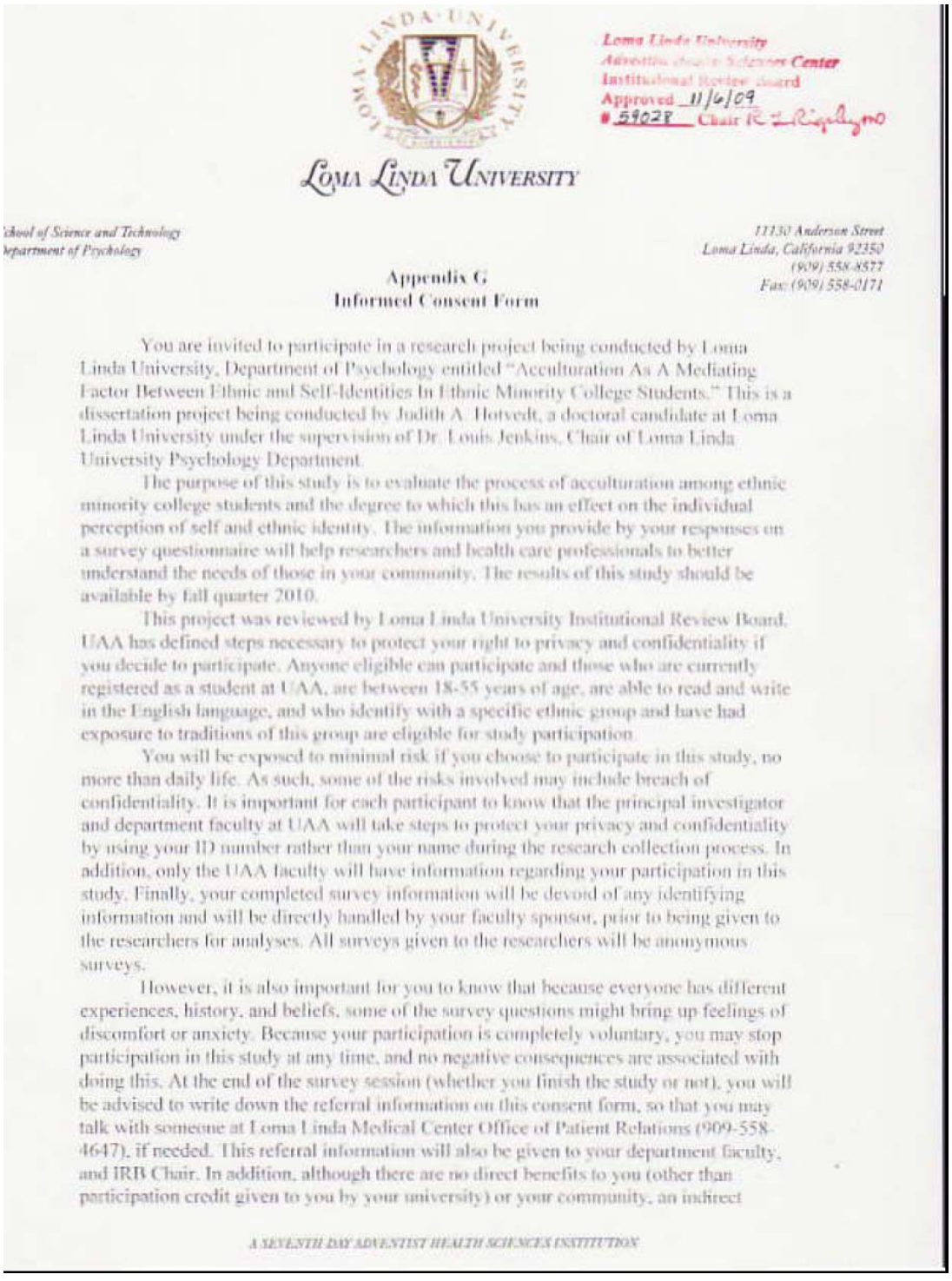
APPENDIX F

BRIEF DESCRIPTION AND PURPOSE OF THE STUDY



APPENDIX G

INFORMED CONSENT FORM



Loma Linda University
Adventist Health Sciences Center
Institutional Review Board
Approved 11/6/09
59028 Chair R. L. Rigsby MD

LOMA LINDA UNIVERSITY

School of Science and Technology
Department of Psychology

11130 Anderson Street
Loma Linda, California 92350
(909) 558-8577
Fax: (909) 558-0171

Appendix G
Informed Consent Form

You are invited to participate in a research project being conducted by Loma Linda University, Department of Psychology entitled "Acculturation As A Mediating Factor Between Ethnic and Self-Identities In Ethnic Minority College Students." This is a dissertation project being conducted by Judith A. Hotvedt, a doctoral candidate at Loma Linda University under the supervision of Dr. Louis Jenkins, Chair of Loma Linda University Psychology Department.

The purpose of this study is to evaluate the process of acculturation among ethnic minority college students and the degree to which this has an effect on the individual perception of self and ethnic identity. The information you provide by your responses on a survey questionnaire will help researchers and health care professionals to better understand the needs of those in your community. The results of this study should be available by fall quarter 2010.

This project was reviewed by Loma Linda University Institutional Review Board. UAA has defined steps necessary to protect your right to privacy and confidentiality if you decide to participate. Anyone eligible can participate and those who are currently registered as a student at UAA, are between 18-55 years of age, are able to read and write in the English language, and who identify with a specific ethnic group and have had exposure to traditions of this group are eligible for study participation.

You will be exposed to minimal risk if you choose to participate in this study, no more than daily life. As such, some of the risks involved may include breach of confidentiality. It is important for each participant to know that the principal investigator and department faculty at UAA will take steps to protect your privacy and confidentiality by using your ID number rather than your name during the research collection process. In addition, only the UAA faculty will have information regarding your participation in this study. Finally, your completed survey information will be devoid of any identifying information and will be directly handled by your faculty sponsor, prior to being given to the researchers for analyses. All surveys given to the researchers will be anonymous surveys.

However, it is also important for you to know that because everyone has different experiences, history, and beliefs, some of the survey questions might bring up feelings of discomfort or anxiety. Because your participation is completely voluntary, you may stop participation in this study at any time, and no negative consequences are associated with doing this. At the end of the survey session (whether you finish the study or not), you will be advised to write down the referral information on this consent form, so that you may talk with someone at Loma Linda Medical Center Office of Patient Relations (909-558-4647), if needed. This referral information will also be given to your department faculty, and IRB Chair. In addition, although there are no direct benefits to you (other than participation credit given to you by your university) or your community, an indirect

A SEVENTH DAY ADVENTIST HEALTH SCIENCES INSTITUTION

benefit could be that the information you provide will add to the body of scientific knowledge researchers have about self and ethnic identity.

Once you have made an informed decision about whether you wish to participate, you will be given the opportunity to fill out the survey questions following this consent form. By filling out the survey you agreeing of your own free will to participate and your participation provides your consent. You may stop participation at any time if you feel uncomfortable about what is being asked of you on the survey and no negative consequences are associated with doing this. At the bottom of this form, you will find names, addresses, and telephone numbers of the principal investigator, faculty sponsor at UAA, in addition to the third party contact at LLU Office of Patient Relations, if you have questions or concerns.

The results of this study will be available and can be reviewed with your UAA faculty member or IRB chair Dr. Robert Boeckmann when the study is complete in the fall of 2010.

Judith A. Hotvedt, MA (909-558-8577)
Student Investigator
Department of Psychology
Loma Linda University
11130 Anderson Street
Loma Linda, CA 92350

Louis Jenkins, PhD. (909-558-8572)
Principal Investigator
Department of Psychology
Loma Linda University
11130 Anderson Street
Loma Linda, CA 92350

Robert Boeckmann, PhD. (907-786-1793)
IRB Chairman
Department of Psychology
3211 Providence Drive
Anchorage, Alaska 99508

Office of Patient Relations (909-558-4647)
Patient Representative
Loma Linda University Medical Center
1135 Anderson Street
Loma Linda, CA 92350

APPENDIX H

LETTER OF REQUEST TO UNIVERSITY OF ALASKA

June 23rd, 2009

Joanne K. Thordarson, M. S.
Research Compliance Administrator
Office of Research and Graduate Studies
University of Alaska Anchorage
3211 Providence Drive, DPL 101R
Anchorage, Alaska 99508-4614
(907) 786-1099; (907) 786-1791 (fax)
anjkt@uaa.alaska.edu

Dear Joanne,

My name is Judith A. Hotvedt and I am a doctoral candidate at Loma Linda University/SST/Department of Psychology. I will be performing my internship at the Anchorage Veteran's Administration for the 2009-10 year and would like to request the opportunity to access your student participant research pool for data collection on my dissertation.

The research I am conducting pertains to "the mediating effects of acculturation on ethnic and self-identities in ethnic minority college students," using structural equation modeling. My request is as follows:

1) Would your IRB consider allowing me to approach your student population on campus?
2) Do I need to submit to you the full protocol that has already been approved by our (LLU) IRB?
3) Since this study has been deemed by our IRB to be an exempt study, will I need to go through a full IRB review at UAA?
4) If it is possible for me to conduct research at UAA, can your institution provide me with a letter of approval (pending IRB modifications) that I can submit to the LLU IRB, as part of my protocol modifications?

I would like very much to approach your students with this research opportunity. If you have any further questions of my dissertation chair, or me please feel free to contact me.

Judith A. Hotvedt, MA
Psychology Intern, LLU
(909) 649-2687; jhotvedt@llu,edu

Louis Jenkins, PhD
LLU/SST/Department of Psychology, Chair
(909) 558-8572; ljenkins@llu.edu

UNIVERSITY of ALASKA ANCHORAGE

November 9th, 2009

Dr. Boeckmann,

My name is Judith A. Hotvedt, MA and Joanne Thordarson referred me to you. I am a Doctoral Candidate (PhD) from Loma Linda University, currently on internship at the Alaska VA. I approached Joanne and Dr. Petratis in June/July '09 about submitting my LLU IRB approved research protocol to UAA. This is in the hope that your department and university will allow me to approach UAA students for their participation in my doctoral research.

My study has already been IRB approved, but I will need to complete and submit to my IRB, modifications to the existing protocol based on your requirements, if granted the opportunity to do this. The population I am currently approaching is undergraduate students from ethnic minorities groups. I will be using paper and pencil assessment measures, for this 'exempt status' study. Further, I am conducting a SEM analysis in EQS (hence the need for a large n) on 'The mediating effects of acculturation on ethnic and self-identities in ethnic minority college students'.

I would appreciate it if you would contact me either at jhotvedt@llu.edu or Judith.Hotvedt@va.gov , or by phone (see below) and apprise me of your thoughts/ideas regarding this matter, at your earliest convenience.

Warmly,

Judith A. Hotvedt, MA
Doctoal Intern
LLU/SST
Loma Linda University
Department of Psychology
(909)-633-2215 cell
(907) 865-5642 work

APPENDIX I

LETTER OF APPROVAL FROM THE UNIVERSITY OF ALASKA

Department of Psychology, University of Alaska Anchorage
3211 Providence Drive
Department of Psychology, University of Alaska Anchorage
3211 Providence Drive
Anchorage, AK 99508-8224

TO: Chair of IRB Loma Linda University

FROM: Dr. Robert J. Boeckmann

Chair Undergraduate Studies Committee (Psychology)
Co-Chair, University of Alaska Anchorage IRB

DATE: September 28th, 2009

RE: Protocol #59028 "Acculturation as a mediating factor between ethnic and self-identities in ethnic minority college students"

Dear IRB Chair,

Recently, Judith Hotvedt told me that she is visiting University of Alaska Anchorage for a time and would like to continue her data collection for her dissertation while here. She is not formally a UAA student or a UAA employee so her research activities do not fall under the purview of the UAA IRB. I also understand that the data she wishes to collect from UAA students is for her dissertation research that has been reviewed by the Loma Linda IRB.

I am writing to say I support Judith Hotvedt's recruitment and data collection efforts within the Psychology courses here at UAA. Upon notification of your approval of her new sample plan and recruitment approaches here at UAA, I plan to allow her to recruit via our Department website and in our Psychology courses.

This support is offered in my role as Chair of the Undergraduate Studies Committee. I brought this matter to the attention of the faculty on this committee and they have approved of granting Judith access to recruiting participants from our participant pool. Please let me know if you have any questions about this letter of support.
Sincerely,

Robert J. Boeckmann, Ph.D.
Associate Professor of Psychology, University of Alaska Anchorage
3211 Providence Drive
Anchorage, AK 99508-8224
907-786-1793 (office); 907-786-4898 (fax)

APPENDIX J

LETTER OF REQUEST FOR STUDENT ASSISTANT

My name is Judith A. Hotvedt and I am a doctoral candidate in the PhD. program at Loma Linda University, SST/Department of Psychology. While on internship in Anchorage Alaska, I will be collecting data from the university here in the North Pacific. I am looking for a 2nd year or above psychology student interested in gaining exposure to research protocol and data collection, by working as a "student assistant" continuing with data collection for me at La Sierra University, Riverside. As a "student assistant" this will be a position for which you will receive a flat amount of $500.00 for this service for participation (½ to be paid upon start, ½ at the end of fall quarter, 2009).

The study is looking at "Acculturation as a mediating factor between ethnic and self-identities in ethnic minority college students" and you will be conducting a brief paper and pencil survey. Dr. Leslie R. Martin, PhD. is acting RPPC at La Sierra and is also on my dissertation committee. You would be working with her directly in setting your dates/times for consenting and survey administration procedures. Availability, dates, and times will be contingent on your schedule, but you will need to coordinate this with Dr. Leslie Martin.

Since I am using a structural equation model in the statistical portion of the dissertation, I need as many participants as possible. This opportunity will assist me not only in the completion of my goal, but will enhance your CV and increase your knowledge and skill.

If you are interested, please call me at (909) 649-2687 (personal cell) or (907) 229-0515 (work cell) and leave a message. If I do not answer, I will call you back as quickly as possible. Just remember that I am in a time zone that is one hour behind you.

Thank you for your time and consideration.

Warmly,

Judith "Jude" Hotvedt, MA
Psychology Intern
VA Alaska HCS/B&HS, Anchorage

APPENDIX K

THE EXTENDED OBJECTIVE MEASURE OF EGO IDENTITY STATUS II (EOM-EIS-2) REVISED BENNION & ADAMS (1986)

24-item version

Response scale:

A= strongly agree	D= disagree
B= moderately agree	E= moderately disagree
C= agree	F= strongly disagree

1. I haven't chosen the occupation I really want to get into, and I'm just working at what is available until something better comes along.

2. When it comes to religion I just haven't found anything that appeals and I don't really feel the need to look.

3. My ideas about men's and women's roles are identical to my parents'. What has worked for them will obviously work for me.

4. There's no single "life style" which appeals to me more than another.

5. There are a lot of different kinds of people. I'm still exploring the many possibilities to find the right kind of friends for me.

6. I sometimes join in recreational activities when asked, but rarely try anything on my own.

7. I haven't really thought about a "dating lifestyle". I'm not too concerned whether I date or not.

8. Politics is something that I can never be too sure about because things change so fast. But I do think it's important to know what I can politically stand for and believe in.

9. I'm still trying to decide how capable I am as a person and what work will be right for me.

10. I don't give religion much thought and it doesn't bother me one way or the other.

11. There's so many ways to divide responsibilities in marriage, I'm trying to decide what will work for me.

12. I'm looking for an acceptable perspective for my own "life style", but haven't really found it yet.

13. There are many reasons for friendship, but I choose my close friends on the basis of certain values and similarities that I've personally decided on.

14. While I don't have one recreational activity I'm really committed to, I'm experiencing numerous leisure outlets to identify one I can truly enjoy.

15. Based on past experiences, I've chosen the type of dating relationship I want now.

16. I haven't really considered politics. It just doesn't excite me much.

17. I might have thought about a lot of different jobs, but there's never really been any question since my parents said what they wanted.

18. A person's faith is unique to each individual. I've considered and reconsidered it myself and know what I can believe.

19. I've never really seriously considered men's and women's roles in marriage. It just doesn't seem to concern me.

20. After considerable thought I've developed my own individual viewpoint of what is for me an ideal "life style" and don't believe anyone will be likely to change my perspective.

21. My parents know what's best for me in terns of how to choose my friends.

22. I've chosen one or more recreational activities to engage in regularly from lots of things and I'm satisfied with those choices.

23. I don't think about dating much. I just kind of take it as it comes.

24. I guess I'm pretty much like my folks when it comes to politics. I follow what they do in terms of voting and such.

APPENDIX L

VANCOUVER INDEXX OF ACCULTURATION (VIA) (RYDER ET AL., 2000)

20-item version

Please answer each question as carefully as possible. Please circle *one* of the numbers to the right of each question to indicate your degree of agreement or disagreement.

Many of these questions will refer to your *heritage culture*, meaning the culture that has influenced you most (other than American culture). It may be the culture of your birth, the culture in which you have been raised, or another culture that forms part of your background. If there are several such cultures, pick the one that has influenced you *most* (e.g. Irish, Chinese, Mexican, Black). If you do not feel that you have been influenced by any other culture, please try to identify a culture that may have had an impact on previous generations of your family. Your heritage culture (other than American) is: _____

	Agree	Disagree
1.	I often participate in my *heritage* cultural traditions.	1 2 3 4 5 6 7 8 9
2.	I often participate in mainstream American cultural traditions.	1 2 3 4 5 6 7 8 9
3.	I would be willing to marry a person from my *heritage culture*.	1 2 3 4 5 6 7 8 9
4.	I would be willing to marry a white American person.	1 2 3 4 5 6 7 8 9
5.	I enjoy social activities with people from the same *heritage culture* as myself.	1 2 3 4 5 6 7 8 9
6.	I enjoy social activities with typical American people.	1 2 3 4 5 6 7 8 9
7.	I am comfortable interacting with people of the same *heritage culture* as myself.	1 2 3 4 5 6 7 8 9
8.	I am comfortable interacting with typical American people.	1 2 3 4 5 6 7 8 9
9.	I enjoy entertainment (e.g. movies, music) from my *heritage culture*.	1 2 3 4 5 6 7 8 9
10.	I enjoy American entertainment (e.g. movies, music).	1 2 3 4 5 6 7 8 9
11.	I often behave in ways that are typical of my *heritage culture*.	1 2 3 4 5 6 7 8 9
12.	I often behave in ways that are 'typically American.'	1 2 3 4 5 6 7 8 9
13.	It is important for me to maintain or develop the practices of my *heritage culture*.	1 2 3 4 5 6 7 8 9
14.	It is important for me to maintain or develop American cultural practices.	1 2 3 4 5 6 7 8 9
15.	I believe in the values of my *heritage culture*.	1 2 3 4 5 6 7 8 9
16.	I believe in mainstream American values.	1 2 3 4 5 6 7 8 9
17.	I enjoy the jokes and humor of my *heritage culture*.	1 2 3 4 5 6 7 8 9
18.	I enjoy white American jokes and humor.	1 2 3 4 5 6 7 8 9
19.	I am interested in having friends from my *heritage culture*.	1 2 3 4 5 6 7 8 9
20.	I am interested in having white American friends.	1 2 3 4 5 6 7 8 9

APPENDIX M

MULTI-GROUP ETHNIC IDENTITY MEASURE (MEIM) (PHINNEY, 1992)

15-item version

In this country, people come from many different countries and cultures, and there are many different words to describe the different backgrounds or ethnic groups that people come from. Some examples of the names of ethnic groups are Hispanic or Latino, Black or African American, Asian American, Chinese, Filipino, American Indian, Mexican American, Caucasian or White, Italian American, and many others. These questions are about your ethnicity or your ethnic group and how you feel about it or react to it.

Please fill in: In terms of ethnic group, I consider myself to be _____

Use the numbers below to indicate how much you agree or disagree with each statement.

(4) Strongly agree (3) Agree (2) Disagree (1) Strongly disagree

1- I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.
2- I am active in organizations or social groups that include mostly members of my own ethnic group.
3- I have a clear sense of my ethnic background and what it means for me.
4- I think a lot about how my life will be affected by my ethnic group membership.
5- I am happy that I am a member of the group I belong to.
6- I have a strong sense of belonging to my own ethnic group.
7- I understand pretty well what my ethnic group membership means to me.
8- In order to learn more about my ethnic background, I have often talked to other people about my ethnic group.
9- I have a lot of pride in my ethnic group.
10- I participate in cultural practices of my own group, such as special food, music, or customs.
11- I feel a strong attachment towards my own ethnic group.
12- I feel good about my cultural or ethnic background.
13- My ethnicity is

(1) Asian or Asian American, including Chinese, Japanese, and others
(2) Black or African American
(3) Hispanic or Latino, including Mexican American, Central American, and others

(4) White, Caucasian, Anglo, European American; not Hispanic
(5) American Indian/Native American
(6) Mixed; Parents are from two different groups
(7) Other (write in): _____

14- My father's ethnicity is (use numbers above)
15- My mother's ethnicity is (use numbers above)

APPENDIX N

OUT-GROUP ORIENTATION SCALE (MEIM) (PHINNEY, 1992)

Use the numbers below to indicate how much you agree or disagree with each statement.

(4) Strongly agree (3) Agree (2) Disagree (1) Strongly disagree

1. I like meeting and getting to know people from ethnic groups other than my own.
2. I often spend time with people from ethnic groups other than my own.
3. I am involved in activities with people from other ethnic groups.
4. I enjoy being around people from ethnic groups other than my own.

APPENDIX O

DEBRIEFING LETTER

Thank you for your participation in this study. The purpose of this study was to evaluate the process of acculturation among ethnic minority college students and the degree to which this has an effect on your perception of your self-and ethnic identity.

The results of the study will be made available to your University department representatives and can be reviewed the quarter after the study has been completed. They will be able to explain the findings and answer any questions you might have.

Please keep this copy of the de-briefing letter, as a contact number is available below, should you have any further questions or concerns.

Thank you.

Contact number: (909) 588-4647

Loma Linda University Medical Center, Patient Representative