Cultural Orientation and Parent Emotion in the Chinese American Immigrant Family: Concurrent and Prospective Relations

By

Stephen Hanen Chen

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Committee in charge:

Professor Qing Zhou, Chair
Professor Susan Holloway
Professor Robert Levenson

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Abstract

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The present dissertation used a developmental, sociocultural models approach to culture and emotion, and examined the prospective relations of immigrant parents’ cultural orientations and their expression of emotion in the family context. Chinese American immigrant parents (n=210) with elementary-aged children were assessed at two time points approximately two years apart. Parents reported on their own and their children’s patterns of engagement in both Chinese and American cultural domains. Parents also reported on their patterns of emotional expression in the family context (positive, negative dominant, and negative submissive emotion), and their endorsement of emotion-relevant values (collectivism, conformity, emotional control, and ideals toward high/low arousal positive and negative affect).

Main analyses were conducted using structural equation modeling. Results indicated that parents’ greater engagement in Chinese cultural domains predicted their lower expression of negative emotion in the family context. Parents’ engagement in cultural domains positively predicted their endorsement of emotion-relevant values; however, across models, parents’ endorsement of emotion-relevant values did not mediate prospective effects of parents’ cultural engagement on their emotional expression. Finally, differences between parents’ and children’s orientations to Chinese culture predicted parents’ lower expression of positive and negative submissive emotion in the family context.

Results underscore the relevance of the family context in the transmission of cultural norms toward emotional expression. Implications of these findings for developmentally-informed approaches to the study of culture and emotion are discussed.
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Overview

How does culture influence the way parents express emotions in the family? Our previous research with Chinese American immigrant families found positive associations between parents’ engagement in specific domains of American culture – e.g., media, language, and social relationships – and their expression of emotion in the family context (Chen, Zhou, et al., in review). We theorized that these relations were attributable to parents’ acquisition of American display rules - “culture-specific prescriptions about who can show which emotions, to whom, and when” (Ekman, 1993, p. 384). We proposed that immigrants who engaged with specific elements of the mainstream culture observed and ultimately implemented that culture’s prevailing patterns of emotional expression.

These findings notwithstanding, much remains unknown regarding the relations between immigrant parents’ cultural orientations – their affiliations and engagement with the ethnic and/or majority cultures (Tsai, Chentsova-Dutton, & Wong, 2002; Ying, Lee, & Tsai, 2000) – and their patterns of emotional expression in the family context. First, while the acquisition of American display rules is theorized to underlie changes in parents’ emotional expression, this mechanism has not been tested directly. Second, research has yet to examine potential effects of children’s cultural orientation on parents’ patterns of emotional expression. Finally, research to-date has been limited to cross-sectional investigations; as such, little is known regarding prospective relations between immigrant parents’ degrees of cultural orientation and their expression of emotion in the family context.

To address these gaps in the literature, the present dissertation utilized data from a two-wave longitudinal study of Chinese American immigrant families and their children, beginning when children were in first and second grade, and continuing two years later. The specific aims were: (1) to examine prospective relations among immigrant parents’ engagement in cultural domains, their endorsement of cultural values relevant to emotional expression, and their expression of emotion in the family context; and (2) to examine how parents’ and children’s engagement in cultural domains uniquely, prospectively, and interactively predict parents’ patterns of emotional expression in the family context.

Introduction

In the following sections I first present an overview of how culture and psychology have been conceptualized in the research literature, then summarize how these conceptualizations have informed previous empirical approaches to the study of culture and psychology. Next, these conceptualizations and approaches are extended specifically to the present study of culture and emotion. Finally, the specific aims and hypotheses of the current study are presented.

Conceptualizations of Culture and Psychology

Culture and Psychology as Mutually Constituted Processes. A foundational question of the present study is how, if at all, an individual’s behavioral engagement in a culture can influence psychobiological processes of emotional expression. Indeed, a number of theories have been proposed to explain the relations between culture and psychology. While absolutist positions posit that cultures have minimal influence on basic psychological processes, relativist
positions take the opposite stance, and suggest that psychological processes are culturally determined (Berry, Poortinga, Segall, & Dasen, 2002). Universalist views offer a middle ground to these two positions: while acknowledging the existence of common psychological processes, universalist positions suggest that the development and display of these processes are shaped by culture (Triandis, 2007).

The present study takes a more nuanced approach that builds on universalist views and emphasizes the interdependent nature of individuals and their cultural context. Shweder (1990) defines cultural psychology as “the study of the ways subject and object, self and other, psyche and culture, person and context…live together, require each other, and dynamically, dialectically, and jointly make each other up” (p.1). Central to this definition is the concept that culture and the mind are interdependent, or mutually constituted. As proposed by Markus and Hamedani (2007), “as people actively construct their worlds, they are made up of, or ‘constituted by’ relations with other people and by the ideas, practices, products and institutions that are prevalent in their social contexts” (p. 4). This conceptualization further emphasizes the bidirectional influence of internal, biologically-based processes and external context. It is “an active process that transforms the biological being into a social individual …with a set of context-contingent identities” (Markus & Hamedani, 2007, p. 5). Applied to the present study of immigrant parents, this conceptualization of culture and psychology suggests that individuals exposed to a new culture both shape, and are shaped by their patterns of engagement with their host and heritage cultures. Engagement in external cultural domains – e.g., the languages they acquire or maintain, or the social circles in which they engage - may shape the construction and expression of their internal, biologically-based processes.

Culture and Psychology as Dynamic Constructs. The present study aims to assess the influence of cultural engagement on parents’ expression of emotion. Thus, a foundational conceptual question is whether culture and psychology are stable or dynamic constructs, and whether their relative influences change across an individual’s lifespan. Similar to models of culture and psychology as mutually constituted processes, biocultural co-constructivist models emphasize the role of sociocultural experiences in shaping neurobiological and ontogenetic processes (Li, 2003; 2007). However, of particular relevance to the present study, a biocultural co-constructivist view also stresses a lifespan, developmental perspective on the relations of culture and psychological processes. Specifically, this model proposes that the relative contributions of biology and culture to different outcomes vary across the lifespan. For example, within domains of intellectual development, neurobiological constraints may be most salient in childhood and old age. By contrast, during adulthood, when neurobiological mechanisms have reached maturation, cultural experiences such as education or social interactions may contribute more towards individual differences (Li, 2007).

In summary, the existing literature presents two conceptualizations of culture and psychology that are central to the present study of emotional expression in immigrant parents. First, culture and psychology are mutually-constituting constructs; thus, an immigrant parent may not only construct his or her patterns of cultural engagement, but may also be shaped by them, in turn. Second, the relative contributions of culture and psychological processes are theorized to vary across the lifespan, with cultural experiences exerting the greatest influence on emotional expression during adulthood. Thus, within the present sample, it is expected that an adult-aged immigrant’s cultural experiences could significantly influence his or her psychobiological processes of emotional expression.
Approaches to the Study of Culture and Psychology

These conceptualizations of culture and psychology – as mutually constituted, dynamic constructs - inform the way in which they are studied. The approach of the present study is to integrates a sociocultural models approach within a framework of developmental science. The following sections describe these empirical approaches and their relevance to the present study.

The Sociocultural Models Approach. A sociocultural models approach emphasizes the bidirectional, dynamic relations between psychological processes and sociocultural models – “derived and selected ideas and practices...that are embodied, enacted, or instituted in a given context” (Markus & Hamedani, 2007, p. 15). The concept of a sociocultural model includes both internal, intangible components (e.g., ideas, attitudes, and values), as well as more external, observable patterns of behavior (e.g., social interactions, institutional practices) (Markus and Hamedani, 2007).

In adapting a sociocultural models approach, it is critical to understand how it both differs from and refines other traditional approaches to culture and psychology. In particular, a sociocultural models approach provides a number of contrasts to dimensional approaches. Dimensional approaches to cross-cultural psychology examine differences in psychological processes across members of different cultural groups (Hofstede, 1980; Triandis, 1972; Triandis, 1989), and assess how members of different cultural groups fell along key dimensions of interest (e.g., individualism-collectivism, independence-interdependence). As a result, cultures could be classified as being relatively higher or lower on these dimensions (Markus and Hamedani, 2007).

Despite its parsimony, this approach makes a number of problematic assumptions. One such assumption has been described as essentialism – “the assumption that a group has one or more defining features characteristic of all group members” (Gjerde, 2004, p. 142). This assumption further fosters ideas of within-group homogeneity, namely, that each person within the group serves as a representative of this culture and its trait or characteristic of interest. A related, and equally problematic assumption is the classification of cultural groups by geographic region (e.g., East Asian vs. Western European). This method of classification also assumes within-group homogeneity (e.g., each city as a cultural representative of its country). Moreover, the classification of countries as “Eastern” or “Western” often relies on ambiguous, historic, or inconsistent geographic distinctions (Gjerde, 2004).

The dimensional approach is based on two conceptual assumptions which stand in sharp contrast to those adapted by the present study. First, in contrast to the concept of culture and psychology as mutually constituting processes, the dimensional approach suggests a unidirectional mode of influence in which cultural processes shape psychological processes. For example, dimensional approaches may examine how specific cultural values (e.g., interdependence vs. independence) may influence psychological processes (e.g., perception of either central or contextual figures in an image), but place less emphasis on examining reciprocal relations, i.e., how psychological processes may influence sociocultural constructs. Applied to the present study, while a cultural emphasis on interdependence and adjusting to others’ needs may influence the expression of low-arousal emotions (e.g., calm, contentedness), it is also likely that expressing low-arousal, rather than high-arousal emotion (e.g., excitement, enthusiasm) may foster a greater attentiveness to others’ needs. Similarly, a class of children expressing high-arousal positive emotions may influence the teacher’s classroom culture (e.g., classroom policies, scheduled activities).
Second, the dimensional approach suggests that culture exists largely as internal constructs of values, attitudes, or beliefs. Less emphasis is placed on external constructs that may foster the acquisition and development of these internal constructs. For example, an approach focused on internal constructs may indicate that members of different cultural groups vary on dimensions of individualism of collectivism. The acquisition of these internal constructs, however, is likely influenced through behavioral engagement in external cultural domains, such as language, media use, or social interactions.

Given these limitations of dimensional approaches, the present study adapts a sociocultural models approach to culture and psychology. In contrast to the emphasis of dimensional models on internal constructs of values, attitudes, or beliefs, sociocultural models are represented at both internal and external levels. At the internal level, sociocultural models “provide blueprints for how to think, feel, and act … in the world” (Markus & Hamedani, 2007, p. 16); at the external level, sociocultural models influence the policies, institutions, and organizations of a given culture.

Sociocultural models approaches offer two key expansions on dimensional approaches that are of key relevance to the present study. First, whereas the dimensional approach focuses on how cultural mechanisms may contribute to differences in psychological processes, the sociocultural models approach aims to examine the bidirectional relations between these constructs. This is exemplified by approaches used in the growing field of cultural neuroscience, which views both biology and culture as mutual, inseparable components of neural development (Keller, 2011). These investigations examine both how biological factors influence cultural variation, and also how cultural experiences shape individual variation at both neural and genetic levels (Chiao & Ambady, 2007). For example, variations in the short and long alleles of the 5-HTT serotonin regulator gene have been theorized to underlie Japanese and Caucasian variation in amygdalar reactivity (Chiao & Ambady, 2007). Similarly, exposure to individuals of different races has been shown to affect neural-level mechanisms of facial recognition (Golby, Gabrieli, Chiao, & Eberhardt, 2001).

The sociocultural models approach also emphasizes the examination of sociocultural models as dynamic, rather than static constructs. A dimensional approach highlights cross-cultural differences in psychological constructs, but gives less attention to how either psychological or the cultural constructs may change over time. A models approach, in contrast, views sociocultural models as susceptible to change, which can be brought about at the level of the individual, or at broader (e.g., organizational) levels. Indeed, this approach is a central question of the present study, namely, whether an immigrant’s previous values and views of emotional expression are susceptible to change over time.

A sociocultural models approach to culture and emotion examines both constructs as mutually constituted. Thus, the present study examined not only how engagement in cultural domains and endorsement of cultural values influenced emotion, but also how emotion influenced these cultural constructs. As reviewed above, the existing research has focused extensively on the unidirectional influence of culture on emotion. Conversely, I am unaware of any previous research that has examined the possibility that an individual’s patterns of emotional expression may also influence their engagement in certain cultural domains, or their endorsement of specific values regarding emotion. By adapting a sociocultural models approach, the present study tested both directions of influence.

Developmental Perspectives. In its examination of cultural orientation and emotional expression among Chinese American immigrants, the present study further augments the
sociocultural models approach with the methodologies and principles of developmental science. Specifically, the dynamic, bidirectional relations between culture and psychological processes can be examined within groups, across different stages of the lifespan, and with attention to the changing relative contributions of these processes over time. Principles of developmental science emphasize the importance of examining multiple contexts, pathways, or levels of analysis. Each of these methodologies and principles are now discussed in detail in relation to the present study.

**Within-Group Designs.** In contrast to cross-cultural examinations of cultural orientation and emotional expression, the present study examines these constructs within an ethnically-homogenous immigrant group. Within-group research designs affirm the person-centered emphasis of developmental science, and suggest that even members of a homogenous group may differ in their developmental trajectories (Hinshaw, 2008). Indeed, the person-centered emphasis has been particularly relevant to studies of cultural adaptation and maintenance within immigrant and ethnic minority populations. These processes have been conceptualized broadly as *acculturation* – “the extent to which individuals have maintained their culture of origin or adapted to the larger society” (Phinney, 1996, p. 921). More specific conceptualizations make a finer distinction between processes of *acculturation* - “the process of the adaptation of an individual to the mainstream culture” (Knight et al., 2009, p. 626) and *enculturation* – “the process of adaptation to the ethnic culture” (p. 626). Researchers arguing for separation of these two processes argue that acculturation may be most applicable to the adaptation of foreign-born immigrants or refugee groups (Tsai, Chentsova-Dutton, & Wong, 2002), while enculturation may better capture the experience of second-generation immigrants (i.e., those born in the host country). For second-generation immigrants, adapting their family’s heritage culture may be a process of acquiring and adapting elements of their heritage culture over time (Gonzales, Knight, Morgan-Lopez, Saenz, & Sirolli, 2002; Knight et al., 2009). Despite these variations in nomenclature, these processes of acculturation, enculturation, and cultural maintenance can be seen as collectively contributing to an individual's *cultural orientation*, “the degree to which individuals are influenced by and actively engage in the traditions, norms, and practices of a specific culture.” (Tsai & Chentsova-Dutton, 2002, p. 95; Ying, 1995; Ying, Lee, & Tsai, 2000). The present study examines effects of acculturation and cultural maintenance in immigrant parents, as well as the effects of their children’s cultural maintenance and adaptation. Thus, this construct of cultural orientation is used as a key construct.

**Longitudinal designs.** Consistent with its conceptualization of culture as a dynamic construct, the present study uses a longitudinal research design to examine the relations between immigrants’ cultural orientation and their emotional expression. Cross-sectional research designs provide little insight into the stability of cultural orientation over time, and as such, “the continuity between past and present is taken for granted” (Gjerde, 2004, p. 141). In opposition to this static view of culture, Gjerde argues that “traditions and practices are always transformed when they are passed from person to person” (p. 141), and as such, argues for a dynamic and fluid conceptualization of culture. Pitman, Eisikovits, and Dobbert (1989) make a similar argument, and suggest that the transmission and acquisition of cultural norms is “more than a kind of passing of information down the chronological chain...learning is interactive, with learners sampling the options available in a system, choosing some and in the process restructuring the systemic constellation available to them and others” (p. 44). Despite these limitations, little of the existing research has utilized a developmental approach in examining the relations between culture and emotion. For example, the existing research on culture and emotion has been limited largely to cross-sectional designs. While results from our previous
study (Chen, Zhou, et al., in review) indicated significant associations between parents’ cultural engagement and their expression of emotion, its cross-sectional design made it impossible to test for the directionality of these relations, or to control for parents’ baseline levels of emotional expression. Furthermore, concurrent data does not allow for the possibility that effects of cultural engagement on parents’ emotional expression may not be immediately evident, but may occur gradually over time.

A longitudinal design will also allow the present study to examine immigrant parents’ orientations to both host and heritage cultures. Specifically, the longitudinal design of the present study allows two conceptual models of cultural orientation to be tested. Unidimensional models of cultural orientation place cultural maintenance and adaptation on opposite ends of a single dimension, in which adaptation of a new, host, culture results in the loss of the original, or heritage culture. In contrast, bidimensional models view cultural adaptation and maintenance as separate and often independent dimensions (Arends-Toth & Van De Vijver, 2006; Berry, 1997). As such, in bidimensional models, immigrants may acquire elements of the host culture while simultaneously maintaining elements of their heritage culture. Longitudinal designs can examine independent orientation to both heritage and host cultures, and how these change over time. For example, two immigrants arriving in the host country at the same time may initially be highly oriented to their heritage culture, while low in orientation to the host culture. Over time, however, a variety of factors (e.g., education, employment, social contacts) may contribute to changes in these orientations.

Applied to the present sample of immigrant parents, it is possible that interactions with aspects of both host and heritage cultures can occur concurrently, and each may contribute uniquely to their emotional expression. In contrast to this conceptualization, the existing research has focused primarily on between-group comparisons (Matsumoto et al., 2008; Schwartz, 2004; Tsai et al., 2006; Tsai et al., 2007b). Findings from these investigations have highlighted how members of different cultural groups may differ in key dimensions of emotional expression. However, far fewer investigations have examined within-group differences in cultural engagement and emotional expression. Moreover, the existing within-group investigations have examined orientation to host and heritage cultures separately (e.g., Costigan & Dokis, 2006; Tsai et al., 2002). Within the limited existing research, there is indeed evidence that differences in emotional expression may be observed within, as well as between cultural groups. For example, Tsai, Chentsova-Dutton, Friere-Bebeau, and Pryzmus (2002) found that Hmong Americans with higher orientation to Hmong culture displayed less expressive behavior than Hmong Americans with lower Hmong orientations. Similarly, research by Soto, Levenson, and Ebling (2005) indicated that Chinese Americans with higher identification to Chinese culture displayed less negative emotion in response to a startle stimulus compared to Chinese Americans with lower Chinese orientations. Taken together, these findings suggest that differences in levels of cultural orientation may contribute to differences in emotional expression.

Lifespan perspectives. The present study’s primary sample of adult-aged immigrants complements a key tenet of developmental science and biocultural co-constructivist models, namely, that the influences of culture should be examined from a lifespan perspective. As argued by Pitman et al. (1989), it is “necessary to look beyond childhood in order to hypothesize successfully about how cultural patterns are acquired, transmitted, maintained and adapted” (p. 37). Indeed, a growing body of literature suggests that the reciprocal influence of sociocultural experiences and psychological processes continues into adulthood (Trommsdorff, 2009). For example, sociocultural experiences such as spatial navigation and aerobic training have been
found to influence both structural and functional cortical plasticity in adulthood (Colcombe et al., 2003; Maguire et al., 2000). As such, it is expected that similar changes in emotional processes can also be observed in the present sample of adult immigrants. Indeed, adulthood may present an ideal developmental window in which to examine the associations of cultural engagement on emotional expression.

Most relevant to the sample of the present study, a life-span perspective is particularly applicable to processes of cultural transmission that take place within the context of the immigrant family. From early childhood to adolescence, the parent-child relationship is conceptualized as primarily unidirectional, with parents transmitting cultural values, behaviors, and expectations to their children (Trommsdorff, 2009). Within Western societies, the direction of cultural transmission has been theorized to shift in adolescence, during which children increase in independence and autonomy. As suggested by Trommsdorff (2009), “adolescents’ adoption of changing cultural values can initiate a change in the direction of transmission, thereby effecting changes in the values, beliefs, and behavior of their parents” (p. 135). What is less certain, however, is whether changes in cultural contexts – namely, in the process of immigration—can prompt this directional shift at an even earlier developmental stage. Indeed, examination of this question requires consideration of both a life-span perspective, as well as a consideration of context, which is discussed below.

The role of contexts. Through its focus on the immigrant family, the present study is uniquely positioned to examine the relevance of multiple contexts, or levels of analysis – a key principle of developmental science. For example, examining the interplay of cultural and psychological processes can take into account the relations of genetic, biological, familial and/or societal factors. Although it is unlikely that a single study can examine the contributions of all of these factors, a study of the family context allows for the examination of a number of factors. Specifically, theoretical models suggest that cultural transmission in the family context can occur across several distinct pathways. Parents can be both recipients and socializers of culture: they can acquire cultural norms from their peers or spouse (“horizontal” pathways), and transmit cultural expectations to their children (“vertical” pathways) (Bengston & Troll, 1978; Berry & Georgas, 2009; Cavalli-Sforza, Feldman, Chen, & Dornsbusch, 1982). Of note, the vertical pathway between parent and child has been conceptualized as bidirectional (Kuczynski, 2003; Trommsdorff, 2009), namely, as “a transactional process in which the parent impacts the child and the child influences the parent in return” (Schonpflug, 2009, p. 22). Thus, the family is a key context in which to test multiple levels, or pathways by which culture influences psychological processes.

Accordingly, a wealth of research on cultural acquisition and transmission has focused extensively on pathways within the family context. For instance, research to-date has examined how pathways in the family context influence the transmission of values and life goals (Chen, Cojocaru, & Johnson, in preparation; Grob, Weisheit, & Gomez, 2009; Knafo & Schwartz, 2009), cognitions and behaviors relevant to psychopathology (Chen & Johnson, 2012; Garber & Cole, 2010; Uslucan & Fuhrer, 2009), and practices for economic subsistence (Barry, Child, & Bacon, 1959). Of particular relevance to the present study, Padilla (2009) suggests that the immigrant or bicultural family context captures horizontal, vertical, and bidirectional pathways of cultural transmission. Immigrant children who serve as translators or “language brokers” for their parents are acquiring elements of the host culture from their peers (horizontal pathways), and transmitting it to their parents (a reversed, vertical pathway).
Applied to the present study of culture and emotional expression, the family context is also likely to be a critical context for the acquisition and transmission of cultural expectations toward emotional expression (Friedlmeier, Corapci, & Cole, 2011; Trommsdorff, 2009). Specifically, parents may acquire norms of emotional expression through horizontal pathways of transmission – e.g., engagement with media, or through socialization with co-workers and friends. They may then transmit these expectations vertically in their interactions with their children, specifically, by modeling different kinds of expressive behavior, responding to children’s emotion, and discussing expectations of emotional expression with their children (Eisenberg, Cumberland, & Spinrad, 1998; Morris, Silk, Steinberg, Myers, & Robinson, 2007). As noted, theoretical models of cultural transmission suggest that this vertical pathway of transmission can be bidirectional, such that parents’ expression of emotion may be influenced by their own, or their children’s patterns of cultural engagement (Bengston & Troll, 1987; Schonpflug, 2009).

Cross-cultural comparisons of parents’ expression of emotion in the family have provided general support for these views, and provide a basis for the present study. Consistent with cultural views toward the expression of positive emotion, Chinese and Chinese American mothers of toddlers report lower expression of positive emotions in the family than European American mothers (Camras, Chen, Bakeman, Norris, & Cain, 2006; Camras, Kolmodin, & Chen, 2008). Asian and Asian American parents were also described by their children as being lower in physical affection and verbalized positive emotions than European American parents (Le, Berenbaum, & Raghavan, 2002).

Summary

The conceptual foundations and the empirical approach of the present study are presented visually in Figure 1. The present study is built on two conceptualizations of culture and psychology. First, culture and psychology are conceptualized as interdependent and mutually constituted processes. As such, this research was designed to examine the reciprocal effects of immigrant parents’ cultural engagement on their emotional expression, as well as the effects of their emotional expression on their patterns of cultural engagement. Second, the relations and relative influences of culture and biology are theorized to vary across the lifespan, with cultural experiences expected to exert their greatest effects during adulthood (Li, 2007). Because of this, the present study focuses on the effects of cultural engagement on emotional expression using an adult-aged immigrant sample. These conceptualizations inform a sociocultural model approach to culture and psychology, which in turn, can be augmented by the principles and methodologies of developmental science. The following sections extend this framework specifically to the study of culture and emotion.

Culture and Emotion: Theoretical Models

The present study asks a fundamental question: how does culture influence the expression of emotion? Theories addressing this question span have spanned centuries. Early universalist views conceptualized emotion as a primarily biological/physiological phenomena, with cultural processes having only minimal influence on emotional expression (e.g., Cannon, 1927; James, 1884). By contrast, later relativist theories acknowledged contributions of biology to emotional processes, but viewed emotional expression as a primarily culture-bound, socially-constructed process (Saarni, 1993). The prevailing contemporary position adapted by the present study integrates both of these positions and views emotion as a construct influenced by both biological
and cultural processes. Using the conceptual foundations and empirical approaches outlined in the previous sections, I now summarize the literature on biological and cultural contributions to emotion, then present models integrating both of these processes.

**Biological contributions to emotion.** Early research suggested that cultural differences in emotional expression could be attributed partly to temperamental factors, i.e., biologically-based individual differences in emotional reactivity and regulation (Kagan, 1998; Rothbart, 1989). Arguments in favor of innate cultural differences in emotion drew heavily on cross-cultural comparisons of infants (Camras et al., 1998; Kagan, Arcus, Snidman, Feng, Hendler, & Greene, 1994; Kiselevsky et al., 1998). Compared to Chinese infants and young children, European American infants and young children were observed to display more frequent smiling, and were more easily aroused toward negative emotion (Kagan, Kearsley, & Zelazo, 1978; Kagan & Snidman, 2004). Of note, similar group differences were also observed between European American girls and Chinese girls adopted by European American families in infancy (Camras, Chen, Bakeman, Norris, & Cain, 2006), suggesting that these differences in emotional expression could not be attributed solely to family socialization practices.

More recent research has both supported and refined these theories. Advances in behavioral genetic techniques, for instance, have highlighted contributions of genetic polymorphisms to cultural differences in emotional reactivity (Chen, Burton, Greenberger, & Dmitrieva, 1999; Gerlenter, Kranzier, & Cubels, 1997; Hariri & Weinberger, 2003). While associations have not been tested directly, these functional polymorphisms may provide a biological basis for findings suggesting that East Asians prefer low-arousal, rather than high-arousal positive affective states (Tsai, 2007). Taken together, both observational and genetic data suggest a biological component to cultural differences in emotional expression.

**Psychosocial contributions to emotion.** A separate body of literature gives relatively less attention to the role of biology in cross-cultural differences in emotion, and instead emphasizes emotion as a primarily socially-constructed process. Mesquita and colleagues (Mesquita & Ellsworth, 2001; Mesquita & Leu, 2007) suggest that every culture possesses “focal emotions” which either reinforce or violate its prevailing values and expectations. Thus, investigations examining culture and emotion from a socialization approach typically examine associations between a culture’s values and expectations and its members’ patterns of emotional expression or experience. A number of these values and expectations are particularly relevant to the present study, and are now described in detail.

**Emotions and Social Values.** Early research on culture and emotional expression theorized that values of individualism and collectivism encourage either greater emotional expression or greater emotional restraint. Specifically, members of more collectivist cultures have been theorized to emphasize a general restraint or control of emotions in the interest of maintaining group harmony, while members of more individualist cultures emphasize open expression of emotion in the interest of emphasizing individual rights (Markus & Kitayama, 1991; Oyserman, Koon, & Kemmelmeier, 2002; Russell & Yik, 1996). More recent conceptualizations suggest that individualism and collectivism are specific values endorsed within broader independent and interdependent social contexts, respectively (Varnum, Grossman, Kitayama, & Nisbett, 2010). Compared to interdependent contexts, independent contexts are theorized to place greater emphasis on socially disengaging emotions (Trommsdorff, 2012; Varnum et al., 2010), as well as a greater emphasis on expressing emotions that have the potential to influence, rather than adjust to others (Tsai et al., 2006).
Cross-cultural comparisons have provided general support for these theories. In particular, two extensive cross-national surveys by Matsumoto and colleagues (2008a, 2008b) have documented associations between endorsements of emotional expression and views on group relationships. In one study, Matsumoto et al. (2008a) examined associations between cultural values and emotional expression across 32 countries, and found that endorsements of emotional expression were positively associated with values of individualism. In a second survey of 23 countries (Matsumoto et al., 2008b), the endorsement of emotional suppression was highly associated with cultural values of embeddedness – a concept emphasizing the individual’s identity, relationships, and goals within a group setting (Schwartz, 2004). Together, these studies support the theory that views on emotional expression or restraint are influenced by the societal views of an individual as either primarily independent and autonomous, or as embedded within the group.

Emotions as irrelevant to social relations. Anthropological research offers a different perspective, and suggests that Chinese societies do not view the open expression of most emotions as dangerous or threatening, but rather devalue its significance and relevance to social relationships. Concepts of contextuality (Hall, 1976) suggest that explicit verbal statements of emotional expression are unnecessary in “higher context” cultures – societies or groups in which members are assumed to have close, longstanding connections, thus reducing the need for explicit aspects of cultural behavior. Similarly, Potter (1988) argues that emotions are viewed in Chinese culture as “natural phenomena without important symbolic significance for the maintenance and perpetuation of social relationships” (p.198). Of particular relevance to the present study, within the family context, the expression of emotion is theorized to be far less important to the parent-child relationship than filial obligations and behaviors; indeed, “expressiveness is independent of, and implies nothing about, relationship” (p. 193).

Positive vs. Negative Emotions. The present study examined parents’ expression of both positive and negative emotions in the family context. As such, our hypotheses were informed by previous research examining cross-cultural differences in the expression and endorsement of positive and negative emotions. Previous lines of investigation have postulated that values of individualism promote the experience and expression of positive emotions, such as joy, pride, or affection, while discouraging negative emotions, such as shame and guilt (Eid & Diener, 2001; Heine, Lehman, Markus, & Kitayama, 1999). In contrast, cultures that emphasize interdependent or collectivist values may foster a focus on negative, self-conscious emotions as a means of self-reflection and/or conformity to social norms (Eid & Diener, 2001). Similarly, Lee, Aaker, and Gardner (2000) have suggested that independent cultures emphasize promotion goals (i.e., pursuit of individual gains), and thus promote a focus on positive emotions and self-enhancement. In contrast, the emphasis of interdependent cultures on prevention goals (i.e., preventing conflict or loss) is theorized to encourage a focus on negative emotions in order to preserve intergroup harmony. In support of these views, findings from Matsumoto et al. (2008a) indicate that values of individualism were positively associated with the expression of positive emotions.

Ethnographic accounts suggest that rural Chinese populations hold a similar view toward positive emotion. Despite an overarching view of emotional expression as irrelevant towards social relationships, Potter (1988) postulates that the expression of positive emotion can be considered threatening. Love, in particular, is “the rival and the potential enemy of structure. Rather than affirming structure, love is understood to endanger it. Thus, in Chinese terms, it is the emotion that most threatens the social order” (p. 199). Potter attributes this view of positive
emotion to a belief that emotional distance is “a favorable circumstance for the maintenance of appropriate relationship” (p. 199). Most relevant to the present study, Potter suggests that this view of positive emotions as threatening to social order extends even to the family context:

Villagers believe that when a father is openly affectionate with a son, he is, in effect inviting his son to flout the formal patterns of respect and obedience that ought to characterize their relationship; a display of affection is dangerous to appropriate behavior which is optimally maintained when there is due distance between the two. If love is openly expressed, the form and strength of the relationship between the father and son are thought to be damaged. (p. 199).

More recent empirical research by Caldwell-Harris, Kronod, & Yang (in preparation) supports this view. Students from Beijing describe verbal expressions of affection to a family member as being “odd, unacceptable, or strange, because an overt declaration would undermine the assumption of steadfast love” (Caldwell-Harris, Tong, Lung, & Poo, 2011, p. 334).

Finally, a separate line of investigation suggests that members of dialectical cultures emphasize balancing the expression or experience of positive emotions with their opposites (i.e., negative emotion). This balance of positive and negative emotions reflects dialectical principles of accepting contradiction (Peng & Nisbett, 1999; Scollon, Diener, Oishi, & Biswas-Diener, 2005). In support of this view, cross-cultural comparisons of Asian and Western samples have found positive associations between positive and negative emotions in Asian populations, but negative or non-significant associations in Western populations (Bagozzi, Wong, & Yi, 1999; Leu et al., in press; Scollon et al., 2005).

Alternative Mechanisms. In addition to endorsement of emotion-relevant values, it is possible that other psychosocial mechanisms may influence parents’ expression of emotion in the family contexts. Of particular relevance to the present sample of immigrant parents, an individual’s socioeconomic status (SES) may be positively associated with emotional expressivity. As theorized by Matsumoto, Willingham, and Olide (2009), affluence would decrease an individual’s dependence on others, and would thus decrease the need for conformity and suppression of emotion. Consistent with this hypothesis, Matsumoto et al. (2009) found that athletes from more affluent countries were more emotionally expressive, while athletes from less affluent countries showed a greater tendency to mask their facial expressions.

Similarly, within immigrant populations, higher levels of education may provide greater opportunities to integrate into the mainstream society, or provide a greater awareness of cultural norms toward emotional expression. In support of this association, higher education and income levels have been found to be positively associated with acculturation into the host society (Chen, Hua, et al., in review; Lucero-Miller & Newman, 1999; Negy & Woods, 1992). As indicated by Eid and Diener (2001), a majority of American individuals reported a holistic endorsement of pleasant emotions (e.g., joy, affection, pride, and contentment), while Chinese and Taiwanese respondents were mixed in their endorsement of these emotions. Thus, in the present sample of Chinese American immigrants, it is possible that higher education levels would facilitate parents’ awareness of American expectations for pleasant emotions, and in turn, report more frequent expressions of positive emotion in the family.

Positive associations between SES and emotional expression in the present study may also be expected based on another body of research highlighting relations between life satisfaction, economic development and positive emotion. A line of research by E. Diener and...
colleagues has indicated higher life satisfaction among affluent versus impoverished groups (Diener & Seligman, 2004; Diener, Horwitz, & Emmons, 1985) and positive associations between economic development, income, and subjective well-being – “frequent pleasant emotion, infrequent unpleasant emotion, and life satisfaction” (Tov & Diener, 2007, p. 692; Diener, Diener, & Diener, 1995, Diener, Sandvik, Seidlitz, & Diener, 1993). Applied to the present study, it is therefore possible that higher family SES may be uniquely predictive of parents’ expression of positive emotion.

**Integrated Models.** The approach of the present study is to integrate both biological and sociocultural contributions to emotional expression. As such, it adapts a conceptual model that integrates both bodies of research and considers the mutual influences of biology and culture in emotional expression (Levenson, Soto, & Pole, 2007). Biocultural theories of emotion (Hinton, 1999) emphasize “an equal partnership between culture and biology” (Levenson et al., 2007, p. 782), in which biology and culture exert mutual, bidirectional influences throughout the course of the lifespan. Moreover, biocultural models suggest that while basic human emotions are biologically-based and universal, cultural expectations may influence the specific experience, type, or frequency of emotional response. Two integrated theories are now discussed in detail.

**Affect Valuation Theory.** Affect Valuation Theory (AVT, Tsai, 2007) integrates the influences of biology and culture on emotion by proposing that cultural factors contribute primarily to the socialization of ideal affect, “the affective states that people strive for or desire to feel”, while temperamental factors shape individuals’ actual affect – “the affective states that people actually feel in general or in response to a specific event” (Tsai, 2007, p. 243). In support of this distinction, studies by Tsai and colleagues indicate that members of East Asian cultures or Asian Americans value low arousal positive states (e.g., calm, relaxed, peaceful) more than European Americans, who tend to value high arousal positive states (e.g., excited, enthusiastic, elated) more than members of East Asian cultures (Tsai, Knutson, & Fung, 2006). In contrast, temperamental factors have been found to account for greater variance in actual, rather than ideal affect (Kuppens, Ceulemans, Timmerman, Diener, & Kim-Prieto, 2006). When controlling for temperamental factors (e.g., neuroticism or extraversion) cultural factors (e.g., measures of influence or adjustment goals) account for greater variance in ideal, rather than actual affect (Tsai, 2007; Tsai et al., 2006; Tsai, Miao, Seppala, Fung, & Yeung, 2007).

In explaining these cross-cultural differences, Tsai and colleagues (Tsai et al., 2006; Tsai, Miao, et al., 2007) suggest that they reflect contrasting goals within social relationships: individualistic cultures emphasize the goal of influencing others in social relationships, and therefore value high arousal affective states such as enthusiasm and excitement. In contrast, collective cultures are theorized to emphasize the goal of adjusting to others in social relationships, and therefore endorse low arousal affective states such as calmness or serenity. Consistent with this hypothesis, members of Asian cultures were found to place greater emphasis on adjustment goals than members of Western cultures (Tsai et al., 2006; Tsai, Miao, Seppala, Fung, & Yeung, 2007). Finally, research by Tsai and colleagues suggest that preferences for high or low arousal affect are socialized by a variety of mechanisms, including popular media, religious texts, and parent-child interactions (see Tsai, 2007, for a review).

**Biocultural models.** Similar to the model of AVT, biocultural models of emotion (Buck, 1984; Hinton, 1999; Levenson et al., 2007) also integrate the contributions of biology and culture in emotion. In contrast to the AVT model, which focuses on emotional experience, biocultural models of emotion examine contributions of biology and culture to a broader spectrum of observable emotional responses, including facial expressions, subjective reports of emotional
experience, and autonomic responses. For example, Hinton (1999) proposes that external affective stimuli activate cognitive, cultural, and neurophysiological processes within the individual, which in turn contribute to observed emotional responses.

Two critical features of biocultural models are their distinction between different components of emotional response and their emphasis on the role of voluntary control in emotional expression. Specifically, biocultural models suggest that voluntary control plays a key role in implementing culture-specific display rules - “culture-specific prescriptions about who can show which emotions, to whom, and when” (Ekman, 1993, p. 384). This degree of control varies among different components of observable emotional response (Buck, 1984; Levenson et al., 2007). For example, individuals typically have a high degree of control over their self-reported descriptions of emotional experience: they may choose to accurately describe their current emotional state, or they may choose to report something other than what they are actually feeling. Similarly, in non-arousing situations, individuals may be able to exert some control over their facial or prosodic affect: individuals may have little difficulty stifling a smile when they find a joke to be only mildly amusing. In contrast, individuals are likely less able to control their facial expressions or autonomic response during emotionally-charged situations. As such, self-reports of emotion may be culture-specific and differ between members of different cultures, while facial expression and physiological emotional response may be more universal across cultural groups.

In support of this model, empirical research has documented cross-cultural differences in self-reported components of emotional expression, but fewer differences in observed components of emotional response. For example, members of different cultures have been found to differ in self-reports of their current emotional experience (Levenson, Ekman, Heider, & Friesen, 1992; Tsai & Levenson, 1997; Tsai, Levenson, & Carstensen, 2000), as well as in self-reported expressivity – a “persistent pattern or style of exhibiting facial, body, vocal, and verbal expressions that are often but not exclusively emotional in nature” (Halberstadt, Crisp, & Eaton., 1999, p. 110). Compared to European Americans, Asian Americans report higher levels of habitual emotional suppression and masking of inner feelings (Gross & John, 1998; Gross & John, 2003). Similarly, in describing their own patterns of emotional expressivity within the family, European American mothers report expressing positive emotions more frequently than Mainland Chinese and Chinese American mothers (Camras et al., 2008). In contrast, fewer cross-cultural differences have been found across individuals’ observed emotional responses, such as facial expressions and physiological responses (Levenson et al., 1992; Soto et al., 2005; Tsai, Chentsova-Dutton, Friere-Bebeau, et al., 2002; Tsai, Levenson & McCoy, 2006).

These observations are supported by Potter’s (1988) ethnographic observations. Specifically, Potter (1988) argues for a distinction between emotions expressed in research settings and those expressed in everyday life. Within a research context, Potter suggests that members of Chinese culture are more likely to endorse “abstract statements of formal values that emphasize moderation and balance, than to report accurately on the rough-and-tumble of emotional expressiveness in daily life” (p. 196). In contrast, Potter’s observations of rural Chinese villagers suggest that within naturalistic settings, negative emotions are expressed openly and “by Western standards, most vividly expressive” (p. 188).

Previous research with foreign-born immigrant parents in the present sample also provides support for this model (Chen, Zhou, et al., in review). Cross-sectional analyses indicated that parents’ engagement in American cultural domains (e.g., media, language, and social relationships) were consistently and positively related with their self-reported expression.
of emotion in the family context, but inconsistently related to their observed expression of emotion during a stressful dyadic task with their child.

**Aims of the Present Study**

By integrating sociocultural models and developmental approaches, the present study aimed to examine the prospective relations between cultural engagement and emotion in a sample of Chinese American immigrant parents. The specific aims are presented below.

**Aim 1: Examine prospective relations between immigrant parents’ cultural orientations and expressivity.** By examining the prospective relations between parents’ behavioral engagement in Chinese and American cultural domains and their expressivity in the family context, the present study aimed to extend the existing research methodologically, conceptually, and demographically.

**Methodological aims.** To my knowledge, the present study was the first longitudinal examination of culture and emotion in an immigrant sample. The longitudinal design of the present study strengthened previous findings with this sample in two key ways. First, by introducing data from a second wave of data collection, the present study examined contributions of parents’ cultural orientation while controlling for their baseline levels of expressivity (Figure 4). Second, by examining contributions of parents’ W1 cultural orientation on their W2 expressivity (two years later), the present study allowed for the likely possibility that changes in parents’ engagement in cultural domains may not immediately or concurrently influence their patterns of emotional expression, but may do so over time. For example, an immigrant parent may not immediately acquire the patterns of emotional behavior exhibited by his/her American friends, but may do so gradually. Though three waves of data collection are required to model individual growth trajectories, two-wave longitudinal designs can capture cross-time effects of cultural engagement, and can also control for baseline levels of parents’ emotional expression.

**Conceptual aims.** As described above, bidimensional conceptualizations of cultural orientation view cultural adaptation and maintenance as separate and often independent dimensions. In these conceptualizations, immigrants may acquire elements of the host culture while simultaneously maintaining elements of their heritage culture (Arends-Toth & Van De Vijver, 2006; Berry, 1997). While previous research has tested bidimensional models of cultural orientation, the present study aimed to extend similar conceptualizations to the study of emotion by examining the simultaneous and unique effects of both heritage and host cultures on emotional expression.

**Demographic aims.** To my knowledge, no previous research has examined prospective relations of cultural orientation and expressivity in a sample of Asian American immigrant parents. The present study focused on this population for four reasons. First, by investigating relations of cultural orientation and expressivity in an immigrant sample, we were able to examine how orientations to a host culture (i.e., American) and the culture of origin (i.e., Chinese) culture were uniquely associated with emotional expression. Second, the family context provides a theoretical point of origin for the emergence of cross-cultural differences in emotional expression. Namely, we reasoned that if immigrant parents could adapt the patterns of emotional expression of their host culture, they would subsequently model or transmit these patterns to their children and subsequent generations. Third, as suggested by both biocultural co-constructivist models and findings from developmental neuroscience, adulthood provides an ideal window in which to examine the unique contributions of culture to emotional expression (Li, 2007, Steinberg, 2010). As detailed above, it is during adulthood that neurobiological
systems, including those involved in the regulation of emotion, have reached maturation. Thus, it is during this developmental window that cultural mechanisms, more than individual biology, may contribute to changes in emotional response (Li, 2007).

**Aim 2: Identify indirect mechanisms and alternative predictors of parents’ expressivity.** Parents’ endorsements of cultural values were tested as mediators in the relations between their behavioral cultural orientations and expressivity. Parents’ demographic characteristics (e.g., SES) were also examined as alternative predictors of expressivity.

*Mediation by Endorsement of Cultural Values.* Prior studies with the present sample indicated that parents’ engagement in specific cultural domains was associated with their concurrent patterns of emotional expressivity in the family. Overall, parents’ engagement in American cultural domains of media, language, and social relationships – hereafter referred to as behavioral domains - were positively associated with their self-reported patterns of emotional expression in the family, with the opposite relations observed for their engagement in Chinese cultural domains (Chen, Zhou, et al., in review).

These findings provided preliminary evidence suggesting that individual patterns of emotional expression are susceptible to the influence of new cultural expectations, even in adulthood. Moreover, the associations between cultural orientation and parental expressivity were theorized to reflect the acquisition or maintenance of cultural display rules. However, this potential mechanism was not directly tested. Namely, our previous research assessed parents’ engagement in cultural domains that are primarily behavioral, or external in nature - namely, their language proficiencies, their patterns of media use, and their patterns of social interactions. In contrast, we did not explicitly assess the psychological, or internal domains of parents’ cultural orientation – namely, their cultural values or views toward emotional expression.

The current study hypothesized that the effects of behavioral engagement on parents’ expressivity are mediated by their endorsement of cultural values toward emotional expression (Figure 4). We expected these relations for two reasons. First, recent work by Wang, Shao, and Li (2010) with bilingual children indicated that the relations between Chinese or English language use and children’s self-concept were mediated by endorsement of either Chinese or English cultural values. Thus, similar to the present hypothesis, the associations between an external, behavioral measure of cultural engagement (i.e., language use) and adherence to cultural expectations (i.e., descriptions of self) were mediated by endorsement of cultural values.

Second, while behavioral engagement in cultural domains is likely to contribute to the acquisition of display rules, there may also be situations in which these processes are independent. For example, Chinese American immigrants may acquire proficiency in English for purposes of employment or education, but still retain Chinese values toward emotional expression (Tsai, Chentsova-Dutton, & Wong, 2002; Ying, 1995). As such, in the present study, an individual’s behavioral engagement in Chinese domains may only contribute to increased emotional expression if he/she also endorses Chinese values toward emotional expression.

*Alternative Predictors.* In addition to cultural orientations (including behavioral engagement and endorsement of cultural values), it is also possible that parents’ emotional expressivity is affected by demographic variables (e.g., family socioeconomic status). Thus, the present study aimed to test whether these demographic characteristics uniquely predicted parents’ expressivity, above and beyond effects of parents’ cultural engagement and endorsement of cultural values.

**Aim 3: Test whether children’s cultural orientation predicts parents’ expressivity.** To my knowledge, no previous research has examined how children’s cultural orientation may
influence parental expressivity. Traditional models of parents’ socialization of emotion suggest that parents’ emotional expression and behavior reflect the display rules of the dominant culture, which are then socialized within the family context through modeling or more didactic mechanisms (Camras, Chen, Bakeman, Norris, & Cain, 2006; Campos & Stenberg, 1981; Eisenberg, Cumberland, & Spinrad, 1998). However, a family’s introduction to a new cultural context introduces new pathways of emotion socialization to this model. Rather than simply transmitting the display rules of their dominant culture to their children (Figure 2), immigrant parents may themselves be socialized by mechanisms in the surrounding cultural context (Figure 3). Furthermore, as indicated by the double-headed arrow in Figure 3, it is also possible that children may also influence their parents’ patterns of emotional expression in the family. As proposed by Gjerde (2004):

…children also transform cultural practice through their participation in cultural routines with each other and through attempts to resist the dominant adult world. Relations between parents and children increasingly take the form of negotiation about conflicting values; children are not docile bodies or passive recipients of cultural practices and values. (p. 142)

Thus, the present study examined parent-child differences in orientation to American and Chinese cultures, and tests whether these differences in cultural orientation may prospectively predict parental expressivity. Specifically, the present study examined whether parents’ expressivity was prospectively predicted by children’s levels of acculturation, even when they themselves are not engaging in domains of American culture. While I am unaware of any previous research directly testing these relations, a family systems perspective emphasizes that behavior or interpersonal interactions in one family subsystem can influence another (Parke & Buriel, 2006). Additionally, findings from temperament research provide strong support for child-driven determinants of parental behavior. For example, compared with children and infants with easier temperaments, children and infants with difficult temperaments have been found to elicit more coercive or distressed parenting behaviors (Putnam, Sanson, & Rothbart, 2002; Reid, Patterson, & Snyder, 2002).

Applied to the present study, there are two potential mechanisms by which children’s American orientation can predict parental expressivity, above and beyond the effects of parents’ own cultural orientation. First, parents may be peripherally exposed to American cultural domains through their children’s cultural engagement. For example, it is possible that parents whose children watch American television shows, speak English in the home, and interact primarily with European-American friends are exposed to some extent to these domains, even if they themselves continue to engage exclusively with Chinese media, Chinese language, and Chinese friends. Second, children’s cultural orientation may also affect parental expressivity through more direct, didactic pathways. For example, a child who is highly engaged in American behavioral domains may directly inform their less-acculturated parent how affection or criticism is expressed within their friends’ families or in mainstream media.

It is also possible that the effects of children’s acculturation on parental expressivity may be observed as both main and interactive effects. As a main effect, as described above, children’s orientation to American culture may contribute directly to parental expressivity, even while controlling for parents’ own cultural orientation. It is also possible that this effect of children’s acculturation may only be observed interactively, namely, among parents who are low in
American orientation. A wide body of literature has documented how immigrant parents and children often acculturate at different rates, with children typically adapting more quickly to the host culture, and parents retaining more aspects of the heritage culture (Birman & Trickett, 2001; Kwak, 2003; Costigan & Dokis, 2006). The resulting disparities between children’s and parent’s cultural orientations have been most commonly referred to in the literature as acculturation gaps or acculturative differences (Costigan & Dokis, 2006; Merali, 2002). Acculturation gaps may moderate the influences of cultural engagement on parent’s emotional expressivity. For example, among parents who are themselves already highly oriented to American culture, children’s higher engagement in American culture may not be associated with increases in parental expressivity (Figure 5). In contrast, for parents who are low in orientation to American culture, children’s higher engagement in American culture may serve as a proxy for their parents’ own acculturation, and may thus result in changes in parents’ emotional expressivity.

**Hypotheses of the Present Study**

**Hypothesis 1.** Consistent with previous research with this sample (Chen, Zhou, et al., in review), we hypothesized that parents’ behavioral engagement in Western and Chinese cultural domains (hereafter referred to as “behavioral engagement”) would be uniquely and prospectively associated with their emotional expressivity in the family context. Specifically, it was expected that parents’ engagement in American domains of media use, social relationships, and language proficiency would be positively associated with their expressions of positive and negative emotions in the family context, with the opposite relations expected for their engagement in Chinese cultural domains. I expected that these relations would be observed even after controlling for prior levels of emotional expressivity.

**Hypothesis 2.** Consistent with theories emphasizing the bidirectional influences of culture and biological processes, an alternative model (Figure 8) hypothesized that parents’ patterns of emotional expression could also predict their patterns of cultural engagement. Specifically, it was hypothesized that greater expressivity at W1 would positively predict engagement in American cultural domains at W2, even after controlling for W1 levels of cultural engagement.

**Hypothesis 3.** We hypothesized that parents’ behavioral engagement in cultural domains would predict their acquisition of emotion-relevant values. These emotion-relevant values would be associated with parents’ W2 expressivity, and would mediate the effects of parents’ behavioral engagement on their W2 expressivity. The specific paths were hypothesized as follows.

Parents’ engagement in Asian cultural domains at W1 was expected to be positively associated with their valuation of low-arousal positive and negative affect, collectivism, and conformity at W2. In contrast, parents’ engagement in American cultural domains at W1 was expected to be positively associated with their valuation of high-arousal positive and negative affect, and negatively associated with their valuation of collectivism and conformity.

Parents’ endorsements of emotion-relevant values associated with Asian culture (i.e., low-arousal affective states, conformity, and collectivism) were expected to be negatively associated with their expressivity in the family, with the opposite relations expected for their endorsement of emotion-relevant values associated with American culture (i.e., high-arousal affective states).

Finally, relations between parents’ behavioral engagement at W1 and their expressivity at W2 were expected to be mediated by their endorsement of emotion-relevant values, (Figure 4).
Specifically, the positive association between parents’ engagement in American culture and their emotional expressivity was expected to be mediated by their endorsement of emotion-relevant values associated with Western cultures (e.g., high-arousal affective states), and their non-endorsement of emotion-relevant values associated with Asian cultures (e.g., low-arousal affective states, collectivism, and conformity). In contrast, the negative associations between parents’ engagement in Chinese domains and their expressivity at W2 was expected to be mediated by their endorsement of emotion-relevant values associated with Chinese cultures (e.g., low arousal affective states, collectivism, and conformity), and their non-endorsement of emotion-relevant values associated with Western cultures (e.g., high-arousal affective states).

**Hypothesis 4.** Consistent with bidirectional models of cultural transmission in the family, we hypothesized that children’s behavioral engagement at W1 would contribute both main and interactive effects to parents’ expressivity at W2. Children’s behavioral engagement at W1 was expected to uniquely and prospectively predict parents’ expressivity at W2, even controlling for parents’ W1 cultural orientation and baseline levels of expressivity at W1 (Figure 4).

Specifically, children’s behavioral engagement in American culture at W1 was expected to positively predict parents’ expressivity at W2, with the opposite relations expected for children’s behavioral engagement in Chinese culture.

Differences in parent-child cultural orientations (operationalized as interactions between parent American/Chinese behavioral engagement and child American/Chinese behavioral engagement) at W1 were expected to prospectively predict parents’ expressivity at W2, beyond the main effects of parents’ and children’s behavioral engagements at W1, and controlling for parents’ baseline levels of emotional expression at W1 (Figure 4). Specifically, it was expected that among parents who are already high in American behavioral engagement at W1, children’s higher behavioral engagement in American culture W1 would be unrelated to their W2 patterns of expressivity. In contrast, for parents who are low in American behavioral engagement at W1, their children’s higher American behavioral engagement was expected to be associated with parents’ higher expressivity at W2.

**Method**

**Participants**

Data were collected from an ongoing longitudinal study of 258 first-generation (i.e., born outside the United States) and second-generation (i.e., born in the United States) Chinese American immigrant children and their parents. The following conditions were set as eligibility criteria for the study: (a) the child was in first or second grade at the time of screening; (b) the child lived with at least one of her/his biological parents; (c) both biological parents identified as ethnic Chinese; (d) the child was either a first generation (born outside the U.S.) or a second generation (born in the U.S. with at least one foreign-born parent) Chinese American; and (e) the parent and child were able to understand and speak English or Chinese (Mandarin or Cantonese). 258 eligible families (child and one participating parent from each family) completed the 2.5-hour laboratory assessment. Of this number, 63.6% were recruited through community recruitment fairs, 17.4% through school events, and 19% were recruited through community referrals.

To control for baseline levels of parent expressivity, analyses for the present study included only those families in which the same parent participated at both waves of assessment (n=210).

**Parent characteristics.** Among parents participating in the assessment, 178 (84.8%) were
mothers, and 32 (15.2%) were fathers. All participating parents identified as their child’s biological parents. On average, parents were 39.21 years old (SD=5.06) at the time of initial assessment.

At W1, all participating parents identified as either Chinese or Chinese-American. The majority of the participating parents (97.6%) were born outside of the United States, with 75.7% born in mainland China, 10.0% born in Hong Kong, 5.7% born in Vietnam, 3.3% born in Taiwan, 1.9% born in Burma, 1% born in Singapore, and 0.5% born in Cambodia. Parents’ reasons for immigrating to the United States included: joining family members (n=99, 47.1%), seeking better education/opportunities for their children (n=64, 30.5%), being brought by family members (n=62, 29.5%), marriage (n=38, 18.1%), seeking a better job or income (n=34, n=16.2%), and seeking educational opportunities for themselves (n=32, 15.2%). A small number of participating parents (n=5, 2.4%) reported immigrating to the United States to leave political or personal problems. At the time of initial assessment, parents had spent an average of 13.5 years (SD=7.62), or 29.65% of their lives in the United States (SD=18.42).

At W1, 90.9% of participating parents were married and living with their spouse, while 1.4% were living together with a partner, but were not legally married. The remaining parents at W1 identified as divorced, separated, widowed, or never married and not cohabiting, with the exception of one parent who withheld marital information. At W2, 91.3% of parents were married and living together with their spouse, while 1% was living together but not legally married. All other parents at W2 identified as divorced, separated, widowed, or never married and not cohabiting, with the exception of three parents who withheld marital information.

At both W1 and W2, parents had a mean level of 13.3 years of education (SDs =2.4 and 2.9, respectively). At W1, the majority of participating parents (60.8%) were employed full-time. An additional 13.3% were employed part-time, unemployed and not looking for work (24.4%) or unemployed and looking for work (8.3%). At W2, 82.0% of parents were employed full time, 4.6% were employed part time, 5.6 % were unemployed and not looking for work, and 4.1% were unemployed and looking for work.

Attrition analyses.

As of May 2012, 230 families who had participated in W1 assessments had also completed W2 assessments of the main measures used in the present study. Attrition analyses were conducted to compare families who completed both waves of assessment (n=230) to those who completed only W1 assessments (n=28). These two groups of parents did not differ significantly on demographic variables (i.e., child gender, child grade, child age, participating parent gender, parent education or family income) or on the main variables used in the present study (i.e., parent and child cultural orientation and parent expression of emotion). Of these 230 families, 210 had the same parent participating at both W1 and W2, and were included in the analyses.

Child characteristics. Children (51% boys) were between 5.8 years and 9.1 years old at W1 (M=7.4 years, SD=.72). At W1, most children were in either first (44.8%) or second (54.3%) grade, while two children were in third grade (1%). The majority of children in the present sample (75%) were second-generation Chinese American immigrants (i.e., born in the United States). The remaining children were born in mainland China (21.6%), Hong Kong (1.9%), Macau (0.5%), Vietnam (0.5%), and England (0.5%).

Family characteristics. At W1, each household had an average of 1.97 children (SD=.64), including the child assessed in the present study, and 2.51 adults (SD=1.17), including the adult assessed in the present study. At W2, each household had an average of 2.07 children (SD=.69),
including the child assessed in the present study, and 2.36 adults (SD=1.03), including the adult assessed in the present study. The average number of household members (i.e., adult and child relatives who lived with the family and had no other home) was 4.48 at W1 and 4.44 at W2 (SDs=1.32 and 1.24, respectively). Estimated per capita income ranged from $625 to over $50,000 at W1 (M=$11,432.74, SD=$8,237.97), and ranged from $1,000-$33,333.33 at W2 (M=$11,653.57, SD=$8035.46). Based on parents’ reports, 58.1% of children at W1 and 60.8% at W2 were eligible for free or reduced lunch at their schools, a commonly used index of family socioeconomic status (Sirin, 2005).

At W1, most participating parents (n=130, 61.9%) reported speaking only Chinese to their children in the home. A smaller percentage (n=71, 33.4%) reported speaking both Chinese and English to their children, while only 6 parents (2.9%) reported speaking only English to their parents in the home. In contrast, based on parents’ reports, a majority of children (n=107) spoke both Chinese and English to the participating parent, 36.2% (n=76) spoke exclusively Chinese, and 10.5% (n=22) spoke exclusively English.

Procedure

W1. The participating parent and child participated in a 2.5-hour laboratory assessment. After obtaining parental consent and the child’s assent to participate, two bilingual interviewers led parent and child into separate rooms to administer a series of structured interviews and questionnaires. The interviewers were undergraduate students who had received intensive training before conducting the assessment. Interviewers followed a scripted manual in administering the batteries. All questionnaires and tests were administrated in the parent’s or child’s preferred language (English, Mandarin, or Cantonese) indicated at the beginning of the visit. All written materials (including consent and assent forms and questionnaires) were available in English, simplified Chinese, or traditional Chinese.

At both W1 and W2, the majority of parents (79.5% and 83.8%) completed the questionnaires in Chinese. At the end of the laboratory visit, parents were paid $50 and reimbursed for transportation, and children were given a small prize. At the end of data collection, a brief written feedback report summarizing the child’s performance on the academic test and his/her overall emotional and behavioral adjustment (based on parent’s and teacher’s ratings on standardized instruments) was mailed to the parent.

Because the majority of our parent participants were non-native English speakers, the parent questionnaires were available in both English and Chinese (Mandarin or Cantonese). The majority of our child participants were comfortable speaking and understanding English and thus were administered the child assessment in English. During study preparation, the following procedures were used to translate the scripted verbal instructions for each measure into Chinese. First, the original instructions were translated into Chinese by a bilingual researcher. Next, another bilingual researcher back-translated the instructions into English. Next, the two translators and the principal investigator (who is fluent in both languages) met to review and resolve the discrepancies between the two English versions.

W2. W2 assessments were conducted approximately 2 years following each family’s W1 assessment. Mean time between assessments for the present sample was 1.91 years (SD $\pm$ .26 years, range = .66 to 3.24 years). In the time between assessments, contact with W1 participants was maintained using a variety of measures, including birthday cards for participating children, newsletters, and phone calls. Careful attention was given to any changes in families’ contact information.
Measures

Parent Expression of Emotion. According to the biocultural model of emotion, culture exerts its largest influence over self-reports of subjective emotional experience. It is in this component of emotional response that members of different cultures are best able to conform to their culture-specific display rules. Similarly, Potter (1988) suggests that it is with informal interview contexts, rather than in naturalistic observations, that members of Chinese culture are more likely to endorse “abstract statements of formal values that emphasize moderation and balance, than to report accurately on the rough-and-tumble of emotional expressiveness in daily life” (p. 196). Taken together, both accounts indicate that self-reports of emotional expression are the component of emotional expression that is most susceptible to, and most reflective of, cultural influence. Thus, for our main measure of parent emotion, the present study examined participants’ self-reported expressivity, “a parent’s dominant style of exhibiting nonverbal and verbal expressions within a family” (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995, p. 93). In contrast to online emotional response (Tsai, Chentsova-Dutton, Friere-Bebeau, et al., 2002), family expressivity assesses more persistent patterns and styles of emotion-related behavior across a variety of situations in the family context (Halberstadt et al., 1995).

At both W1 and W2, participating parents completed a 34-item version of the Self-Expressiveness in the Family Questionnaire (SEFQ; Halberstadt et al., 1995). The items are grouped into three subscales: a) positive expressivity (15 items, e.g., “Praising someone for good work”); b) negative-dominant expressivity (10 items, e.g., “Showing contempt for another’s action”); and c) negative-submissive expressivity (9 items, e.g., “Going to pieces when tension builds up”). Mothers provided ratings on scales of 1 (“I rarely express these feelings”) to 9 (“I frequently express these feelings”) for each item. At W1 and W2, alpha reliabilities of the SEFQ in the current sample were as follows:.90 and .88 for Negative-Dominant Expressivity; .81 and .78 for Negative-Submissive Expressivity; and .91 and .94 for Positive Expressivity.

Parent Behavioral Cultural Orientation. At W1 and W2, participating parents reported on their own and their child’s behavioral orientation using the Cultural and Social Acculturation Scale (CSAS, Chen & Lee, 1996), a 32-item bidimensional measure of both U.S. and Chinese cultural orientations. The CSAS has two versions: one for parent ratings of their own cultural orientations (32 items), and one for parent ratings of children’s cultural orientations (31 items). The parent and child versions have matched items, with only a few items differing from parent and child. Both versions of the CSAS are available in English and Chinese, and have demonstrated satisfactory internal reliabilities in a previous sample of Chinese American mothers and preschoolers (Garrett-Peters & Fox, 2007). Previous confirmatory factor analysis within this sample indicated support for a six-factor, three-domain structure: Chinese and American media (e.g., “How often do you watch Chinese/American television shows?”; parent! s = .78 and .65; child! s = .68 and .54), Chinese and English language proficiency (e.g., “How well do you read Chinese/English?”; parent! s = .68 and 95, child! s = .87 and .91), and Chinese and American social relationships (e.g., “How often do you invite your Chinese/Caucasian friends to your house?”; parent! s = .68 and .78; child! s = .68 and .73) (Chen, Hua, et al., in review).

Parent Emotion-Relevant Value Orientation. At W2, parents completed two questionnaires indicating their endorsement of affective states and cultural values.

Affect Valuation. The Affect Valuation Index (AVI; Tsai, Knutson, & Fung, 2006) is a self-report instrument assessing individuals’ ideal and actual experience of 30 different affective
states. In the present study, participating parents indicated how much they would ideally like to feel each affective state (1=never, 5=all the time). Affective states were categorized as high arousal positive (excited, enthusiastic, elated, euphoric), low arousal positive (calm, peaceful, serene, relaxed), high arousal negative (hostile, nervous, fearful), and low arousal negative (dull, sleepy, sluggish). The AVI has been used previously with Hong Kong Chinese, European American, and Asian American samples (Tsai et al., 2006; Tsai, Miao, & Seppala, 2007).

Asian American Values. The Asian American Values Scale-Multidimensional (AAVS-M, Kim, Li, & Ng, 2005) is a 42-item self-report instrument assessing adherence to different dimensions of Asian values. The present study used scales assessing values of collectivism (“The welfare of the group should be put before that of the individual”, “One’s efforts should be directed toward maintaining the well-being of the group first and the individual second”), conformity (“One should recognize and adhere to the social expectations, norms and practices”, “Conforming to norms provides one with identity”), and emotional control (“One should not express strong emotions”; “It is better to hold one’s emotions inside than to burden others by expressing them”). The AAVS-M has been used previously with European American and Asian American samples (Park & Kim, 2008).

Analytic Plan

Zero-order correlations and structural equation modeling (SEM) using Mplus 5.2 (Muthen & Muthen, 1998-2008) were used for all major analyses. Consistent with bidimensional models of cultural orientation, Chinese and American cultural engagements were entered simultaneously. Dimensions of parent expressivity were also entered simultaneously as outcome variables within each model. Autoregressive paths between identical W1 and W2 measures were included in all models. Family SES at W2, child gender, and child age at W2 will also be included as predictors of W2 parental expressivity. Given the large number of parameters included in the structural equation models, models were first evaluated using standard alpha rates (i.e., p < .05), then examined using Bonferroni-corrected alpha rates.

Analysis for Hypothesis 1. To replicate results of our previous research using the W1 data of the sample (Chen, Zhou, et al., in review), zero-order correlations first identified concurrent relations among the W2 variables, including: a) parents’ emotional expressivity in the family (i.e., positive, negative-dominant, and negative-submissive expressivity) and b) domains of parents’ cultural orientation (i.e., media use, language proficiency, and social relationships). A second set of zero-order correlations then identified relations between family demographic characteristics, cultural orientation, and parent expressivity.

SEM was then used to test the unique and prospective relations between parents’ American and Chinese cultural engagement at W1 and their patterns of emotional expression at W2. Consistent with bidimensional models of cultural orientation, both Chinese and American domains of orientation were entered as simultaneous predictors in the model. Demographic factors associated with both predictor and criterion variables (e.g., child gender, child age, family SES) were entered as covariates in the model. To account for baseline levels of parents’ expressivity, parents’ W1 patterns of expressivity were also included in the model.

Analysis for Hypothesis 2: SEM was also used to test the alternative model predicting W2 levels of cultural engagement from parents’ W1 expressivity. All dimensions of parents’ expressivity at W1 were entered as simultaneous predictors of their Chinese and American cultural engagement at W2. As in the previous model, demographic factors associated with both predictor and criterion variables were entered as covariates in the model.
levels of cultural engagement, parents’ W1 engagement in American and Chinese domains were also included in the model. Chi-square difference tests were used to compare this alternative model, the model proposed for Hypothesis 1, and a full reciprocal model including W1 cultural orientation and W1 expressivity as simultaneous cross-time predictors.

**Analysis for Hypothesis 3.** Zero-order correlations identified zero-order relations among parents’ a) behavioral engagement in cultural domains b) endorsement of emotion-relevant cultural values, and c) expressivity.

SEM was used to test the direct, indirect, and prospective relations between parents’ behavioral engagement in cultural domains at W1, their endorsement of emotion-relevant cultural values at W2, and their expressivity at W2. Five separate mediation models were tested, each testing the following mediators: 1) endorsement of high and low arousal negative affect 2) endorsement of high and low arousal positive affect 3) endorsement of collectivism, 4) endorsement of conformity, and 5) endorsement of emotional control.

**Analysis for Hypothesis 4.** To test the hypothesis that children’s cultural orientation at W1 uniquely and prospectively predicts parents’ W2 expressivity beyond parent’s cultural orientation at W1, all three dimensions of parents’ W2 expressivity were regressed on children’s Chinese and American engagement in at W1, as well as on parents’ Chinese and American engagement at W1.

To test the hypothesis that interactions between parents’ and children’s cultural orientations at W1 will uniquely and prospectively predict parents’ W2 expressivity, above and beyond the main effects of parents’ and children’s W1 cultural orientations, all three dimensions of parents’ W2 expressivity were regressed on interactions between parents’ and children’s W1 Chinese and American orientations.

Finally, following the procedures outlined by Aiken & West (1991), simple slopes analyses were conducted to probe interactions between parents’ and children’s behavioral orientations that were significant in predicting parents’ W2 expressivity. Specifically, the relation between parents’ behavioral orientation and their expressivity were examined at three levels of children’s orientation: mean level, one standard deviation above the mean (“high”), and one standard deviation below (“low”), controlling for other predictors in the model.

**Results**

**Descriptive Statistics**

The descriptive statistics of study variables are presented in Table 1. Variables were first screened for normality. Using the cutoffs of two and seven for skewness and kurtosis, respectively (West, Finch, & Curran, 1995), all of the main variables were normally distributed.

**Confirmatory Factor Analysis**

Because a number of our measures had not been used previously with Asian American immigrant parents, we conducted a confirmatory factor analysis (CFA) for these measures. From the Asian American Values Scale, CFAs were conducted for the collectivism, conformity, and emotional control subscales. From the Affect Valuation Scale, CFAs were conducted for the high and low ideal negative affect subscales and the high and low ideal positive affect subscales. For each measure, the latent factors were indicated by the corresponding items, and the error variances of the manifest variables were allowed to be correlated with each other. Mplus 5.2 (Muthen & Muthen, 1998-2008) maximum likelihood estimation was used to test the models. As
proposed by Hu and Bentler (1999), the cutoff criteria for a relatively good fit with the data and hypothesized model are: comparative fit index (CFI) ≥ .95, standardized root-mean-square residual (SRMR) ≤ .08, and root mean square error of approximation (RMSEA) ≤ .06.

The model for conformity fit the data well, $\chi^2 (n=210, df=13) = 189.29; p = .24$, CFI = .98, RMSEA = .034, SRMR = .038. All the model-estimated loadings were significant and in a positive direction. The model for collectivism also fit the data well, $\chi^2 (n=210, df=12) = 215.67; p = .56$ CFI = 1.00, RMSEA = .000, SRMR = .041. All the model-estimated loadings were significant and in a positive direction. However, the loading for one item (“The group should be less important than the individual” (reverse scored)) was not significant, and was dropped from the scale. The model for emotional control also fit the data well, $\chi^2 (n=210, df=2) = 215.67; p = .56$ CFI = 1.00, RMSEA = .000, SRMR = .041. However, the loadings for four items (“It is better to show emotions than to suffer quietly” (reverse scored), “One should not act based on emotions”, “Openly expressing one’s emotions is a sign of strength”, “One should be expressive with one’s feelings”) were not significant, and were dropped from the scale. Based on these scales, the alpha reliabilities within this sample were .76 (6 items) for collectivism, .51 (4 items) for emotional control, and .71 for conformity (7 items).

The two-factor model for high and low ideal positive arousal affect fit the data well, $\chi^2 (n=210, df=22) = 31.129; p = .08$, CFI = .99, RMSEA = .047, SRMR = .037. All the model-estimated loadings were significant and in a positive direction. The two-factor model for high and low ideal negative arousal also fit the data well, $\chi^2 (n=210, df=5) = 2.342; p = .8001$, CFI = 1.00, RMSEA = .000, SRMR = .016. All the model-estimated loadings were significant and in a positive direction. Alpha reliabilities within this sample were .78 (5 items) for ideal high arousal positive affect, .85 (5 items) for low arousal positive affect, .68 (3 items) for high arousal negative affect, and .68 (5 items) for low arousal negative affect.

**Zero-order correlations**

*Relations between demographic and cultural orientation variables.* Zero-order correlations examined the relations between family demographic characteristics, behavioral engagement, and cultural values (Tables 3a-3c). For both parents and children, time spent in the United States (operationalized as the percent of their life lived in the United States) was positively associated with their behavioral engagement in American cultural domains ($rs$ ranged from .40-.46 across both waves). Conversely, for parents, time spent in the United States was negatively associated with their engagement in Chinese cultural domains ($rs$ at W1 and W2 = -.18 and -.19, respectively). For children, these associations were also negative, but non-significant. Similarly, at both waves, second generation immigrant children (i.e., those who had been born in the United States) had higher levels of engagement in American domains ($rs$ = .30 and .18, $ps < .001$ and .05, respectively), and lower levels of engagement in Chinese domains ($rs$ = -.12 and -.14, $ps <.10$).

A composite index for family SES was computed by first averaging maternal and paternal education levels and then averaging the standardized scores of parental education and family per capita income (Datta & Meeram, 1980). Overall, family SES at both waves was positively associated with engagement in Western domains, and negatively associated with engagement in Chinese domains. Higher SES was associated with parents and children’s engagement in American domains ($rs = .63$ at both waves for parents, and ranged from .39-.52 for children). For children, family SES at Wave 1 was also negatively associated with their engagement in Chinese domains ($r = -.15$, $p < .05$).
Overall, parents in higher SES families showed a lower endorsement of values associated with Asian cultures. At both W1 and W2, family SES was negatively associated with endorsement of collectivism and conformity ($rs$ between -.27 and -.30; $ps < .001$).

**Relations between demographic and emotion variables.** Higher SES parents and parents who had spent a greater amount of time living in the United States also tended to idealize the experience of positive, rather than negative emotions. Both W1 and W2 family SES were positively associated with ideal high arousal and low arousal positive affect ($rs$ between .14 and .25, $ps$ between < .05 and < .001), and negatively associated with ideal high arousal and ideal low arousal negative affect ($rs$ between -.12 and -.23, $ps$ between < .10 and < .01). Similarly, parent time spent in the United States was positively associated with ideal high arousal and low arousal positive affect ($rs$ between .16 and .21, $ps$ between < .05 and < .01).

A different pattern of relations was found between family demographic variables and parents’ expressivity in the family context (Table 3b). Overall, family SES and parents’ length of time in the United States were positively associated with all dimensions of expressed emotion. W1 and W2 family SES were positively associated with parents’ positive, negative-submissive, and negative-dominant emotion, at both W1 and W2 ($rs$ between .26 and .38, $ps$ between < .01 and < .001). Parents’ time spent in the United States was positively associated with negative dominant and negative submissive emotion at both waves ($rs$ between .13 and .26, $ps$ between < .10 and < .01), but unrelated to their reports of positive emotion. Parent age at W1 was negatively associated with all dimensions of expressivity at W1 ($rs$ between -.13 and -.17, $ps$ between < .10 and < .05).

In general, mothers and parents of younger children also reported expressing more emotions in the family context. Specifically, with the exception of W2 negative dominant emotion, parent gender was negatively associated with all dimensions of parent emotion at both waves ($rs$ between -.16 and -.31, $ps$ between < .01 and < .001). Similarly, child age was negatively associated with all dimensions of parent emotion at both waves ($rs$ between -.13 and -.20, $ps$ < .10 and < .01).

**Relations among parent’s emotion variables.** Three general patterns of associations were observed among parents’ expressivity and their emotion-relevant values. First, consistent with our previous research with parents in China (Chen, Zhou, Eisenberg, Valiente, & Wang, 2011), parents’ reports of their positive and negative expressed emotions were dialectically related, while their positive and negative ideal affective states were inversely related (Table 6a). Specifically, parents’ reports of negative and positive emotions in the family were positively associated ($rs$ between .15 and .70, $ps$ < .10 and < .001), while their reports of ideal positive states and ideal negative states were negatively associated ($rs$ between -.12 and -.38, $ps$ between < .10 and < .001). Parents’ ideal high and low arousal states were positively associated, for both positive and negative emotions ($rs$ = .52 and .57, $ps$ < .001).

**Hypothesis 1. Parents’ behavioral engagement will be associated with their expressivity in the family.**

Hypothesis 1 predicted that parents’ behavioral engagement in Western and Chinese cultural domains would be uniquely and prospectively associated with their expressivity in the family context. Specifically, it was expected that parents’ engagement in American cultural domains would be positively associated with their expressivity, with the opposite relations expected for their engagement in Chinese cultural domains (Figure 7).

This hypothesis was partially supported. Consistent with Hypotheses 1, parents’
behavioral engagement in American cultural domains was positively associated with both positive and negative dimensions of expressivity in the family (Table 4a). These relations were consistent across both waves of assessment ($r$s between .23 and .42, $p$s between < .01 and < .001). Overall, parents’ Chinese orientation at W1 was associated with less negative expressivity at both waves ($r$s between -.15 and -.29, $p$s between < .10 and < .001).

In the structural equation model, parents’ Chinese and American cultural engagement were entered as simultaneous predictors of parents’ expression of positive, negative dominant, and negative submissive emotions at W2. To control for baseline levels of emotional expression, parents’ Chinese and American cultural engagement at W1 were also entered as simultaneous predictors. The model (Figure 7) fit the data well, $\chi^2 (df=6, N=210) = 9.69, p = .14, CFI = .99, RMSEA = .05, SRMR = .017$.

Partially consistent with Hypothesis 1, parents’ Chinese cultural engagement at W1 negatively predicted their negative dominant and negative submissive emotion at W2 ($s = -.20$ and -.12, $p$s < .001 and < .05, respectively). However, parents’ Western cultural engagement at W1 was unrelated to their expression of emotion at W2.

**Hypothesis 2. Parent expressivity at W1 will positively predict engagement in American cultural domains at W2**

As an alternative model, Hypothesis 2 predicted that parents’ expressivity at W1 would positively predict engagement in American cultural domains at W2, even after controlling for W1 levels of cultural engagement (Figure 8).

In the structural equation model, parents’ expression of positive, negative dominant, and negative submissive emotions were entered as simultaneous predictors of parents’ Chinese and American cultural engagement at W2. To control for baseline levels of cultural engagement, parents’ Chinese and American cultural engagement at W1 were also entered as simultaneous predictors. The model testing this hypothesis (Figure 8) was just-identified, $\chi^2 (df=0, N=210) = 0.00, p = .000, CFI = 1.00, RMSEA = .00, SRMR = .00$.

Partially consistent with Hypothesis 2, parents’ expressivity significantly predicted their Chinese cultural engagement, but not their American cultural engagement at W2. Specifically, parents’ expression of negative submissive emotion at W1 negatively predicted their engagement in Chinese culture at W2 ($s = -.23, p < .001$). Conversely, parents’ expression of positive and negative dominant emotion at W1 positively predicted their engagement in Chinese culture at W2 ($s$s = .26 and .23, $p$s < .01, respectively). Parents’ expressivity at W1 was unrelated to their engagement in American culture at W2.

**Model comparison.** Given acceptable fit for both baseline and alternative models, chi-square tests were used to compare both models against a nested, reciprocal model. In this model (Figure 9), W1 cultural orientations and parents’ emotional expression were entered as simultaneous predictors of W2 cultural orientation and emotional expression. This model also fit the data well, $\chi^2 (df=6, N=210) = 9.72, p = .14, CFI = .995, RMSEA = .054, SRMR = .015$. Moreover, chi-square comparisons indicated that this reciprocal model fit significantly better compared to both baseline ($\chi^2 (6) = 19.37, p < .01$) and alternate models ($\chi^2 (6) = 14.48, p < .05$). Path coefficients in this reciprocal model were consistent with those in the models for Hypothesis 1 and 2.

**Hypothesis 3. Emotion-relevant values will mediate effects of parents’ behavioral engagement on W2 expressivity.**
Hypothesis 3 predicted that parents’ emotion-relevant values would mediate the prospective relations between their behavioral engagement and their expressivity. To test this hypothesis, four mediation models were tested with the following mediators: 1) endorsement of conformity, 2) endorsement of emotional control, 3) endorsement of collectivism, 4) ideal high and low arousal negative affect, and 5) ideal high and low arousal positive affect.

In these models, parents’ Western and Chinese behavioral engagement at W1 were hypothesized to simultaneously predict each of the hypothesized mediators at W2. The mediators, in turn, were expected to predict parents’ expressivity at W2. The effects of covariates (family SES, child age, and child generation status) on both mediators and the outcome variables were controlled in the models. In addition, models also controlled for parents’ baseline (W1) levels of expressivity. The significance of mediated (indirect) effects in all models was tested using the bias-corrected bootstrap confidence intervals of indirect effects generated by Mplus 5.2 (Muthen & Muthen, 1998-2008). Among existing statistical approaches for testing mediation, the bias-corrected bootstrap confidence interval approach is considered one of the most accurate and powerful tests of indirect effects (Cheung & Lau, 2008; MacKinnon, Lockwood, & Williams, 2004).

**Mediation by high and low arousal affect.** Models testing mediation by high and low arousal affect were largely inconsistent with Hypothesis 3. Overall, parents’ behavioral engagement in American culture at both waves of assessment was associated with tendencies to idealize positive, rather than negative affective states at W2. These relations were observed for both high and low arousal positive states ($r$s between .27 and .33, $p$s < .001), and for both high and low arousal negative states ($r$s between -.19 and -.27, $p$s between < .01 and < .001). Some associations indicated the opposite relations between engagement in Chinese culture and parents’ ideal affect. Specifically, parents’ engagement in Chinese culture at W1 was negatively associated with their idealization of low arousal positive affect ($r$ = -.16, $p$ < .05), while their engagement in Chinese culture at W2 was positively associated with their idealization of low arousal negative affect ($r$ = .23, $p$ < .01).

Also contrary to Hypothesis 3, parents’ endorsement of low-arousal affective states was not associated with lower expressivity, nor was their endorsement of high-arousal states positively associated with greater expressivity. Rather, significant associations were observed between ideal and expressed negative emotions, and ideal and expressed positive emotions (Table 6a). For example, parents’ endorsement of both high and low arousal negative states was positively associated with their expression of negative emotions in the family ($r$s between .16 and .24, $p$s < .05 and < .01). Similarly, their endorsement of both high and low arousal positive states was positively associated with their expression of positive emotions in the family context ($r$s between .15 and .29, $p$s between < .05 and < .001). Unexpectedly, positive associations were also found between parents’ endorsement of positive affective states and their expression of negative emotions in the family context ($r$s between .13 and .26, $p$s between < .10 and < .001).

**Mediation by ideal negative affect.** The model predicting mediation by ideal high and low arousal negative affect (Figure 10) fit the data well, $\chi^2$ ($df = 9, N = 210$) = 9.503, $p$ = .392, CFI = .99, RMSEA = .02, SRMR = .02. Inconsistent with Hypotheses 3, but consistent with other results in the present study, parents’ Western orientation at W1 negatively predicted their valuation of both high and low arousal negative affect at W2 ($\gamma$s = -.28 and -.37, $p$s < .01 and < .001, respectively). Parents’ valuation of high arousal negative affect was positively associated with their negative dominant emotion at W2, though this relation was only marginally significant ($\gamma$ = .13, $p$ < .10). Though not specified in the original hypothesized model, parents’ negative
submissive expressivity at W1 was positively associated with their valuation of high and low arousal negative affect at W2 ($s = .22$ and .24, respectively, $p < .01$). Inconsistent with Hypothesis 3, the hypothesized indirect paths between cultural orientation, high and low arousal negative affect, and W2 expressivity were not significant.

**Mediation by Ideal Positive Affect.** The model predicting mediation by ideal high and low arousal positive affect (Figure 11) fit the data well, $\chi^2 (df = 10, N = 210) = 14.026, p = .1718$, CFI = .99, RMSEA = .04, SRMR = .02. Controlling for all other variables in the model, Parents’ Chinese orientation at W1 uniquely and negatively predicted parent’s negative dominant and negative submissive expressivity at W2 ($s = -.20$ and -.12, $p < .001$ and <.05, respectively). Inconsistent with Hypothesis 3, but consistent with other results in the present study, parents’ Western orientation at W1 positively predicted their valuation of both high and low arousal positive affect at W2 ($s = .18$ and .20, respectively, $p < .05$). Unexpectedly, parents’ valuation of high arousal positive emotion at W2 was positively and uniquely associated with their expression of negative submissive emotion at W2. Though not specified in the original hypothesized model, parents’ expression of positive emotion at W1 positively predicted their valuation of high and low arousal positive affect at W2 ($s = .24$ and .14, respectively, $p < .01$ and <.05). Inconsistent with Hypothesis 3, the hypothesized indirect paths between cultural orientation, high and low arousal positive affect, and W2 expression of emotion were not significant.

**Mediation by collectivism.** Analyses testing mediation by collectivism were also largely inconsistent with Hypothesis 3. Parents’ endorsement of collectivism was negatively associated with their reports of negative dominant emotion at both waves, and negative submissive emotion at W1 ($rs$ between -.16 and -.28, $p$s between <.05 and <.001). The model testing mediation by collectivism (Figure 12) fit the data well, $\chi^2 (df = 9, N = 210) = 13.787, p = .13$, CFI = .99, RMSEA = .05, SRMR = .02. Inconsistent with Hypothesis 3, parent’s cultural engagement at W1 did not uniquely predict their valuation of collectivism at W2 after controlling for all other variables. Rather, parents’ valuation of collectivism at W2 was negatively and uniquely associated with family SES at W1 ($rs$ between -.27, $p < .01$). Also inconsistent with Hypothesis 3, parents’ valuation of collectivism at W2 was unrelated to their expression of emotion at W2. Finally, inconsistent with Hypothesis 3, the hypothesized indirect paths between cultural engagement, collectivism, and W2 expression of emotion were not significant.

**Mediation by conformity.** Analyses testing mediation by conformity were partially consistent with Hypothesis 3. Consistent with Hypothesis 3, parents’ behavioral engagement in American culture at both waves of assessment was associated overall with lower endorsement of Asian values relevant to emotion (Table 4b; $rs$ between -.1 and -.33, $p$s between <.01 and <.001). Specifically, parents’ endorsement of conformity was positively associated with their Chinese cultural engagement at W1 ($r = .16, p < .05$) and positively, but marginally associated with their children’s Chinese engagement at W2 ($r = .13, p < .10$). Finally, parents’ endorsement of conformity was negatively associated with their reports of negative dominant emotion at W1 and W2 ($rs$ = -.12 and -.19, $p < .10$ and <.05).

The model testing mediation by conformity (Figure 13) fit the data well, $\chi^2 (df = 8, N = 210) = 9.692, p = .2873$, CFI = .99, RMSEA = .03, SRMR = .02. Consistent with Hypothesis 3, parents’ behavioral engagement in Chinese domains at W1 positively predicted their valuation of conformity at W2, although this association was only marginally significant ($r = .15, p < .10$). Also consistent with Hypothesis 3, parents’ Western orientation at W1 negatively predicted their valuation of conformity at W2 ($r = -.23, p < .01$). Though not specified in the original
hypothesized model, parents’ positive expressivity at W1 positively predicted their valuation of conformity at W2 ($s = .23$ and $14, ps < .01)$. Inconsistent with Hypothesis 3, the hypothesized indirect paths between cultural orientation, conformity, and W2 expressivity were not significant.

**Mediation by emotional control.** The models testing mediation by emotional control were partially consistent with Hypothesis 3. Consistent with Hypothesis 3, parents’ engagement in American culture at both waves was negatively associated with their endorsement of emotional control ($rs = -.25$ and -.22, $ps < .05$ and <.01). Parents’ endorsement of emotional control was negatively associated with both negative submissive and positive emotion ($rs = -.14$ and -.16, $ps < .05$). The model testing mediation by emotional control (Figure 14) fit the data well, $\chi^2 (df = 9, N = 210) = 12.539, p = .1846, CFI = .99, RMSEA = .043, SRMR = .019$. Consistent with Hypothesis 3, parents’ behavioral engagement in American domains at W1 negatively predicted their valuation of emotional control at W2 ($s = .15, p < .10$). Also consistent with Hypothesis 3, parents’ Western orientation at W1 negatively predicted their valuation of emotional control at W2 ($s = -.23, p < .01$). Inconsistent with Hypothesis 3, the hypothesized indirect paths between cultural orientation, conformity, and W2 expressivity were not significant.

**Summary of Mediation Models.** A number of patterns were consistent across mediation models. First, in all models, three dimensions of parents’ expressivity showed high stability across both waves of assessment ($s$s between .53 and .66, $ps < .001$). Second, in all models, parents’ Chinese orientation at W1 was negatively associated with negative dimensions of expressivity at W2 ($s$s between -.19 and 20 for negative dominant expressivity, and between -.12 and -.13 for negative submissive expressivity). Third, consistent with zero-order relations, parents’ engagement in American culture at W1 predicted higher valuation of positive affective states, lower valuation of negative affective states, lower endorsement of conformity, and lower endorsement of emotional control at W2. Finally, across all models, family SES at W1 consistently predicted higher positive expressivity at W2 ($s$s between = .20 and .22, $ps$ between < .01 and < .001).

**Hypothesis 4. Children’s behavioral engagement at W1 will contribute both main and interactive effects on parents’ expressivity at W2.**

Consistent with Hypothesis 4, children’s behavioral engagement in American culture at both waves was also positively associated with both positive and negative dimensions of parents’ emotional expressivity in the family ($rs$ between .17 and .41, $ps$ between < .01 and < .001). Similar relations were found between children’s Chinese orientation at W1 and parents’ negative expressivity at W1 ($rs$ between -.17 and -.18, $ps < .05$).

SEM was used to examine the main and interactive effects of parent and child cultural engagement at W1 on parents’ expressivity at W2 (Figures 5 and 6). While different methods have been used to assess parent-child gaps in cultural orientation, conceptualizing parent-child gaps in cultural orientation as interactions offers a number of advantages (Birman, 2006). First, the interaction approach allows parents’ and children’s cultural orientations to be assessed as continuous, rather than categorical variables. The interaction approach also allows for parent and child cultural orientations (main effects), as well as parent-child discrepancies in cultural orientations (interaction effects) to be tested simultaneously within the same model.

In this model (Figure 5), the four main effect predictors (child Chinese orientation, child American orientation, parent Chinese orientation, and parent American orientation) and two interaction effect predictors (child Chinese orientation parent Chinese orientation, and child American orientation parent American orientation) were hypothesized to simultaneously
predict parent expressivity at W2 controlling for covariates and W1 levels of parent expressivity. Based on the correlation analyses on the relations of demographic characteristics to cultural orientations, family SES and child generation status were included as covariates. To reduce multicollinearity and aid interpretation, the main effect predictors were mean centered prior to computing the interaction terms (Aiken & West, 1991). The models were estimated with Mplus 5.2 (Muthén & Muthén, 1998-2008) using full information maximum likelihood to handle missing data and the Maximum Likelihood Robust (MLR) estimator for adjustment to correct standard errors for non-normality. The raw data were analyzed. The model (Figure 15) fit the data well, \( \chi^2 (df = 29, N = 210) = 44.24, p = .035, \text{CFI} = .99, \text{RMSEA} = .05, \text{SRMR} = .03. \) Moreover, results from this model indicated strong cross-time consistency for parents’ engagement in American and Chinese culture (\( s = .76 \) and .55, \( ps < .001, \) respectively), as well as for positive and negative submissive expression of emotion (\( s = .68 \) and .62, \( ps < .001, \) respectively).

Inconsistent with Hypothesis 4, controlling for all other predictors and covariates, there were no observed main effect of children’s or parents’ cultural engagement on parents’ expressivity at W2. However, consistent with Hypothesis 4, a number of interactions between parents’ and children’s cultural engagement were found to prospectively predict parents’ expressivity at W2, beyond the main effects of parents’ and children’s cultural engagement. Specifically, there was a marginally significant interaction effect of parents’ x children’s Western orientation (\( s = .11, p < .10), \) a significant interaction effect of parents’ x children’s Chinese orientations (\( s = .17, p < .001), \) and a significant main effect of children’s generational status (\( s = .16, p < .05), \) In predicting parents’ positive emotion at W2, there was a significant interaction effect of parents’ x children’s Chinese Orientation (\( s = .12, p < .01), \) and a significant main effect of family SES at W1 (\( s = .21, p < .01), \) Procedures outlined by Aiken and West (1991) were used to probe the significant interactions found in the model. Simple slopes analyses were conducted to probe the three significant or marginally interactions in the model. In the simple slope analysis, the relations between parent’s Western and Chinese orientations and their emotional expression at W2 were probed at three levels of children’s Western and Chinese orientations: mean level, one standard deviation above the mean (“high”), and one standard deviation below the mean (“low”), controlling for other predictors in the model. As shown in Figure 15, at low levels of children’s Chinese orientation, parent’s higher Chinese orientation was associated with lower levels of negative submissive emotions. This relationship was nonsignificant at mean and high levels of children’s Chinese orientation. A similar pattern was found with the interaction effect on parents’ expressions of positive emotions (Figure 15). At low levels of children’s Chinese orientation, parents’ higher Chinese orientation was associated with lower levels of positive emotions. This relationship was nonsignificant at mean and high levels of children’s Chinese orientation.

Discussion

A running theme throughout the history of psychological science is the relation between internal and external processes. In particular, the field has long debated relations between psychology and culture: how do internal processes of the mind and brain interact with external influences of sociocultural contexts? Positions on this debate include both static and dynamic conceptualizations of culture and psychology, and endorse both dimensional and sociocultural approaches to investigating these constructs.
The present study was ideally positioned to make a distinct contribution to this longstanding discussion. First, by selecting emotion as our key outcome of interest, the present study focused on a construct that is susceptible to both internal processes of temperament and biology, as well as external influences of cultural norms and expectations. Design of the study also highlighted the unique influence of cultural processes on emotion. By examining emotional expression in an adult sample, the present study focused on a stage of human development in which cultural, rather than biological factors, are theorized to exert greater influence on psychological processes (Li, 2007). Similarly, by using self-reported, rather than observed measures of emotion, the present study focused on the component of emotional expression that is theorized to be most susceptible to cultural influence (Levenson et al., 2007).

The present study was also designed to test and broaden conceptual boundaries of culture and emotion. In contrast to cross-cultural, cross-sectional investigations, the present study followed a sample of Chinese American immigrants over the course of 2-4 years in the United States. Thus, the present study was able to examine both bidimensional and prospective relations of culture and emotion – namely, how immigrants’ orientation to both their heritage and host cultures uniquely and prospectively predicted their expression of emotion in the family context. The study’s within-group, longitudinal design also provided a challenge to dimensional, static conceptualizations of culture. By examining cross-time changes in culture and emotional expression within an ethnically homogenous immigrant group, the present study aimed to document the “fluidity of traditions and values” (Gjerde, 2004) and its relation to emotion. Finally, by focusing specifically on a parent sample, the present study examined whether the family context could be a point of origin for cross-cultural differences in emotional expression. Namely, if immigrant parents could adapt new patterns of expressing emotion in the family, it is possible that these patterns would be modeled in the family context, and adapted by their children, in turn. The following sections review the key findings, implications, and limitations of the present study in light of these aims.

**Key Findings**

**Behavioral cultural engagement and emotional expression.** Overall, findings from the present study supported the hypothesis that immigrant parents’ cultural engagement in behavioral domains is associated with their patterns of emotional expression in the family context. These patterns were most consistent for parents’ engagement with their heritage culture. Parents’ use of Chinese media, engagement with Chinese friends, and proficiency in Chinese language at W1 were uniquely predictive of lower emotional expression in the family at W2. These cross-time associations were observed above and beyond effects of engagement in American culture, and were observed even after controlling for demographic variables and initial levels of emotional expression. In contrast, though parents’ engagement in American culture was positively associated at the zero-order level with all dimensions of emotional expression, these associations became non-significant in the full models. Thus, contrary to hypotheses, parents’ engagement in American culture was not uniquely predictive of expressivity at W2.

These non-significant effects of American cultural engagement may be understood in light of the composition of the present sample sample. On average, parents had immigrated to the United States in early adulthood, and had spent an average of 13.5 years in the United States. It is possible that the acquisition of new patterns of emotional expression (i.e., increased expressivity) may take longer than the process of maintaining existing patterns of emotional expression (i.e., consistent, or decreased emotional expressivity). Thus, while the influence of
Chinese cultural engagement was observed within the timeframe of the present study, the unique effects of engagement in American culture may follow a slower trajectory. Similarly, the effects of American orientation may be stronger with a more acculturated sample of second or third-generation immigrant parents.

It was also hypothesized that the effects of cultural engagement would be seen across both positive and negative dimensions of emotional expression. Unexpectedly, the effects of parents’ Chinese cultural engagement were limited to dimensions of negative emotional expression (i.e., negative dominant and negative submissive emotions). Indeed, across models, the only unique predictors of parents’ positive emotional expression at W2 were demographic indices (i.e., family SES and children’s generation status). We had not predicted distinct effects of cultural engagement on parents’ expression of positive and negative emotions, and had instead hypothesized associations with overall emotional expressivity. Why would cultural engagement predict the expression of negative emotion, but not positive emotions? As reviewed above, previous research suggests that the emotional behaviors associated with positive expressivity—e.g., such as praising a family member or demonstrating physical affection—are arguably uncharacteristic, or less characteristic, of Chinese parents (Camras et al., 2008; Ng, Pomerantz, & Lam, 2007). Thus, it is possible that the acquisition of these new, unfamiliar patterns of emotional expression occurs less readily than the maintenance or amplification of existing patterns (i.e., decreases in negative expressivity). Alternatively, it is possible that the variance contributed by demographic factors to parents’ positive expressivity—namely, parent SES—outweighed the variance contributed by cultural engagement. We expand more on this alternative mechanism in the sections below.

**Psychological Mechanisms.** The present study also aimed to identify psychological mechanisms by which behavioral engagement in cultural domains influenced parents’ emotional expression. It was hypothesized that by engaging in Chinese or American cultural domains, immigrant parents would come to acquire values and expectations relevant to emotional expression, which would then influence their expression of emotion in the family context. The sections below discuss the effects of behavioral engagement on the acquisition of emotion-relevant values (Path A in Figure 4), the effects of emotion-relevant values on parents’ emotional expression (Path B in Figure 4), and support for the overall mediation model.

**“A” Paths: Behavioral engagement and emotion-relevant values.** In partial support of our hypothesis, and consistent with the existing literature, parents’ behavioral engagement in cultural domains at W1 indeed predicted a number of emotion-relevant values at W2. Parents’ engagement in American culture at W1 negatively predicted their endorsement of conformity and emotional control at W2, while their engagement in Chinese culture at W1 positively (but marginally) predicted their endorsement of conformity at W2. Thus, our results suggest that Chinese American immigrants’ active engagement in domains of American culture may eventually weaken their endorsement of traditional Chinese values. However, since these values were not assessed at W1, the directionality of these relations cannot be fully supported.

In contrast, relations between parents’ behavioral engagement and their ideal affective states revealed a pattern of results somewhat different from the existing literature on affect valuation. Affect Valuation Theory suggests that cultural socialization processes contribute to a preference for either high or low arousal affective states. In our sample, this distinction was more apparent between positive and negative affective states, with little distinction between high or low arousal affect. Specifically, parents’ engagement in American cultural domains at W1 predicted lower ideation of both high and low arousal negative affect at W2, and higher ideation...
of both high and low arousal positive affect at W2. In contrast, parents’ engagement in Chinese cultural domains at W1 predicted lower ideation of both high and low arousal positive affect at W2.

Indeed, what is suggested by these results is a shift away from dialectical ideals of emotion, and socialization toward the idealization of positive affect. Previous cross-cultural research suggests that members of Asian cultures view a balance of positive and negative emotions as ideal (Bagozzi et al., 1999; Kitayama & Markus, 2000; Schimmack, Oishi, & Diener, 2002; Peng & Nisbett, 1999; Tov & Diener, 2007), and differ from members of Western cultures in their endorsement of positive emotions (Eid & Diener, 2001; Kitayama & Markus, 2000; Markus & Kitayama, 1994; Scollon, Diener, Oishi, Biswas-Diener, 2004). In the present sample, parents’ reports of their actual expressed emotions were positive and dialectical (i.e., positive emotion was positively associated with both negative submissive and negative dominant emotion), but their parents’ ideal positive and negative affective states were negatively associated. In other words, parents who strived to experience high and low arousal positive emotions were less likely to strive for high and low arousal negative emotions. Thus, our results may be capturing a specific window in the process of socialization – namely, a point in which parents are becoming acculturated to the ideals of Western emotional experience, but have yet to translate it into their patterns of actual emotional expression.

The question remains why results from the present study differ from what would be predicted by Affect Valuation Theory. I propose that these discrepancies may be attributed partly to the ethnographic characteristics of our sample. The previous research on AVT has been limited to cross-cultural investigations of European American, Asian American, and Chinese (i.e., Hong Kong) college students. To our knowledge, the present study is the first to examine within-group differences among bicultural individuals, and was also the first to test how orientation to a culture (i.e., behavioral engagement) within this group predicted affect valuation. Additionally, previous research by Tsai and colleagues using between-group comparisons found few differences in high or low arousal negative states (Tsai, Miao, Seppala, et al., 2007). Thus, by extending the existing research to a within-group design, the present study highlighted how these differences do in fact emerge as a function of cultural orientation. Results may also be explained by the fact that the present sample was comprised almost entirely of foreign-born immigrants who, on average, had lived in the United States for just over a decade. As such, their orientations to Chinese culture were likely stronger than those of the Asian American undergraduate samples in previous studies of affect valuation.

The sample’s immigrant backgrounds may also have influenced their understanding of some measures. Although all measures were forward- and back-translated, or were available in validated Chinese-language versions, it is possible that linguistic difficulties prevented some parents from fully comprehending all items. For instance, one participant who was administered the Chinese version of the Affect Valuation Scale requested clarification on the difference between ideal and actual affect. Although this was the only documented incident of its kind, it is possible that other similar difficulties with item comprehension were not reported to our staff. Of note, nearly 15% of the participating parents in our sample had not completed high school, and an additional 36.2% had only a high school-level education. Thus, even with accurate translation into Chinese, lower socioeconomic status, and by extension, more limited language proficiencies may have confounded the responses of some participants.

Post-hoc analyses provided some support for this hypothesis. The psychometric properties of the emotion-relevant value scales (i.e., AAVS and the AVI) were examined among
parents in the present sample whose children qualified for free or reduced lunch during W2 (a commonly used index of family SES; Sirin, 2005). On the whole, inter-item reliability of these measures among this sub-sample (n=82, 39% of W2 sample) was lower than the reliability for the sample as a whole (alphas ranged from .45-.79 for the lower SES sample, compared to .51-.83 for the entire sample).

More broadly, the immigrant status of the present sample may have also had collinear effects on parents’ reports of emotional expression. As reported by many parents within the sample, the decision to immigrate to the United States was motivated by the pursuit of positive goals and opportunities, such as the pursuit of better educational and vocational prospects, and for a few, the escape from political or personal problems. Research on goal pursuit indicates that individual goals are mentally represented, and can be activated through goal-relevant primes (Bargh, Gollwistzer, Lee-Chai, Barndollar, & Trotschel, 2001). Domains of American culture may provide these primes of positive, rather than negative affective experience (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997). Thus, within the present sample, engaging regularly with American media and European American friends may promote the pursuit of happiness and positive emotion as affective goal, regardless of whether it is high-arousal happiness (e.g., enthusiasm) or low-arousal happiness (e.g., peacefulness).

“B” paths: Emotion-relevant values and emotional expression. At the correlation level, results indicated that parents’ endorsement of emotion-relevant values were generally associated with their patterns of emotional expression in the family. As expected, parents who valued emotional control reported expressing fewer positive and negative emotions in the family, while parents who valued collectivism and conformity reported expressing fewer negative emotions. Similarly, parents who valued experiencing both high and low arousal positive emotions reported expressing higher positive emotions in the family, while those who valued high and low arousal negative emotions reported expressing higher negative dominant emotions in the family.

An unexpected and intriguing result was the finding that parents who valued the experience of positive emotions concurrently reported expressing more negative emotions, as well as positive emotions in the family. One interpretation of this association is that parents who are currently expressing negative emotions in the family hope to change these patterns to be more in line with American cultural norms of positive emotional experience. An alternative explanation is that parents’ expression of negative emotions in the family, in particular negative submissive emotions of disappointment, sadness, and anxiety, result from discrepancies in their ideal and actual affective experiences – namely, an ideal for high arousal positive affect that is discrepant from their actual experience. Within undergraduate samples, these discrepancies between ideal and actual high arousal affect have been associated with higher depressive symptoms in both European American and Asian American undergraduate samples (Cojocaru, Chen, & Johnson, in preparation; Tsai et al., 2006). While beyond the aim of the present study, future research with the present sample can examine discrepancies between parents’ actual and ideal positive affect, and test their associations with parents’ reports of negative emotion.

Despite these significant zero-order associations, relations between parents’ emotion-relevant values and their emotional expression became largely non-significant in the full prospective model after controlling for all other variables. These non-significant relations may be attributed to a few factors. A primary factor is the cross-time stability of parents’ emotional expression. In order to provide a stronger theoretical model, the present study included parents’ baseline emotional expression among predictors of their emotional expression at W2. Doing so allowed for a more stringent test for unique variance provided by our hypothesized predictor
variables. However, the large variance of W2 emotional expression accounted for by W1 levels may cause contributions of other factors to become non-significant.

The non-significant B paths may also be attributed to concurrent measurement. In the present study, emotion-relevant values and parents’ emotional expression were both measured at W2. Thus, it is possible that although parents may value certain norms of emotional expression, implementing these values in the family context may not occur immediately, and may not be observed in cross-sectional measures. Indeed, given the high cross-time stability of parents’ emotional expression, it is likely that any changes in actual emotional expression may occur outside the 2-4 year window of the present study.

Of note, one B path remained significant even in the full prospective model. Even controlling for all other factors, parents’ valuation of high arousal positive affect was positively associated with their expression of negative submissive emotion in the family context. Since both of these measures were collected concurrently, it is not possible to confirm directionality of this effect. However, as described above, it remains an intriguing possibility that discrepancies between parents’ ideal and actual high arousal positive affect would contribute to their expressions of negative submissive emotion in the family.

Mediated Paths. Contrary to expectation, the hypothesized pattern of mediation was not supported in the present sample. While parents’ engagement in cultural domains did predict their acquisition of emotion-relevant values, the acquisition of these values did not have a concurrent effect on their patterns of emotional expression in their family. Results of the present study suggest two interpretations. First, it is possible that there are psychological mechanisms unaccounted for in the present study that contribute to changes in parents’ emotional expression. As noted, across models, parents’ engagement in Chinese cultural domains at W1 significantly predicted lower expression of negative emotions at W2. Thus, beyond the hypothesized mediators in the present study, some aspect of engaging with Chinese culture causes parents to decrease their expression of negative emotions in the family. Two such alternative mechanisms are explored in detail below. Second, as noted above, it is possible that the mediated effects will be observed beyond the timeframe of the present study. For example, while the acquisition of emotion-relevant values was observed between the first and second waves of the study, it is possible that the actual implementation of these rules (i.e., changes in patterns of emotional expression) may only be observed at a later point in time.

Alternative Mechanisms. In addition to examining the effects of parents’ cultural engagement and endorsement of emotion-relevant values, the present study also aimed to examine the predictive effects of alternative mechanisms on parent’s expressivity. Across most models, family SES at Wave 1 uniquely and positively predicted parents’ expression of positive emotion at Wave 2, beyond other factors in the model. Of note, these effects outweighed those of cultural engagement, none of which significantly predicted parents’ expression of positive emotion in the full model. One interpretation of these relations is that higher levels of education allow parents to become more familiar with American norms of positive emotions in the family. Alternatively, the large, positive associations between family SES and parents’ American cultural engagement may suggest that higher education and income facilitates parents’ facilitates parents’ engagement in American culture. For example, higher SES may increase the availability and comprehensibility of English-language media, increase parents’ opportunities for social interactions with Caucasian American friends (e.g., by living outside of ethnic enclaves), and increase parents’ use and proficiency with the English language.
Child-driven mechanisms. Though mediation by psychological mechanisms was not observed in the present study, results of the present study did provide support for an intriguing hypothesis, namely, that parents’ emotional expression could also be influenced by their children’s patterns of cultural engagement. In the present sample, parents’ lower engagement in Chinese culture only resulted in more frequent expression of positive and negative submissive emotions if their children were also low in engagement to Chinese culture. Accordingly, for these families, parents’ higher engagement in Chinese culture resulted in significantly lower expression of these emotions. In contrast, for families in which children were at mean or high levels of engagement to Chinese culture, parents’ engagement in Chinese culture was unrelated to their emotional expression.

These results raise a number of potential interpretations. First, the results highlight the influence of intergenerational differences in cultural orientation in immigrant families, particularly in regards to engagement in the heritage culture. For example, results suggest that parents will express more positive emotion in the family if both they and their children are lower in their engagement with Chinese culture. The implication is that when both parents and children have less exposure to Chinese models, values, and expectations of emotional expression, parents are more likely to exhibit American patterns of positive emotional expression.

Interestingly, results of the present study also indicate that parents’ engagement in Chinese culture has no influence on their emotional expression if children themselves are already moderately to highly engaged in Chinese culture. Taken together, these interactive effects underscore the dyadic nature of emotional expression and acculturation in the family: parents’ patterns of emotional expression in the family are affected not only by their own cultural engagement, but by the cultural engagement of their children, as well.

Other Psychological Mechanisms. The present study examined a specific set of emotion-relevant values – i.e., conformity, collectivism, emotional control, and values toward high and low arousal affect – and their relations to parents’ emotional expression. Overall, these emotion-relevant values were generally unassociated with parents’ emotional expression at W2, after controlling for other variables in the full mediational models. Thus, it is possible that parents’ patterns of emotional expression are influenced by other psychological mechanisms not tested in the present study. For example, to extend the anthropological observations by Hall (1976) and Potter (1988), it is possible that parents’ emotional expression in the family is influenced not by general values of emotional restraint or arousal, but rather by beliefs regarding the relevance of emotions to social relationships. These perspectives suggest that in Chinese culture, emotions and inner states are viewed as irrelevant to social relationships. The open expression of emotion, therefore, is viewed as unnecessary and, in the case of positive emotions, potentially detrimental to family relationships (Caldwell-Harris et al., 2011).

Applied to the present study, it is possible that parents’ increased engagement in American culture would contribute to a view of emotional expression as being instrumental, rather than irrelevant to, family relationships. The parent who spends more time reading American media publications, for instance, may come to believe that praising her son’s behavior is important for his or her self-esteem, and may therefore make concerted efforts to express these positive emotions within the family context. As we are unaware of existing measures assessing views of emotional relevance, future research efforts can be directed to assessing this construct and examining its relations to emotional expression in the family context.

An alternate possibility is that cultural influences on expressivity are exerted through automatic, implicit processes, without a conscious endorsement of specific emotion-relevant
values. As suggested by Mauss, Bunge, and Gross (2008) adhering to cultural norms and expectations regarding emotion can often be an automatic process that can occur outside of conscious awareness. Specifically, through processes of socialization, it is possible that expectations toward emotion “become habitual, and surround us to the point that they become completely natural and become invisible” (p. 44). Thus, the concept of Automatic Emotion Regulation (AER) suggests that individuals can conform to these expectations without deliberate control, both before and after the emotion has been generated (i.e., antecedent vs. response-focused processes). Similar processes are proposed by concepts of emotion contagion, in which facial, vocal, and other behavioral components of emotional expression are mimicked automatically, and without deliberate effort or awareness (Hatfield, Cacioppo, & Rapson, 1993). Thus, although parents in our sample may not endorse values of emotional control, their patterns of emotional expression in the family context may mimic those observed in their primary social circles.

Broader Conceptual Contributions

The relevance of the family context. Findings from the present study suggest that the family context may be a point of origin for cross-cultural differences and similarities in emotional expression. Camras et al. (2006) found that Chinese American mothers and mothers from mainland China differed in their positive expressivity in the family; these cross-national differences, in turn, were mirrored in their children’s facial expressions. By examining Chinese-American immigrant mothers at varying levels of cultural orientation, the present study provides a bridge between the two cross-national samples studied by Camras et al. Moreover, results of the present study highlight the acquisition and transmission of cultural display rules: by engaging in domains of the host culture, immigrant parents acquire its display rules, then model and transmit these patterns of emotional expression within the family context.

By focusing on the family context, these results offer a window into the process by which members of different cultural groups become more similar or more disparate in their patterns of emotional expression. While the present study did not assess children’s own emotional expression, previous cross-cultural investigations (Camras et al., 2006), in addition to a wealth of developmental research, indicate that children’s own patterns of expressivity are influenced by those of their parents (Eisenberg, Cumberland, & Spinrad, 1998). Thus, within the current sample, a girl whose parent has modeled American patterns of affection and praise in the family will likely go on to display similar patterns of emotional expression. Conversely, a boy whose mother has remained chiefly engaged in Chinese cultural domains and thus remains restrained in her affections, will likely demonstrate greater emotional restraint in his own relationships. As such, our results echo theories proposed by other researchers, namely that “the family context during childhood is a powerful tool to explain cross-cultural differences in developmental outcomes.” (Chasiotis, 2011, p. 394).

The relevance of developmental stages. By focusing on an adult-aged sample, these findings also provide support for the plasticity of emotional processes throughout early to middle adulthood. To-date, the existing research on emotion socialization, expression, and regulation has largely neglected this stage of development, and has focused instead on younger (e.g., infancy through adolescence) and older populations (e.g., older adults). In examining this population, findings from the present study fall squarely in line with bio-constructivist models, which suggest that emotional processes would be most susceptible to cultural, rather than biological influences during this stage of development (Li, 2007). Indeed, our results suggest that
the stage of early- to-middle adulthood is a rich area for examining the effects of culture on emotional processes.

**Future directions**

**Acculturation and components of emotional expression.** The present study focused on parents’ self-reports of emotional expression. Based on existing theories of culture and emotion (Levenson et al., 2007; Potter, 1988), it was expected that self-reported expressions of emotion would be most susceptible to cultural influence, and would show the most consistent associations with parents’ cultural engagement. Beyond the present study, however, future research can examine how parents’ cultural engagement influences their observed components of emotional expression. In particular, future research can examine effects of parents’ cultural engagement on their “online” emotional responding - i.e., “the changes in physiological responding, subjective experience, and expressive behavior that occur during an emotional event” (Tsai, Chentsova-Dutton, Friere-Bebau, et al., 2002, p. 380).

Consistent with biocultural models, previous research has suggested that cultural engagement has limited influence on components of individuals’ observed emotional expression, such as facial expressions or physiological response (Levenson et al., 1992; Soto, Levenson, & Ebling, 2005; Tsai et al., 2000; Tsai et al., 2002; Tsai, Levenson & McCoy, 2006). Though we have found similar associations in a cross-cultural investigation of the present sample (Chen, Zhou, et al., in review), to our knowledge, no research has examined effects of cultural engagement on individuals’ observed emotional response over time.

Even within self-reported components of emotional expression, future research can examine whether cultural engagement exerts different effects on verbal vs. non-verbal emotional expression. For example, as they increase in their English proficiency, is it possible that parents in the present sample may become more expressive in verbal components of positive emotion (e.g., statements of affection or praise), but not in their expressions of non-verbal positive emotion (e.g., physical affection). Our recent review (Chen, Kennedy, & Zhou, 2012) suggests that language plays a key role in how multilingual parents express emotion in the family context. Specifically, we propose that multilingual parents may use language to adapt culture-specific expectations toward emotional expression: emotions that are perceived as being unacceptable in one culture may be expressed using the language of another culture. Applied to the present study, it is possible that a Chinese-American parent’s increased engagement in American culture may indeed contribute to increased positive expressivity, but only in verbal domains of emotional expression. Thus, future investigations can examine the unique associations between cultural orientation and domains of self-reported emotional expression.

More broadly, future research is necessary to replicate the patterns of associations indicated across models of the present study. Given the large number of models and parameters tested in the present study, findings in the present study should be tempered in light of potentially inflated Type I error rates. Though a number of paths remained significant even after Bonferroni corrections, future research is necessary to replicate the general associations indicated across models.

**Conclusion**

The overarching aim of the present study was to examine if, and how, immigrant parents’ cultural engagement predicted their expression of emotion in the family. The results indicate that immigrant parents who maintain their engagement with their heritage culture will likewise
maintain that culture’s expectations toward emotional expression in the family. Engagement in domains of the host culture may influence parents’ endorsement of new values relevant to the expression of emotion; however, it is still unclear which of these values ultimately influence parents’ emotional expression in the family. Results from the present study also highlight interactive processes of cultural orientation within the context of the immigrant family, and indicate that parental expressivity is influenced not only by a parents’ own patterns of cultural engagement, but also by the cultural engagement of his or her child. In particular, associations between parents’ Chinese engagement and their emotional expression were moderated by children’s orientation to Chinese culture.

Our results hold both clinical and conceptual implications for future research. Chief among these is the indication that the immigrant family is a rich context for examining the interactions between culture and emotion. If culture is indeed “a unique meaning and information system, shared by a group and transmitted across generations.” (Matsumoto and Juang, 2008, p. 15), the study of emotion in the immigrant family provides a unique window through which to observe this process of intergenerational transmission.
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Table 1.

**Descriptive Statistics of Main Study Variables**

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<th></th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>Skew</th>
<th>Kurtosis</th>
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### Descriptive Statistics of Demographic Variables

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### Table 3a.

**Zero-Order Correlations between Demographic and Cultural Orientation Variables**

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Table 3b.

Zero-Order Correlations between Demographic and Parent Expressivity Variables

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<td>.29*</td>
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### Table 3c.

Zero-Order Correlations between Demographic and Value Variables

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### Table 4a.

*Zero-Order Correlations between Cultural Orientation and Expressivity Variables*

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**Zero-Order Correlations between Cultural Orientation and Value Variables**

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Table 5.

Zero-Order Correlations among W1 and W2 Cultural Orientations

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Table 6a.

*Zero-Order Correlations among Emotion Variables*

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Culture and psychology are interdependent and mutually constituted. Culture and psychology are dynamic, rather than static constructs. Relative influences of culture and psychology may vary across the lifespan.

Figure 1. Framework of the present study
Asian Cultures

Parent socialization of emotional restraint

Cultural expectations of emotional restraint

Child acquisition of emotional restraint

Western Cultures

Parent socialization of emotional expressiveness

Cultural expectations of emotional expressiveness

Child acquisition of emotional expressiveness

Figure 2. Hypothesized Model: Socialization of Cultural Display Rules in Non-Immigrant Families
Figure 3. Hypothesized Model: Cultural influences on the immigrant family.
Figure 4. Hypothesized mediation model. Effects of parents’ behavioral engagement on their emotional expression are hypothesized to be mediated by emotion-relevant cultural values.
Figure 5. Hypothesized Main, Interactive, and Prospective Effects of Parent and Child Cultural Engagement on Parents’ Emotional Expression
Figure 6. Hypothesized Child-directed effects on Parental Expressivity: Moderation by Parent Cultural Orientation
Figure 7. Baseline model predicting parent expressivity at W2 from cultural engagement at W1. Numbers are standardized loadings or path coefficients. Dotted paths are marginally significant. * $p < .05$, ** $p < .01$, *** $p < .001$. Bonferroni corrected alpha = .002.
Figure 8 Alternative model predicting cultural engagement at W2 from parent expressivity at W1. Numbers are standardized loadings or path coefficients. Dotted paths are marginally significant. * p < .05, ** p < .01, *** p < .001. Bonferroni corrected alpha = .003.
Figure 9. Nested reciprocal model predicting cultural engagement and parent expressivity at W2 from cultural engagement and parent expressivity at W1. Numbers are standardized loadings or path coefficients. Dotted paths are marginally significant. * $p < .05$, ** $p < .01$, *** $p < .001$. Bonferroni corrected alpha = .001.
Figure 10. Mediation by Valuation of High/Low Negative Affect. Numbers are standardized loadings or path coefficients. Dotted lines indicate marginally significant paths. * $p < .05$, ** $p < .01$, *** $p < .001$. Bonferroni corrected alpha = .002
Figure 11. Mediation by Valuation of High/Low Positive Affect. Dotted lines indicate marginally significant paths.

\* \( p < .05 \), \** \( p < .01 \), \*** \( p < .001 \). Bonferroni corrected alpha = .002
Figure 12. Mediation by Valuation of Collectivism. Dotted lines indicate marginally significant paths. * $p < .05$, ** $p < .01$, *** $p < .001$. Bonferroni corrected alpha $= .001$
Figure 13. Mediation by Valuation of Conformity. Dotted lines indicate marginally significant paths. * $p < .05$, ** $p < .01$, *** $p < .001$. Bonferroni corrected alpha = .002.
Figure 14. Mediation by Valuation of Emotional Control. Dotted lines indicate marginally significant paths. *p < .05, **p < .01, ***p < .001. Bonferroni corrected alpha = .002
Figure 15. Significant paths contributing to W2 parent expressivity. Numbers are standardized loadings or path coefficients. * p < .05, ** p < .01, *** p < .001. Bonferroni corrected alpha = .001.
Figure 16. The interaction effects of W1 parent x child cultural orientation on W2 parent expressivity.