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## Child Temperament in Three U.S. Cultural Groups

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### Abstract

Temperament among children ( $N = 111$  20-month-olds) from three cultural backgrounds in the United States (Latin American, Japanese American, and European American) was investigated. In accord with a biobehavioral universalist perspective on the expression of early temperament, few significant group differences in child temperament were found, regardless of cultural background. However, factors associated with maternal reports of child temperament differed by cultural group. The findings provide insight into the nature of child temperament generally and temperament of children in immigrant families specifically as well as parenting in immigrant families.

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Temperament refers to the behavioral style exhibited by infants and young children in different contexts in response to ranges of stimuli (Zeanah & Fox, 2004). It is consensually defined as constitutionally based individual differences in emotional, motor, and attentional reactivity and self-regulation that appear early in life (Rothbart & Bates, 2006). At the same time, dispositions of temperament require eliciting conditions, and complementary contextual models of temperament focus on the roles of environment and experience in the expression of temperament. Temperament in childhood is shaped in part by the actions of others (Rothbart and Bates, 2006), and its regulation is culturally dependent (Paulussen-Hoogeboom, Stam, Hermanns, & Peetsma, 2007; Raval, Martini, & Raval, 2007). Thus, childhood temperament emerges through the biological organism's transactions with the social environment (Zelli & Dodge, 1999).

The present study uses a comparative approach to investigate child temperament in three cultural groups in the contemporary United States. The study had two main goals. The first goal was to explore temperament in early childhood in two acculturating groups and compare their temperament to that of European Americans at the same stage of development. The second goal was to use the comparison across acculturating groups to explore the nature of child temperament more deeply.

### Early Childhood Temperament in Three U.S. Cultural Groups

Immigration and acculturation are major transforming forces on children worldwide. The International Organization of Migration (<http://www.iom.int/jahia/jsp/index.jsp>) estimates that approximately 200 million people live outside the country of their birth or citizenship. Today, for example, nearly 25% of children under the age of 18 in the United States are

either immigrants themselves or the children of immigrants (Hernandez, Denton, & Macartney, 2007, 2008).

Like early childhood research more generally (Tomlinson & Swartz, 2003), the vast majority of research on child temperament has been conducted with European or North American children. Assessment in non-European heritage samples is much more limited. In fact, we were unable to locate any studies of early childhood temperament in immigrant samples in the United States. This essentially monocultural tradition imposes limitations on our understanding of the acculturation of child temperament and on extant theories of temperament. Characteristics of growth and development that appear universal can turn out to be culturally specific and vice versa once the participant base contributing to a phenomenon is widened.

For this study, we purposely recruited cultural groups that had commonalities as well as dissimilarities on several psychosocial characteristics. We studied children from three cultural backgrounds in the United States: Latin American, Japanese American, and European American. First, studying immigrant families is important in itself because of the increasing numbers of immigrants in the United States (Federal Interagency Forum on Child and Family Statistics, 2002; Hernandez et al., 2007, 2008; Reuters, 2004). Second, we chose to study child temperament in (specific groups of) Latin American and Asian American families because Latinos and Asians are currently the majority immigrant groups to the United States (Jacoby, 2004); however, they have received comparatively little research attention (e.g., Chao & Tseng, 2002; Garcia Coll & Pachter, 2002). Variation in child temperament across immigrant groups could have implications for children's adjustment, parent and peer relationships, as well as professionals' and practitioners' better understanding of immigrant children and families (Bornstein & Cote, 2004, 2009; Lansford, Deater-Deckard, & Bornstein, 2006). Third, choosing more than one immigrant sample permitted us to investigate specificities and generalities in child temperament among immigrant groups. Finally, developmental science needs to study immigrant and cultural minority families to help to confirm or (more likely) refine theories about familial and cultural influences on children's development.

## Temperament in Early Childhood

The emergence and ontogeny of temperament reflect the transaction of the biological organism with the social environment through time. Consider the following logic model. The biological mechanisms that underlie temperament may be similar or they may differ across (cultural) groups. It could be, then, that (possibly because human nature is more or less uniform) infants and young children in different cultural groups start life with similar temperaments or that (possibly on account of genetic variation) infants and young children in different cultural groups start life with different temperaments. Reciprocally, separate from biological differences, socialization in different cultural groups might emphasize the same or similar temperaments, or the shaping of children's temperaments in different cultural groups could be quite different. That is, infants and young children in different cultural groups might share the same or similar ranges of experiences that shape temperament in the same direction or infants and young children in different cultural groups experience different formative experiences that shape temperament in different directions. Put another way, uniform biology in transaction with uniform experiences across groups would predict similar temperaments in children in different groups. Nonuniform biologies in transaction with non-uniform experiences would predict different temperaments in children in different groups (unless some combinations eventuated in similarity, but this would surely be a low-probability outcome). Uniform biology in transaction with non-uniform experiences in different groups, like nonuniform biologies in transaction with uniform

experiences in different groups, would also predict different temperaments in children, unless in the former (unlikely) case temperament is refractory to experience or in the latter (equally unlikely) case experience wholly molds temperament. Again, what we know is that the early expression of temperament is governed by genetic and biological factors in combination with environmental influences and experiences. Goldsmith, Lemery, Buss, and Campos (1999), for example, identified genetic/biological and environmental/experiential underpinnings of individual differences in temperament in a sample of 3- to 16-month-old twins and their parents. Mothers completed the Infant Behavior Questionnaire (IBQ; Rothbart, 1981). Both additive genetic/biological and shared environmental/experiential effects were needed to best represent subscales of the IBQ.

Cultural comparisons cannot by themselves tell us the extent to which temperament is biologically and contextually influenced (Gartstein, Kinsht, & Slobodskaya, 2003) because biology and culture are normally confounded. Such comparative studies can and do reveal the baseline temperament status of children that is so necessary to understanding later development. However, cross cultural studies that point to differences in early childhood temperament set the occasion to answer what happens in the extremely interesting circumstance where an infant of one culture is transposed to a different culture where peoples in the cultures of origin and destination differ in temperaments. At this time, there is scant empirical data on temperamental differences between cultures. However, some research has pointed to cultural differences in very young children's temperament (e.g., Nugent, Lester, & Brazelton, 1989). Most of the extant literature has developed around Asian-North American or Western European comparisons. For example, a biological predisposition among Japanese infants to be less disturbed by noise during sleep has been asserted (Kawasaki et al., 1994), and on average infants of Asian descent are reportedly less easily upset, better able to soothe themselves, less easily aroused, and more adaptable than Western infants (Arbiter, Sato-Tanaka, Kolvin, & Leitch, 1999; Caudill & Frost, 1972; Caudill & Weinstein, 1969; Kagan, Arcus, Snidman, Feng, Hendler, & Greene, 1994; Kagan, Kearsley, & Zelazo, 1978; Lewis, 1989; Nakagawa & Sukigara, 2005; Prior, Kyrios, & Oberklaid, 1986; Shwalb, Shwalb, & Shoji, 1994). Still, the literature is equivocal. A review of 13 Japanese-European American comparisons of infant motor development and activity level, a concrete item typical of temperament instruments, showed 5 studies with higher scores among European American infants, 5 with higher scores among Japanese infants, and 3 with no cultural differences in motor development or activity level (Bornstein, 1989). For this reason, we studied at least one Asian (Japanese) group.

The study of early child temperament in acculturating groups provides an especially compelling locus for examining different possibilities. Unfortunately, there are few studies of temperament in acculturating young children, but one does follow a design similar to the one we pursued here. Axia, Prior, and Grazia Carelli (1992) compared temperament in three groups of 1- to 3-year-old children from Italy and Australia using Italian and Australian versions, respectively, of the mother-report Toddler Temperament Scale (Fullard, McDevitt, & Carey, 1984). Italians, Australians, and Italo-Australians (Italian mothers living in Australia) reported differences on Intensity, Threshold, Approach, and Persistence dimensions of child temperament. Overall, Italian and Australian mothers described their toddlers in ways that were the most temperamentally different, with the Italo-Australians in between. As a tentative guide, then, it appears that the temperament of young children in an acculturating group, where children in the comparison anchor cultures of origin and destination differ, integrate the two temperaments in an interactional fashion. Notably, Axia et al. (1992) relied on maternal report of child temperament, but did not control for maternal characteristics that might influence maternal report, like social desirability.

## This Study

To understand more about temperament in early childhood, and to explore the role of temperament among immigrant groups to the United States, it is necessary to conduct comparative assessments of temperament in non-European/North American cultures. Therefore, we studied child temperament in Latin Americans (from South America) and Japanese Americans (from Japan) in conjunction with European Americans. To do this, we asked mothers from three cultural groups to report about their young children's temperament.

Evidence to date supports the careful use of parent-report measures of child temperament for several reasons: They provide a comprehensive perspective on child temperament because parents see the widest range of child behaviors, they have adequate objective validity, and the social relationship aspects of temperament elicited from parents in themselves may be important to understanding child development (Bornstein, Gaughran, & Segui, 1991; Rothbart & Bates, 2006). Most major methods to study temperament in early childhood rely on discrete, observable behavioral items to index the latent construct (e.g., Bates, Freeland, & Lounsbury, 1979; Carey & McDevitt, 1978; Matheny, Riese, & Wilson, 1985; Matheny, Wilson, & Nuss, 1984; Riese, 1987; Rothbart, 1981, 1986; Thomas & Chess, 1977; Wilson & Matheny, 1983, 1986). The varied contents of different items thought to assess temperament support the work of researchers who understand temperament as organizing and thus encompassing a diversity of characteristics that tend to show individual differences, emerge early in life, and express themselves behaviorally in quantifiable ways. Five consensually identified components of temperament are: pleasure, interest/persistence, activity level, social fear, and anger proneness. Many different organizational formulations of these separate components have been offered, but two dimensions of temperament that have received considerable attention are positive affectivity (when the child characteristically smiles and laughs, is easily soothed, and is attentive) and negative affectivity (when the child typically displays fear or is easily distressed in response to restrictions or high levels of stimulation) (Putnam, Sanson, & Rothbart, 2002; Rothbart & Bates, 2006). We studied these dimensions of childhood temperament in three cultural groups.

## Methods

### Participants

One hundred and eleven middle-class 20-month-olds and their mothers from three U.S. cultural groups participated: Latin Americans,  $n = 31$ , Japanese Americans,  $n = 36$ , and European Americans,  $n = 44$ . All children were firstborn singletons, healthy, and term, and approximately equal numbers of girls and boys participated in each group. All children were born in the United States. All mothers were married to their baby's father. As can be seen in Table 1, with the exception of child age and mothers' education level, participating families were demographically similar to each other, regardless of cultural background.

Participants were from a large metropolitan area on the East coast of the United States and are demographically representative of middle-class mothers in their particular cultural group in that area (U.S. Census Bureau, 2001). Families were recruited using a variety of methods common to research with infants and young children who are not yet school-age (i.e., they were recruited from hospital birth notifications, patient lists of medical groups, newspaper birth announcements, advertisements in newspapers, but primarily from mass mailings).

Mothers in this study were immigrants (using Hernandez et al.'s, 2008, definition). (It is important to distinguish immigrants from refugees, because refugees are known to

experience a host of psychological difficulties that affect parenting; Berry & Sam, 1997; Suarez-Orozco & Suarez-Orozco, 2001.) Mothers self-identified as Latin American or Japanese American; this is a central methodological issue for research with ethnic minorities (Marín & Marín, 1991). Latina mothers' first language was Spanish, and they were primarily from Argentina, Colombia, and Peru. (In areas of the United States that lack a large concentration of a single Latin American group, people tend to identify themselves by their regional affiliation rather than by their country of origin; see Winn, 1992. Furthermore, empirically there were no differences within the Latin American group on any dependent variables.) Japanese American mothers' first language was Japanese. Latin American and Japanese American mothers were bicultural (as indicated on the 5-point *South American Acculturation Scale* or *Japanese American Acculturation Scale*; Bornstein & Cote, 2001): Latin American,  $M = 2.40$  ( $SD = .45$ ), Japanese American,  $M = 2.21$  ( $SD = .66$ ),  $t(64) = 1.32$ ,  $ns$ ; they were either first- or second-generation Americans, 26:5 and 33:3,  $\chi^2(1, N = 67) = 0.96$ ,  $ns$ ; and they had lived in the United States for  $M = 9.24$  years ( $SD = 6.05$ ) and  $M = 5.93$  years ( $SD = 3.40$ ),  $t(36.83) = 2.42$ ,  $p < .05$ , respectively, at the time of recruitment into the study. European American participants were either fourth- or fifth-generation (i.e., most or all grandparents were born in the United States). Because childrearing differences among both Latin American and Asian American families have been found (e.g., Field & Widmayer, 1981; Uba, 1994), we studied one specific subsample of each. The samples we recruited are not representative of "Latinos" or "Asians" at large; indeed, no one cultural group could be representative of these broader categories.

## Procedures

Mothers completed a sociodemographic questionnaire, a temperament questionnaire, and an acculturation scale. Additionally, because social psychological research has consistently identified variation in reporters' self-serving bias (Chandler, Shama, Wolf, & Planchard, 1981; Markus & Kitayama, 1991; Mezulis, Abramson, Hyde, & Hankin, 2004), and parents especially might be understandably partial about their children, mothers completed a questionnaire which assessed their tendency to make socially desirable responses. Latin American and Japanese American mothers chose the language in which they completed the questionnaires. Several steps were taken to promote the validity and cultural appropriateness of these instruments for we aimed to arrive at translations that were comparable from a psychological perspective (van de Vijver & Leung, 1997). To assure the Aadapted@ equivalence of all instruments across cultures, the questionnaires, originally constructed and written in English, were first forward-translated into Spanish and Japanese and then back-translated by bilingual bicultural Argentine and Japanese natives using standard back-translation techniques. The translated instruments were next checked for preservation of meaning and cultural appropriateness by professional psychologists in Argentina and Japan. Then, professionals and bilingual mothers from each culture who lived in the United States and were not participants in the study were interviewed regarding the cultural validity of items in the instruments. Finally, pilot testing was undertaken to ensure that the instruments were comprehensible and ethnographically valid (see Brislin, 1980, 1986; van de Vijver & Leung, 1997).

## Measures

The *Toddler Behavior Assessment Questionnaire* (TBAQ; Goldsmith, 1987) is a 111-item maternal report instrument that assesses five aspects of child temperament: pleasure, interest/persistence, activity level, social fear, and anger proneness. Questions such as, "When your child joined in an active game with other children (for example, one that involved running or jumping), how often did s/he keep up with the most energetic and active children?" were rated on a Likert-type scale from 1 = *Never* to 7 = *Always*. This format minimizes problems associated with recall and limits biases associated with more global

questions that would require respondents to aggregate information across contexts or situations prior to answering. The response format of the TBAQ presents sets of items based on the context or situation eliciting the child's reactions (e.g., bathing and dressing), which serve to enhance specific recall and limit social desirability. The TBAQ does not require respondents to make comparative judgments that would be difficult if they lacked familiarity with other children. Subscale scores were computed by taking the mean of all items for each of the 5 behavioral categories (items were reverse-scored as necessary), thus participants' scores on each subscale range from 1 to 7. The TBAQ was originally designed for use with 18- to 24-month-old children and has been extended to children ranging in age from 16 to 36 months old (for younger children the IBQ is used; Goldsmith, 1996). These subscales have good internal consistency and construct validity when compared to both observational data and other temperament questionnaires (Goldsmith & Rothbart, 1991). Because the TBAQ was normed and standardized with European American samples, we computed reliability for the Latin American and Japanese American samples. TBAQ subscale reliability scores were all above .70 except one (Japanese American activity level,  $\alpha = .67$ ), and ranged from  $\alpha = .67$  to  $.89$  (and so were acceptable; DeVellis, 1991).

Similar to other studies using temperament scales such as the TBAQ, we combined subscales to form dimensions of Positive and Negative Affectivity (see Goldsmith & Campos, 1990; Kochanska et al., 1998; Rothbart, 1986). Specifically, we derived a Positive Affectivity score by taking the mean of the pleasure and interest/persistence subscales, and we derived a Negative Affectivity score by taking the mean of the activity level, social fear, and anger proneness subscales. Cronbach's  $\alpha$ s for the Latin American and Japanese American samples ranged from  $.81$  -  $.92$ .

Mothers also completed the *Social Desirability Scale* (SDS; Crowne & Marlowe, 1960), which uses 33 items to assess adults' tendencies to respond to questions in a socially desirable fashion. Questions like, "I have never intensely disliked anyone.", are rated as *true* or *false*. Scores were computed by summing the number of items that matched the socially desirable response. SDS scores range from 0 to 33. Because the SDS was normed and standardized with European American samples, we computed reliability for the Latin American and Japanese American samples. Cronbach's  $\alpha$ s in these samples ranged from  $.65$  -  $.74$ . SDS was examined as a control on maternal reports of their children's temperament.

## Results

### Preliminary Analyses

**Data screening**—Prior to data analysis, univariate and multivariate distributions of the dependent variables (DVs) were examined for normalcy, homogeneity of variance, outliers, and influential cases, and all were found to be normally distributed (see Fox, 1997). Because there were differences between groups in mothers' education level and child age, and because we wished to rule out social desirability as a possible confound (because we used maternal ratings of temperament), these variables were screened as potential covariates for the univariate analyses of variance (ANOVAs). They were only used as covariates when they correlated significantly ( $p < .05$ ) and independently with the DV and when their effect in the ANOVA was significant. Preliminary analyses demonstrated that there were neither gender main effects nor Cultural Group x Gender interactions; thus, child gender was omitted from the following analyses.

**Power analysis**—A post-hoc power analysis was computed prior to data analysis to determine whether the sample size of 111 provided sufficient power to detect a medium-sized effect in a MANOVA design with one between-subjects factor with three levels and two or three dependent variables. With an effect size of  $.25$  for between-subjects effects

(Faul, Erdfelder, Lang, & Buchner, 2007),  $\alpha = .05$ , and  $N = 111$ , the power estimates were .99 for an analysis containing either two or three dependent variables, indicating sufficient power to detect a medium or large effect. For each follow-up univariate ANOVA (i.e., an ANOVA with one between-subjects factor with three levels), with a medium effect size (.25),  $\alpha = .05$ , and  $N = 111$ , the power estimate was .64, indicating adequate power to detect a medium effect.

### Cultural Comparisons of Children's Temperament

Figures 1-3 contain means ( $M$ s) and 95% confidence intervals ( $CI$ s), disaggregated by cultural background. Wilks' lambda is reported for all multivariate tests, and pairwise comparisons are  $t$ -tests with Bonferroni's correction. Due to space limitations, only significant results are reported.

**Positive and negative affectivity global ratings**—A MANOVA with one between-subjects factor (Cultural Background) and two dependent variables (positive affect, negative affect) was performed as a gateway to univariate tests for each DV to investigate cultural differences on these two global aspects of temperament. There was a significant multivariate main effect of Cultural Background,  $F(4, 214) = 3.27, p < .05, \eta^2_p = .06$ . Univariate tests revealed that the groups differed with respect to positive affect,  $F(2, 108) = 4.09, p < .05, \eta^2_p = .07$  (see Fig. 1). Pairwise comparisons showed that Latin American children were reported to exhibit more positive affect than European American children; however, this difference attenuated to nonsignificance when mothers' social desirability score was controlled.

**Positive affectivity**—To investigate cultural differences in specific traits of positive affectivity, a MANOVA with one between-subjects factor (Cultural Background) and two dependent variables (pleasure, interest) was performed. There was a significant multivariate main effect of Cultural Background,  $F(4, 214) = 3.63, p < .01, \eta^2_p = .06$ . Univariate tests revealed that the groups differed with respect to pleasure,  $F(2, 108) = 6.00, p < .01, \eta^2_p = .10$  (Fig. 2). Pairwise comparisons showed that children of Latin and Japanese ethnicity were reported to exhibit more pleasure than European American children; however, when mothers' social desirability score was controlled, these differences attenuated to nonsignificance.

**Negative affectivity**—To investigate cultural differences in specific aspects of negative affectivity, a MANOVA with one between-subjects factor (Cultural Background) and three dependent variables (activity level, social fear, anger) was performed. Although the multivariate main effect of Cultural Background was not significant,  $F(6, 212) = 1.17, ns, \eta^2_p = .03$ , univariate tests revealed that the groups differed with respect to anger proneness,  $F(2, 108) = 3.24, p < .05, \eta^2_p = .06$ , and pairwise comparisons showed that children of Japanese ethnicity were reported to exhibit significantly more anger than European American children (Fig. 3).

### Discussion

The report questionnaire we used in this study assessed parents' observations of their children's reactions across a wide variety of situations, with scale scores formed by aggregating individual items across a range of contexts. Mothers were asked to report about the relative frequency of occurrence of specified child reactions in concrete situations during a recent period. In overview, we found that young children in three U.S. cultural groups – Latin Americans, Japanese Americans, and European Americans – were more alike than different on average in their temperaments. When children of Latin or Japanese ethnicity

were reported to exhibit some difference in temperament vis-à-vis European American children, the difference attenuated to nonsignificance when mothers' social desirability score was controlled. In answer to the question of whether immigrant children differ temperamentally from non-immigrant children, no average differences emerged in these groups. Following the logic model described in the Introduction, this pattern of results suggests either that infants and young children in different cultural groups share ranges of individual variability in temperament such that individual variation is greater than mean differences between cultures or, adding to the logic model in the Introduction, that the common culture in which these young immigrant children, who were all born in the United States, are being reared shapes groups with different initial temperaments to be similar. By themselves, our data do not definitively distinguish the source of the uniformity in child temperament. It could be strictly biological in origins, with children of different cultural groups showing similarity based on largely shared genetics, for example. Alternatively, it could be that a common social press among people of different original ethnicity, but now residing in the same culture, shapes commonalities of child temperament. In this regard, the role of the social desirability responses of mothers was telling, and suggests that mothers in the two acculturating groups may have been reporting temperamental qualities in their infants that are desirable by majoritarian standards. It may be that immigrant mothers, and middle-class immigrant mothers in particular, are more likely to respond in socially desirable ways with respect to temperament because they are likely to adopt a bicultural acculturation style, which suggests they are more sensitive to cultural variation in interpersonal norms of behavior. These mothers wish to fit into the mainstream, which low-SES immigrant mothers may not wish to do.

These findings about temperament are reminiscent of parallel findings about play also in 20-month-olds. Child play in Japan and the United States differ in emphasis, with Japanese children playing more in symbolic modes than U.S. children and U.S. children exploring more in play (Bornstein, 2007; Cote & Bornstein, 2005). The play of young Japanese American immigrant children tends also more closely to resemble that of children in their culture of destination than that of children in their culture of origin. Japanese children of immigrant mothers to the United States engage in more exploratory play and less symbolic play than Japanese children in Japan, who favor symbolic play; like their temperament, Japanese American immigrant children's play is similar to that of European American children.

The social desirability control exercised in this study holds two lessons for the study of temperament. First, the fact that some cultural differences in maternal ratings of child temperament that were originally found attenuated to nonsignificance when mothers' social desirability ratings were controlled suggests that mothers in some cultures may be more likely than others to see culturally desirable behaviors in their young children. Practically speaking, when interested in child temperament per se, and when maternal reports are used, this result reinforces the importance of controlling for social desirability and perhaps other maternal personological characteristics as well.

Second, the role of social desirability underscores that mothers constitute a significant system in children's development in and of themselves. It is often assumed that when, say, mothers provide information about their children, their reports reflect children's actual characteristics (with which a trained observer would agree), but in some degree they also reflect mothers' own personal characteristics and contexts. Parent reports are a function of several factors (Bornstein, 2009), including parent characteristics (e.g., knowledge of child behavior, memory), biases in parent perceptions (e.g., personality, SES, culture), and the questions asked. That is, parental reports consist of both objective and subjective



components (Bates & Bayles, 1984; Bornstein, 2009). Parents perceive and respond to or about their children through a lens of self.

Child temperament has been measured in various ways, and each approach has advantages as well as disadvantages (Kagan, 1998; Rothbart & Bates, 2006). When they first undertook their ground-breaking investigations of infant temperament, Thomas, Chess, and their coworkers (1963) proposed that mothers, by virtue of their extensive contact with their babies, would provide the richest and most insightful assessments of child temperament. Many researchers adopted the assumption that maternal reports are inherently valid and accurate reflections of temperament in children, and parent report is the most frequent source of data on child temperament (Rothbart & Bates, 2006). Temperament dimensions are by definition general patterns of child responses, and parents are normally in the best position to observe the child's behavior on multiple occasions and across multiple contexts, including infrequently occurring behavior that nonetheless may be critical to defining a particular dimension of temperament. For example, it is unethical to expose children to noxious stimuli so that it is difficult to observe children's reactions in such situations. Parents, in contrast, can describe a child's response to a variety of such naturally occurring circumstances, as occurs in the bath or at a visit to the pediatrician. Parent reports also meet concerns about ecological validity, and parent-report temperament questionnaires are inexpensive and convenient. In brief, parental reports have proved indispensable as comprehensive estimates of child temperament, for accounts of rare occurrences, when extensive contextual information is required, and as the basis for a rapid overall evaluation, and there are obvious economic advantages to this method of temperament data collection as well.

Nonetheless, parent factors such as the tendency to describe oneself in socially desirable ways, which could reflect subjective biases, also account for some variance in reports about child temperament (e.g., Diener, Goldstein, & Mangelsdorf, 1995; Mebert, 1991). Thus, measured subjective factors may not overshadow measured objective factors as explanations of differences in parents' perceptions of their children, but they may still play a role. The fact that this class of attribute of immigrant mothers has a part in child temperament opens a new line of thinking. Regarded in a different way, for certain purposes the "objective" assessment of the child may be less useful or predictive than perception of child temperament "in the parental eye." That is, measures from mother and another source (e.g., an observer) might validly index different, but equally meaningful, perceptions, attitudes, or beliefs about children. For example, assessments of child temperament by nonfamilial observers could be more predictive than parental perceptions of temperament for some criteria (e.g., children's motor activity or reactions to novel stimuli), whereas other aspects of development might be better understood by sampling the perceptions, attitudes, and beliefs of those adults most intimately involved with the child (e.g., interpersonally valenced temperament criteria such as "difficultness"). On this account, maternal perceptions, attitudes, and beliefs per se merit being a central consideration in temperament research, as opposed to mother simply being seen as a quasi-objective reporter, a means to validate "objective" assessments, or a source of social perceptions about children (St. James Roberts & Wolke, 1984; Wolke & St. James Roberts, 1986). In support of this deduction, Kosawa, Shand, Takahashi, and Fujisaki (1985) found that maternal ratings of infants (at 1 and 3 months of life), rather than examiner ratings, predicted mother-infant behavior in the first year of life. In brief, maternal perceptions constitute a significant part of the milieu in which the child-mother dyad develops. Thus, it may be fruitful to look for evidence of the meaningfulness of maternal assessments of child temperament per se, especially in immigrant groups as our data suggest, separate and apart from the value of maternal assessments of child temperament for their relations to other measures.

## Limitations and Considerations

This study relied on one source of information about child temperament, maternal report. Adult reports of child temperament reflect variation in child temperament, genuine ambiguity, report variation about temperament, plus error. Kagan (1994, 1998), for example, has argued that parent reports have problems with both bias and inaccuracy, and the language of an individual item on a temperament questionnaire is subject to multiple interpretations. For this reason, we used scales of items, rather than individual items, to measure temperament and our scales were reliable. Parents may be systematically biased about the behavior of their own children, want to present their children (and themselves) in a positive light, and may not have enough experience with a broad range of children to accurately place their own children on the continuum of normative temperament. Each of these factors can skew temperament reports. That said, the validity of maternal reports has been based on evaluations of their convergence with assessments of temperament by others (typically father, caregiver, or independent observer). Historically, attempts at corroboration have yielded levels of convergent validity dependent on many factors, including relationship of the rater to the child, characteristics of the rater, dimension(s) of temperament assessed, and the like (e.g., Bates, 1980; Bates et al., 1979; Bates & Bayles, 1984; Field & Greenberg, 1982; Goldsmith et al., 1991; Hagekull, Bohlin, & Lindhagen, 1984; Vaughn, Taraldson, Crichton, & Egeland, 1981). In general, maternal ratings of their children on an array of temperament traits show appropriate convergent and discriminant relations on similar sets of scales from infancy into toddlerhood; mothers and fathers agree at generally moderate levels, just as do mothers and observers (in both naturalistic and structured contexts). For example, Matheny et al.'s (1987) aggregated maternal report scores correlated moderately to strongly with laboratory scores of temperament across the age range of the present study. Their conclusion was that "the objective component of maternal ratings was clearly demonstrable and prominent" (Matheny et al., 1987, p. 324). Nonetheless, one next logical step in our research program would be to compare maternal reports of infant temperament with observer ratings. If objective assessments of temperament differ from maternal reports for immigrants, it would suggest that mothers are giving socially desirable responses. Despite their wide use and reliability with U.S. samples, it may be that maternal reports of child temperament are confounded when used with immigrant samples – particularly when those immigrants are from cultures where individuality and individual differences are not prized, as they are in the U.S. Finally, of course, the TBAQ can never give a complete picture of a child's temperament. It is a fixed-item checklist and, therefore, only a representative index of children's temperament, not (for example) an exhaustive diary of their activities.

## Conclusions

Temperament is important in early childhood: It can affect children's experiences of the world and their learning, color the way children interpret their experiences, shape how children compare themselves to others and the manner in which others (adults and peers) perceive and respond to them, guide the choices children make, and modify the ways children manipulate their environment. Temperament may be based in biology, but it is not fixed or unaffected by experience; rather, it reflects interactions between predispositions and life events (Rothbart & Bates, 2006).

Temperament is thought to provide the core of personality and influence directions for development. Although some stability of temperament can be expected across age, developmental outcomes also depend on the child's experiences in the social context. A given set of temperament characteristics allows for multiple possible outcomes; different trajectories and outcomes may occur for children with similar temperaments; and children differing in temperament may come to similar developmental outcomes via different

pathways. The design and results of the present study suggest future work that concentrates, first, on further defining immigrant milieus that might effectively shape future expressions of temperament (and personality) in immigrant children and, second, follow-on longitudinal assessment of immigrant children in their family contexts to document and explain unfolding variation. In sum, increasing our understanding of developmental trajectories of temperament among immigrant families will better enable psychologists, physicians, and parents to foster the growth and well-being of the burgeoning population of immigrant children.

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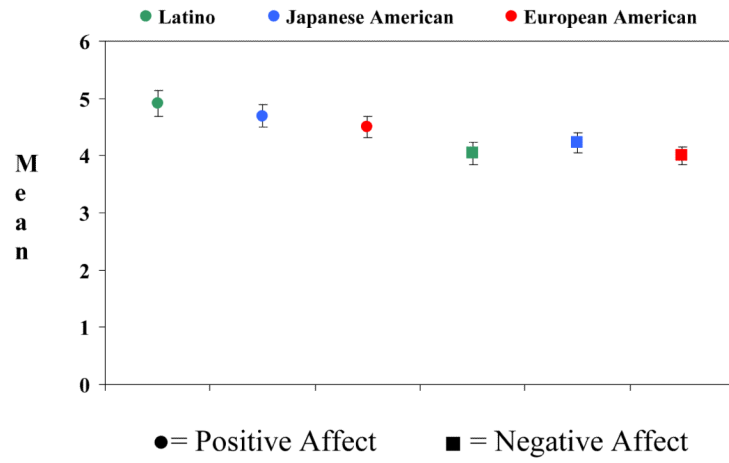
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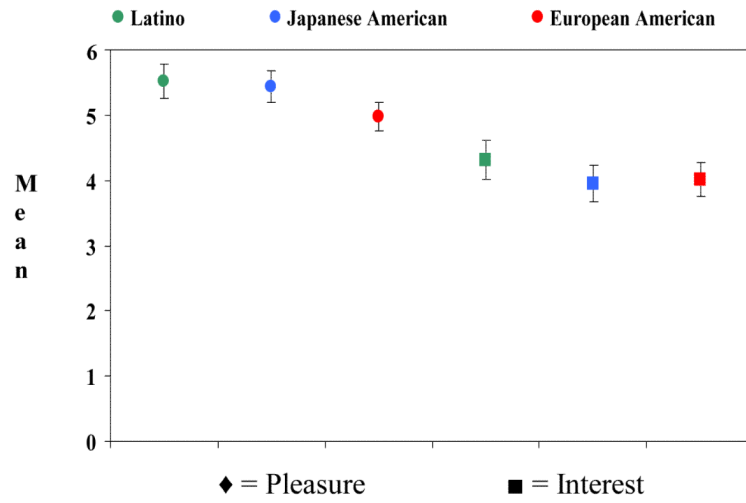
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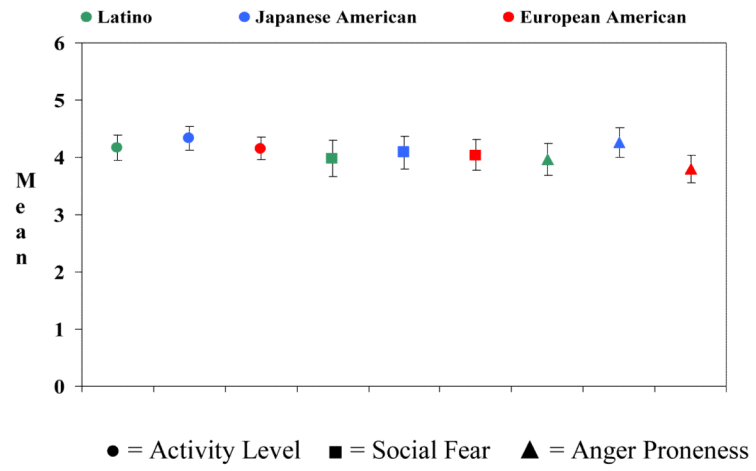


**Figure 1.**  
Child Temperament by Cultural Background, Global Categories





**Figure 2.** Child Temperament by Cultural Background, Positive Affect Subscales



**Figure 3.**  
Child Temperament by Cultural Background, Negative Affect Subscales

**Table 1**

## Sociodemographic Characteristics of the Participants

	Latin American <i>n</i> = 31	Japanese American <i>n</i> = 36	European American <i>n</i> = 44	Differences
Child				
Gender (girls:boys)	13:18	18:18	22:22	$\chi^2(2, N = 111) = 0.58, ns$
Age <sup>a</sup> (months)	20.43 (0.70)	20.16 (0.58)	20.13 (0.20)	$F(2, 107) = 3.65, p < .05$
Mother				
Age	33.34 (4.94)	33.22 (4.06)	34.41 (4.79)	$F(2, 108) = 0.82, ns$
Education <sup>b</sup>	5.97 (0.81)	5.64 (0.80)	6.20 (0.63)	$F(2, 107) = 5.81, p < .01$
Hours of work per week <sup>c</sup>	31.08 (15.26)	29.23 (19.38)	26.13 (12.98)	$F(2, 71) = 0.77, ns$

Notes. *M (SD)* unless otherwise specified. Sample sizes for some analyses are smaller due to missing data.

<sup>a</sup>Latin American children were older than European American children.

<sup>b</sup>Because differences exist between countries in the duration, quality, and content of schooling, bicultural researchers adjusted mothers' years of schooling so that the scales were equivalent to the 7-point Hollingshead (1975) index. European American mothers had more years of schooling than Japanese American mothers.

<sup>c</sup>Only working mothers were included in this analysis.