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ABSTRACT

Title of Document: SOCIAL-EMOTIONAL DEVELOPMENT AND SCHOOL READINESS OF CHINESE AMERICAN CHILDREN: THE ROLE OF PRENTING AND SELF-REGULATION

Jing Yu, Ph. D., 2016

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This dissertation was comprised of three thematically-related studies, with an overall aim to reconcile the inconsistent findings in the literature regarding the effects of controlling parenting on child development. The first paper confirmed that the love withdrawal dimension of psychologically controlling parenting could be clearly distinguished from the dimensions of guilt induction and shaming through conducting confirmatory factor analyses. The second paper then examined the dimensional effects of psychological control using longitudinal structural equation modeling. Results indicated that maternal love withdrawal predicted more withdrawn and aggressive behavior in children six months later, whereas maternal guilt induction predicted fewer problem behaviors over this period. The first two dissertation papers provided insights on some potential explanations for the inconsistent effects of parenting from the measurement perspective. The third dissertation paper further examined the processes underlying the pathways from parenting to child outcomes. Specifically, the mediating role of effortful control and moderating role of cultural orientations were examined. Two waves of longitudinal data were collected approximately six months apart on 154 families. Half-longitudinal mediation and moderation analyses showed that W1 child effortful control positively predicted W2 child social-emotional school readiness even after controlling for

construct stability. However, W1 parenting practices did not significantly predict W2 child effortful control after controlling for temporal stability, which led to nonsignificant mediation effects. For the direct effects of parenting practices, the use of physical coercion predicted less overall child school readiness (less on-task behavior and more externalizing behavior) six months later, only for mothers who were highly acculturated towards the American culture. In addition, maternal physical coercion predicted more child internalizing behavior whereas maternal guilt induction predicted less child internalizing behavior over time. No child effects were found except that W1 child effortful control predicted less W2 maternal guilt induction, indicating that these Chinese immigrant mothers used more guilt induction when their children lacked internal control and needed the external control to regulate their behavior. Overall, these findings may inform educators and practitioners to be more attuned to the myriad of factors that can influence parenting practices and child adjustment. Moreover, these results highlighted the need to be cognizant of the value of indigenous Chinese parenting and Chinese immigrant mothers' acculturation in shaping their use of controlling parenting and the effects of such practices on their children's outcomes in the American cultural context.

SOCIAL-EMOTIONAL DEVELOPMENT AND SCHOOL READINESS OF
CHINESE AMERICAN CHILDREN:
THE ROLE OF PARENTING AND SELF-REGULATION

By

Jing Yu

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Chapter 1: Overall Introduction

According to self-determination theory (SDT; Deci & Ryan, 1985, 2000), the basic psychological needs for competence (i.e., feeling efficacious), autonomy (i.e., experiencing a sense of volition and psychological freedom), and relatedness (i.e., feeling connected and loved by important others) are universal and crucial for one's psychological growth, integrity, and well-being. As such, autonomy-supportive parenting is considered beneficial regardless of the cultural context because it nurtures these psychological needs whereas controlling parenting is considered universally detrimental because it undermines the basic need for autonomy. However, a relativistic perspective maintains that the effects of parenting depend on many moderating factors, such as culture, families' socioeconomic status, and child temperament or personality (Grusec, 2008). With regard to culture, some researchers suggest that in independence-oriented cultures (e.g., United States, Western Europe) parenting behaviors that stifle the sense of autonomy in children are harmful to these children's healthy development. In contrast, in interdependence-oriented cultures (e.g., East Asia) that value harmony and interdependence between individuals over autonomy, controlling parenting is less or not detrimental to children's development (Rothbaum & Trommsdorff, 2007).

Empirical studies on the effects of parenting on children's adjustment have provided partial support for both theoretical perspectives. In general, the relations between warm or supportive parenting and healthy child development are universally found. For example, the authoritative parenting style has been associated with higher social competence and academic achievement in both Western and Asian children (Chao, 2001; Chen, Dong, & Zhou, 1997; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh,

1987; Stewart et al., 2000). The specific dimensions of authoritative parenting, including inductive reasoning and warmth, have also been found to be significant predictors of positive developmental outcomes in children, such as higher self-esteem and decreased internalizing behavioral difficulties (Bayer, Sanson, Hemphill, 2006; Bush, Peterson, Cobas, & Supple, 2002; Kim & Ge, 2000; Williams et al., 2009).

On the other hand, the effects of controlling parenting demonstrate much more variation across studies especially among those conducted in different sociocultural contexts (e.g., Chao, 1994, 2001; Chen et al., 1997; Steinberg, Lamborn, Dornbusch, & Darling, 1992). Some studies showed that the authoritarian parenting style was related to deleterious academic and psychosocial outcomes for children from both Western and Asian cultures (e.g., Chang, Schwartz, Dodge, & McBride-Chang, 2003; Chen et al., 1997). Specific authoritarian dimensions, such as punitive practices and verbal hostility, were also found to be significant predictors of maladjustment in children, including lower self-esteem, more depressive symptoms and externalizing problems (Baumrind, Larzelere, & Owens, 2010; Bush et al., 2002; Kim & Ge, 2000; Williams et al., 2009). However, other studies found positive effects of authoritarian parenting on Hong Kong Chinese children's school achievement (Leung, Lau, & Lam, 1998) and rural African American children's self-regulation abilities (Brody & Flor, 1998).

With regard to parental use of psychological control, a large body of Western literature has documented the negative impact of such parenting practices on the developmental outcomes of children and adolescents, including depression and antisocial behavior (Barber & Harmon, 2002; Barber, Stolz, & Olsen, 2005; Soenens, Park, Vansteenkiste, & Mouratidis, 2012). However, research on non-Western children and

several cross-cultural studies have revealed somewhat mixed findings (Fung & Lau, 2012; L. Nelson et al., 2006; D. Nelson, Hart, Yang, Olsen, & Jin, 2006; Rudy, Carlo, Lambert, & Awong, 2014; Rudy & Halgunseth, 2005; Wang, Pomerantz, & Chen, 2007). For example, some studies showed similar associations between psychological control and maladaptive child functioning in Chinese children, such as aggressive behavior, social withdrawal, and decreased emotional functioning (L. Nelson et al., 2006; D. Nelson et al., 2006; Wang et al., 2007). There is also evidence (e.g., Fung & Lau, 2012; Rudy & Halgunseth, 2005) to indicate that parental use of psychological control is not associated with maladaptive child outcomes in Chinese, Indian, or other interdependence-oriented cultures.

Researchers have been seeking solutions to reconcile cultural variations in the effects of controlling parenting on child adjustment. One solution concerns the conceptualization and measurement of specific parenting constructs, which is particularly relevant for psychological control. Most of the existing studies on psychological control used measures of overall indices of psychological control (e.g., Barber, 1996; Soenens, Vansteenkiste, & Luyten, 2010), which only captured specific sub-dimensions such as love withdrawal (or conditional regard, Assor, Roth, & Deci, 2004; Assor & Tal, 2012) instead of taking into account the multidimensionality of the construct (see Nelson, Yang, Coyne, Olsen, & Hart, 2013, for an exception). The typical relational induction forms of psychological control in Asian cultures (e.g., guilt induction, shaming) are not well-represented in the literature. By using relational induction, parents draw children's attention to how their misbehaviors have disappointed or affected their parents, which may be more socially appropriate and congruent with the socialization goals of

interdependence-oriented cultures such as Asia (Fung & Lau, 2012; Krevans & Gibbs, 1996). Recent studies have shown that, unlike hostile and rejecting forms of psychological control (e.g., invalidating feelings), guilt induction was not associated with children's behavioral problems in European-American or Chinese children (Fung & Lau, 2012). Rudy et al. (2014) found that guilt induction was even positively associated with self-esteem in Indian college students.

Thus, different dimensions of the same overarching parenting construct of psychological control may have differential implications for children's adjustment, which may lead to the inconsistent findings on psychological control in the literature. To empirically assess whether psychological control is a multidimensional construct with distinguishable sub-dimensions, the first paper of my dissertation examined the factor structure of Olsen et al.'s (2002) measure in Chinese American children with a focus on the three most prevalent psychologically controlling practices in Chinese culture: love withdrawal, guilt induction, and shaming (Yu, Cheah, Hart, Sun, & Olsen, 2015). The results confirmed that despite moderate to large correlations, the three psychological control dimensions can be statistically differentiated as independent constructs. The second paper of my dissertation explored whether love withdrawal (representing a hostile and rejecting form of psychological control) and guilt induction (representing the relational induction form of psychological control) were associated with differential developmental outcomes in Chinese American children. Results from the longitudinal structural equation modeling analysis indicated that maternal love withdrawal was associated with more child reticence, physical aggression, and relational aggression six months later. In contrast, maternal guilt induction was negatively associated with child

reticence, physical aggression, and relational aggression over time. The first two papers could help reconcile some of the equivocal findings on the effects of psychological control (and controlling parenting in general) from the conceptualization and measurement perspectives.

Another solution to reconcile the mixed findings is to understand cultural differences in the meaning of controlling parenting and answering the “why” question by focusing more on the processes underlying the pathways from parenting to child outcomes (Pomerantz & Wang, 2009). Parental control is perhaps more commonly accompanied by the ultimatum goal of supporting the child in interdependence-oriented cultures, and intended by parents to teach children to “fit in” with group and be a part of society (Fung, 1999). Moreover, children and adolescents in interdependence-oriented cultures are more likely to attribute positive meaning to controlling parenting (e.g., parental concern, caring, and involvement), and perceive obedience demands and emphasis on family honor and achievement as desirable and necessary for hierarchical order and harmony than their Western peers (Chao, 1994; Fung, 1999; Markus, Mullally, & Kitayama, 1997). Accordingly, children from interdependence-oriented cultures may not just comply with parents’ demands but also internalize the culturally appropriate rules to develop self-regulatory skills. Such internalization of the meaning and function of control may in turn contribute to fewer psychosocial problems and more positive developmental or adjustment outcomes. Moreover, Chinese immigrant parents in the U.S. are influenced by both American and Chinese cultures, and the effects of parenting may depend on their acculturation levels towards their heritage Chinese and mainstream American cultures. To explore these possible processes underlying the associations

between parenting and child social adjustment, the third paper of my dissertation examined: (1) whether children's self-regulation (i.e., temperamental effortful control) mediated the associations between three types of parenting practices (i.e., maternal warmth, physical coercion, and psychological control) and children's social-emotional school readiness; and (2) whether acculturation or enculturation moderated these parenting-child outcomes associations in a Chinese immigrant sample. Next, I describe each of my dissertation papers in more detail.

Chapter 2: Paper One

Confirming the Multidimensionality of Psychologically Controlling Parenting among Chinese American Mothers: Love Withdrawal, Guilt Induction, and Shaming

Background

Psychological control as a parenting construct received explicit attention in the early 1960s and was defined as parental behavior that appeals to pride and guilt, expresses disappointment, withdraws love, and involves shaming (e.g., Becker, 1964). Barber (1996) conceptualized psychological control as multidimensional and developed 16 items to tap six related dimensions: constraining verbal expressions, invalidating feelings, erratic emotional behavior, personal attack, love withdrawal, and guilt induction. After factor analysis, Barber retained eight items for constraining verbal expressions, invalidating feelings, and love withdrawal to represent psychological control. Studies using Barber's measure (e.g., Stone et al., 2013; Werner, Graaff, Meeus, & Branje, 2015) have mostly found negative influence of psychological control on children's and adolescents' development.

The measurement of psychological control in Asian cultures will not be adequate without incorporating other dimensions such as guilt induction and shaming that are frequently used by these parents (Fung, 1999). Furthermore, the psychological control construct is relevant to younger children's socialization as well (Olsen et al., 2002). To better capture psychological control used by parents of preschool children cross-culturally, Olsen et al. (2002) proposed a larger bank of items and validated the measure among American, Russian, and Chinese mothers of preschoolers. Subsequent studies utilizing Olsen et al.'s (2002) measure have typically elected to use several items from

the larger item bank to create a unidimensional construct of psychological control (e.g., Hart, Nelson, Robinson, Olsen, & McNeilly-Choque, 1998; L. Nelson et al., 2006; Yang et al., 2004) or just examined shaming/love withdrawal (e.g., D. Nelson et al., 2006; Wu et al., 2002). Mixing items from different dimensions to form an omnibus scale might be problematic because any unique influence of individual dimensions can be concealed.

Only two studies conducted with preschool children (Casas et al., 2006; Nelson et al., 2013) have taken the dimensional approach. Casas et al. (2006) did not examine the factor structure of psychological control, but instead created composite dimensional scores for a sample of U.S. mothers. In contrast, Nelson et al. (2013) took a factor-analytic approach to confirm the multidimensionality of psychological control in a Russian sample. In addition to few factorial investigations of psychological control measures, the conceptualization of shaming and its relation to guilt induction and love withdrawal are not clear. Due to the lack of differentiation among the three dimensions, certain items used to characterize love withdrawal and guilt induction (e.g., Hart et al., 1998) were also used to construct shaming in the literature (e.g., Wu et al., 2002; D. Nelson et al., 2006). Thus, it remains unclear whether shaming should be considered a combination of love withdrawal and guilt induction or a unique dimension of psychological control. Nelson et al. (2013) provided some evidence that shaming can be differentiated from guilt induction and love withdrawal and that it has predictive significance for Russian children's aggression.

Inspired by the work of Nelson et al. (2013), the first paper of my dissertation examined the multidimensionality of psychological control by focusing specifically on love withdrawal, guilt induction, and shaming using Olsen et al.'s (2002) measure in a

Chinese American sample. There is a particular need to focus on these dimensions in Chinese or Chinese-American populations for several reasons. First, many observers of Chinese parenting (e.g., Ho, 1986; Tseng & Wu, 1985) have noted that guilt induction, shaming, and love withdrawal are prevalent Chinese socialization practices intended to help children fit in with group dependent norms, be sensitive to the perceptions of others, and to teach them to avoid future behaviors that would bring shame or embarrassment to themselves, their peer group, or their family (e.g., Chao & Tseng, 2002; Fung, 1999). Second, as reviewed above, psychologically controlling parenting has been found to be associated with negative child outcomes in many studies (e.g., Barber, et al., 2005), but some recent evidence suggests that the detrimental effects of psychological control are less consistently reported in Chinese samples (e.g., Fung & Lau, 2012). Given the somewhat contradictory findings, one important first step towards better understanding these processes is to examine the conceptualization and measurement of psychological control as a multidimensional construct. Therefore, the primary goal of the first dissertation paper was to confirm the multidimensionality of psychological control, and to examine whether shaming, love withdrawal, and guilt induction can be statistically differentiated as independent parenting constructs.

Method

Participants

Participants were 169 first-generation Chinese American mothers ($M_{age} = 37.85$, $SD = 4.43$) with young children ($M_{age} = 4.54$, $SD = 0.91$, 54% boys). Both parents needed to be first-generation Chinese in ethnicity to join the study. Mothers had been in the U.S. for 10.45 years on average ($SD = 5.83$). About 30% of them had a bachelor's degree or lower and 70% of them had a graduate or professional degree (e.g., master or

doctoral degree). More than 98% of the children were from two-parent intact families. Mothers immigrated to the U.S. for educational and work reasons (49%), to accompany their spouse or join extended family in the U.S. (43%), and to enhance life experiences and for a better lifestyle or other (8%).

Procedure

Participants were recruited from various organizations across the Maryland-Washington DC area, including Chinese churches, preschools, daycare centers, Chinese schools, and grocery supermarkets, to reach potential participants with diverse backgrounds and maximize the representativeness of the sample. With the permission and assistance of the directors in these organizations, announcements were made to the parents regarding the study. Data collection on mothers' parenting was conducted in the participants' homes by trained research assistants. Approval for the study was obtained from the University Institutional Review Board, and parents provided their written consent prior to data collection.

Measures

Participants completed the psychological control questionnaire consisting of 16 items previously used by Barber (1996) and 17 additional items developed by a team of early childhood experts to better reflect dimensions of psychological control for parents of preschoolers (Olsen et al., 2002). The measure was forward- and back-translated by Chinese linguists who were fluent in both English and Chinese. Back-translated items were comparable with the English version. Chinese American mothers rated how often they exhibit each parenting behavior on a 5-point Likert scale: 1 (*never*), 2 (*once in a while*), 3 (*half of the time*), 4 (*very often*), and 5 (*always*). Given the primary goal of the

current study, 18 items (6 items from Barber and 12 new items) capturing love withdrawal, guilt induction, and shaming were selected for the factor analyses, and items for other dimensions such as personal attack and directiveness were purposely excluded.

Analysis Plan

There was only one missing data point, which was found to be missing completely at random (MCAR) with Little's MCAR test $\chi^2 (15, N = 169) = 12.36, p = .65$ (Little, 1998; Little, Jorgenson, Lang & Moore, 2014). The mean- and variance-adjusted weighted least squares estimator (WLSMV) in *Mplus* version 7 (Muthén & Muthén, 1998-2012) was used to conduct confirmatory factor analysis (CFA) for the psychological control dimensions. WLSMV treats the items as categorical indicators and makes use of all of the available data in order to estimate the CFA models. Two main approaches were used to examine the dimensionality of psychological control in this study: a traditional multidimensional CFA with each item loading on only one of the three hypothesized dimension factors, and a bi-factor CFA model where each item loaded on both a general factor and a specific factor for each of the hypothesized dimensions. Second-order factor models were also run to further determine the distinctiveness of the three key dimensions of psychological control. Model fit was evaluated by χ^2 statistic, root mean square error of approximation (RMSEA), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Weighted Root Mean Square Residual (WRMR). Acceptable model fit is indicated by CFI and TLI above .90, RMSEA below .08, and WRMR with values of 1.0 or lower (Brown, 2006; Hu & Bentler, 1998; Yu, 2002). CFI and TLI larger than .95 and RMSEA smaller than .05 are considered good fit.

Results

Initial Multidimensional Correlated Factors Model and Bi-Factor Model

A unidimensional CFA model was first specified in which all of the 18 items were loaded on one and only factor (Model 0). Based on our operational definitions of love withdrawal, guilt induction, and shaming, a multidimensional three-factor CFA model (Model 1) was then specified in which each item was loaded on one and only factor (See Table 1 for items constituting each factor). A chi-square difference test using the DIFFTEST command for WLSMV in *Mplus* showed that Model 1 fit the data better than Model 0, $\Delta\chi^2(3, N = 169) = 85.68, p < .001$. However, the fit of Model 1 itself was not adequate (see Table 2).

We also estimated a confirmatory bi-factor model (Model 2) which explicitly estimates a general psychological control factor with loadings for all of the items, along with separate group factors for each of the three dimensions. In this model, the group factors are uncorrelated with the general factor, and the group factors are also mutually orthogonal. Model 2 fit the data well (see Table 2) and provided a better fit than Model 0, $\Delta\chi^2(18, N = 169) = 251.62, p < .001$. However, Model 2 had significant negative group factor loadings for items PC25, PC26, PC8, and PC37, contrary to expectation (see Table 3).

Modified Multidimensional Correlated Factors Model and Bi-Factor Model

To improve the fit of Model 1, measurement error correlations were allowed between love withdrawal items PC13 and PC31 ($\theta = .41$), between guilt induction items PC12 and PC20 ($\theta = .48$), and between shaming items PC8 and PC37 ($\theta = .41$). These modifications were made because the items were similar in content and the estimated measurement error correlations were not trivial. In addition, four secondary factor

loadings were added to Model 1, allowing one guilt induction item (PC20) to also load on the shaming factor, and three of the shaming items (PC8, PC24, and PC37) to also load on the guilt induction factor. Because the loading of item PC8 on the shaming factor was no longer statistically significant, it was fixed to zero. The loading of item PC37 on the shaming factor then became negative ($\lambda = -.30$) in the resulting modified three-factor CFA model (Model 3 in Table 3). Items PC20 and PC24 had similar factor loadings on both guilt induction and shaming.

Only one substantial modification was needed to improve the fit of the bi-factor model (Model 2): Guilt induction item PC20 was allowed to have secondary loading on the shaming factor (Model 4). This resulted in a non-significant loading for item PC8 on shaming (which was then fixed to zero) and a remaining significant negative loading of item PC37. Additionally, the group factor loadings for guilt induction items PC25 and PC26 were not statistically significant and were therefore fixed to zero (see factor loadings of Model 4 in Table 3).

Trimmed Multidimensional Correlated Factors Model and Bi-Factor Model

Despite good overall fit of the modified multidimensional and bi-factor models, two items remained somewhat problematic. Item PC4 had a standardized factor loading lower than .40 (Stevens, 1996) across models and thus was not well explained by the modeled latent structure, especially in the bi-factor model (Model 4). Despite loading quite strongly on the guilt induction factor in the multidimensional model (Model 3) and on the general factor in the bi-factor model (Model 4), item PC37 continued to show a small but significant negative loading on the shaming factor in Model 3 and on the shaming group factor in Model 4, contrary to expectation. For these reasons, we

estimated additional multidimensional (Model 5) and bi-factor (Model 6) models with items PC4 and PC37 removed. Both models fit the data well (see Table 2).

The bi-factor model (Model 6) portrays a general psychological control latent variable along with independent group factors for love withdrawal and shaming. Three of the guilt induction items (PC8, PC25, and PC26) functioned as direct indicators of the general psychological control factor in Model 6, which indicated the close correspondence of psychological control and guilt induction. However, there was also some evidence of additional unique variability in the bi-factor model with respect to guilt induction especially with items PC12 and PC20 that may be seen as reflecting particularly blatant guilt induction attempts.

Second-Order Factor Model

To further examine the nature of the relations among the global psychological control construct and its three key dimensions, we estimated a second-order CFA based on Model 5. In this model, the three dimension factors were treated as the first-order indicators of a second-order latent psychological control construct. This accounts for the common and unique variance among the three dimensions of the modified multidimensional model (Model 5). When initially estimated, this model produced a negative but very small estimate of the residual variance for the guilt induction factor. Because this estimate was technically inadmissible, it was constrained to be non-negative and the model was re-estimated. In the resulting model (Model 7) psychological control is essentially isomorphic with guilt induction, but about half of the variance in love withdrawal and nearly three-quarters of the variance in shaming are independent of the

overarching psychological control construct (Figure 1). Model 7 fit the data just as well as Model 5, $\Delta\chi^2(1, N = 169) = 3.27, p = .071$.

Discussion

Since Barber (1996) revisited the psychological control construct, many empirical studies have been conducted to examine how psychological control is related to different child and adolescent outcomes. However, the multidimensional nature of psychological control was not thoroughly examined. By factor analyzing items for love withdrawal, guilt induction, and shaming, this study provided empirical support for the superiority of a multidimensional model and bi-factor model over a unidimensional model for psychological control. In addition, consistent with Nelson et al. (2013), shaming, love withdrawal, and guilt induction robustly emerged as unique dimensions of psychological control in our sample of mothers with Chinese American preschoolers.

In the initial multidimensional correlated factors model (Model 1), four items were found to cross-load on more than one dimension: shaming items PC37 (“Tells child he/she is not as good as other children”), PC8 (“Tells child he/she is not as good as I was when I was growing up.”), and PC24 (“Tells child that he/she should be ashamed when he/she misbehaves”) were found to also load on guilt induction, and the guilt induction item PC20 (“Tells child of all the things that I have done for him/her”) was found to also load on shaming. Item PC20 was found to cross-load in the initial bi-factor model (Model 2) as well. Thus, despite the conceptual soundness, these items did not conform to a clean factor structure suggested by the initial multidimensional and bi-factor model. By allowing these items to have secondary loadings, the modified multidimensional model (Model 3) and bi-factor model (Model 4) achieved adequate model fit, but with

some additional model complexity compared to their unmodified counterparts (Model 1 and Model 2). Specifically, the factor loading patterns indicate that items PC8 and PC37 functioned better as indicators of the guilt induction/general factor than shaming, and items PC20 and PC24 continued to cross-load on both the guilt induction/general factor and shaming. In the literature, these items have been used to measure a unidimensional scale of psychological control (e.g., Hart et al., 1998) or to assess both guilt induction and shaming (Olsen et al., 2002; L. Nelson et al., 2006), and thus may indeed capture some shared characteristics among the dimensions of psychological control.

In addition, items PC4 (low loadings across models) and PC37 (significant negative factor loading) remained problematic in the modified models and thus eventually removed from the modified models. Based on these trimmed multidimensional (Model 5) and bi-factor (Model 6) models, the measurement of love withdrawal was consistent with the literature (Barber, 1996; Nelson et al., 2013) and our operational definition. The items captured parents' manipulation of their love and attention to coerce children to be obedient to their wishes and regulation of their children's misconduct. The elements of guilt induction were also consistent with Barber's conceptualization and measurement but slightly different from Nelson et al. (2013) in that personal attack was not included. Personal attack is a hostile form of psychological control because parents bring up the child's past mistakes when criticizing him/her as evidence of the child's lack of worth, whereas guilt induction is a relationally inductive form of psychological control where parents invoke guilt to correct children's misbehavior (Barber, 1996; Fung & Lau, 2012). Due to the conceptual inconsistency in

the literature and our operational definition, we elected not to use the personal attack item to measure guilt induction.

The shaming dimension in this study primarily encompassed expressions of disappointment, warnings of punishment, and anger intonations (Fung, 1999; Losoncz & Tyson, 2007), and again the social comparison items (i.e., PC8 and PC37) did not work statistically although they fit our definition for shaming well. We did not include personal attack and directiveness items, and thus our shaming dimension differed from the shaming/disappointment construct in Nelson et al. (2013). As discussed earlier, directiveness (“I try to change my child”) captures behavioral control rather than psychological control (Barber, 1996). Personal attack (“I tell my child that his/her behavior was dumb”) refers to parental behavior that attacks the child’s worth, whereas shaming aims to invoke children’s feeling of shame and socialize them to be sensitive to others’ views and behave in culturally appropriate ways (Fung, 1999). Moreover, no love withdrawal or guilt induction items (e.g., L. Nelson et al., 2006) except guilt induction item PC20 loaded on the shaming factor.

Therefore, our results suggest that there is a slight overlap between shaming and guilt induction, but guilt induction and shaming can clearly be distinguished from love withdrawal, as supported by the bi-factor model (Model 6). Results from the bi-factor model and the second-order CFA (Model 7) provided evidence for the centrality of guilt induction in psychological control. At the same time, the first-order love withdrawal and shaming factors were also fairly strong indicators of psychological control, but each exhibited important additional unique variability and mutual distinctiveness.

A major limitation of this study is the lack of criterion measures to confirm the differential effects of psychological control dimensions. However, a recent study (Rudy et al., 2014) provided some initial empirical support. These authors conceptualized love withdrawal as a component of harsh psychological control, whereas guilt induction (including one shaming item) was considered a more benign form of psychological control. Although both forms of psychological control were related to lower self-esteem in American college students, love withdrawal was related to lower self-esteem whereas guilt induction/shaming was related to higher self-esteem for Indian college students, suggesting that the dimensional effects can be further moderated by culture. More empirical studies are needed to test these conjectures and I therefore empirically examined the dimensional effects in my second dissertation paper. Another limitation of this study was that father data were not included in the analysis to run a dyadic measurement model. However, Nelson et al. (2013) did find factorial invariance across mothers and fathers in their dyadic model. Future research can include data from both mothers and fathers to further evaluate factorial invariance across parents and examine how maternal and paternal psychological control relates to various child outcomes. Finally, the shaming dimension may not be thoroughly represented using the current items because two of the theoretically sound items (PC24 and PC37) did not statistically behave well (e.g., cross-loaded on guilt induction or had negative loading). The measurement for shaming needs to be further developed in future studies.

In summary, this study provides important evidence that psychological control is a multidimensional construct with a consistently differentiated latent factor structure. We recommend that researchers use a latent variable approach that can better reflect the

factor structure of the items, to investigate the unique influences of the psychological control dimensions. However, researchers who use composite scores based on a simple factor structure can remove items with severe cross-loading from Model 5 and 6 to construct the sum or mean scores for each dimension. Further, future studies should take the dimensional approach to further delineate how different psychological control dimensions contribute to child development in various cultural contexts. Given the limitation on the measurement for shaming, my second dissertation paper focused on love withdrawal and guilt induction to explore the dimensional effects of psychological control in young Chinese American children. We retained item PC20 because (1) it is a theoretically sound item for guilt induction, (2) it clearly had much higher loading on guilt induction than shaming and (3) it was one of the few items that worked across different factor models to construct guilt induction.

Chapter 3: Paper Two

Longitudinal Effects of Maternal Love Withdrawal and Guilt Induction on

Chinese American Children's Social Adjustment

Background

Parental psychological control refers to parenting practices that indirectly control children's behavior through manipulating their thoughts and feelings. Psychological control is a multidimensional parenting construct that comprises the use of guilt induction, love withdrawal, invalidating feelings, erratic emotional behavior, personal attack, and constraining verbal expressions (Barber, 1996). Such parenting practices are considered intrusive to children's development of emotional autonomy and secure sense of self (Barber & Harmon, 2002), and thus negatively impact their psychosocial functioning. Past research among Western samples showed that parental use of psychological control is associated with both internalizing and externalizing problems in adolescents (e.g., Barber, Olsen, & Shagle, 1994; de kemp, Scholte, Overbeek, & Engels, 2006). In addition, several comparative studies found that psychological control has detrimental effects on adolescents' psychosocial adjustment even among non-Western samples (e.g., Barber, Stolz, & Olsen, 2005; Soenens, Park, Vansteenkiste, & Mouratidis, 2012; Wang, Pomerantz, & Chen, 2007).

However, some research indicates that psychologically controlling practices are used more frequently by parents in interdependence-oriented cultures compared to those in more independence-focused North American cultures (e.g., Ng, Pomerantz, & Deng, 2014; Wu et al., 2002). Moreover, there is evidence to suggest that parental use of psychological control is associated with less negative reactions (e.g., feeling anger) and

fewer problem behaviors among adolescents with interdependence-oriented cultural backgrounds (e.g., Bean, Barber, & Crane, 2006; Chao & Aque, 2009; Krishnakumar, Beuhler, & Barber, 2003; Walker-Barnes & Mason, 2001). In sum, the research to date has provided mixed evidence for universal versus culturally-relativistic effects of psychological control on adolescent development across different sociocultural contexts.

Much less research has been conducted among younger children, although the use of psychologically controlling parenting is relevant to younger children's socialization as well (Olsen et al., 2002; Yu et al., 2015). The existing literature has also generated equivocal findings for this age group. Supporting the universalistic perspective regarding the negative effects of psychological control, several studies on Chinese, American, and Russian preschoolers revealed significant positive associations between psychological control and maladaptive child functioning, including aggression and social withdrawal (Casas et al., 2006; Hart, Nelson, Robinson, & McNeilly-Choque; L. Nelson et al., 2006; D. Nelson, Hart, Yang, Olsen, & Jin, 2006; Nelson, Yang, Coyne, Olsen, & Hart, 2013; Olsen et al., 2002). On the other hand, there is some evidence supporting the cultural relativism perspective. For example, in some studies parental psychological control was not found to be negatively associated with school grades and self-esteem nor positively associated with behavior problems and negative emotional expressions in younger children from interdependence-oriented cultures such as Iran, Egypt, India, and Hong Kong China (Fung & Lau, 2012; Louie et al., 2013; Rudy & Halgunseth, 2005).

To reconcile potential cultural variations in the effects of psychological control, we considered issues related to the conceptualization and measurement of this complex parenting construct. Most previous studies have used an overall measure of

psychological control that included dimensions of constraining verbal expressions, invalidating feelings, and love withdrawal (Barber's 1996 Psychological Control Scale-Youth Self-Report) instead of taking into account the multidimensionality of the construct. However, the use and effect of hostile forms of psychological control (i.e., constraining verbal expression, invalidating feelings, personal attack, and erratic emotional behaviors) may differ from other psychologically controlling strategies whereby parents draw children's attention to how their misbehavior has disappointed or affected their parents, or utilize comparisons to others' behaviors as a way to regulate children's own conduct. The latter forms of psychological control may be more socially appropriate and congruent with the socialization goals of interdependence-oriented cultures such as maintaining harmonious and interdependent interpersonal relationships (Fung & Lau, 2012; Krevans & Gibbs, 1996). Fung and Lau (2012) referred to this form of psychological control as *relational induction*, which includes practices that draw child's attention to the effects of their misbehavior on others (guilt induction), highlight filial obligations and individual contributions to family well-being (reciprocity), compare the child against a well-behaved child or sibling (social comparison), and threaten to withdraw attention or love when the child displays undesirable behaviors (love withdrawal). Fung and Lau (2012) combined the four types of practices (i.e., guilt induction, reciprocity, social comparison, and love withdrawal) to create a single scale for *relational induction* and found it not to be associated with Hong Kong Chinese children's behavioral problems (e.g., depression, withdrawal, somatic complaints, rule-breaking behaviors, and aggression). In the present study, we focused on two forms of psychological control, maternal guilt induction and love withdrawal, which are prevalent

psychologically controlling practices in Asian cultures (Ho, 1986). Guilt induction centers on pointing out how the child's specific acts have affected others, including parents, by arousing feelings of guilt, whereas love withdrawal centers on manipulating feelings of parental acceptance by the threat of or actual temporary withdrawal of love and attention (Barber, 1996; Mascaolo, Fischer, & Li, 2003; Wu et al., 2002).

Guilt induction is a form of psychological control that is thought to have negative consequences for children by some researchers (e.g., Soenens & Vansteenkiste, 2010). However, that may depend on the type of guilt induction used, which is often confused with harsher forms of shaming and personal attack containing elements of humiliation and losing face, such as blaming, expressing disappointment and embarrassment, drawing attention to child shortcomings, bringing up past child transgressions, and comparing perceived inferior child performance with others who meet parental expectations (Barber, 1996; Fung, 1999; Yu et al., 2015). Consistent with Fung and Lau (2012), we proposed that parent-oriented induction practices that appeal to the child's guilt potential by seeking to elicit empathy for parental sacrifices and efforts may be a more mild form of psychological control that helps children better understand their parents' perspective (cf. Hoffman & Saltzstein, 1967). This form of guilt induction may be effective in promoting child-rearing goals and helping the child acquire empathy and attunement to others' thoughts and feelings in interdependence-oriented cultures.

The regularity of parent/child interactions during the preschool years provide many opportunities for parents to make children aware of how much they do, sacrifice, and worry about them. These communications can serve to give children practice in empathizing with and considering how their behavior is responding to the care and

concern that their parents show to them. Guilt associated with making parents worry and sacrifice more may serve to help young children better think through the consequences of their actions for themselves and for the well-being of others (Hoffman & Saltzstein, 1967). Prior research indicates that preschool-age children of parents who help create an awareness of how child behaviors impact the thoughts and feelings of others are less likely to be aggressive and disruptive, and more likely to be prosocial and better accepted by peers (Hart, DeWolf, & Burts, 1992; Hart DeWolf, Wozniak, & Burts, 1992).

In contrast to Fung and Lau (2012), we additionally asserted that love withdrawal is a hostile form of psychological control as it may threaten the parent-child bond and a child's secure sense of self regardless of culture, according to parental acceptance-rejection theory (Rohner, Khaleque, & Cournoyer, 2005). Thus, love withdrawal was proposed to have universally negative connotations and implications for child development (Hoffman & Saltzstein, 1967; Rudy, Carlo, Lambert, & Awong, 2014). Indeed, there is evidence that love withdrawal can be statistically differentiated from guilt induction and shaming (Yu et al., 2015) and may have different predictive significance for Chinese American children's development. Although few studies have done so, empirical examination of the individual dimensions of psychological control and their associations with children's developmental outcomes is warranted. Providing empirical evidence for the developmental outcomes of love withdrawal in comparison to guilt induction may shed light on the inconsistent findings regarding the effects of psychological control on children's adjustment in previous studies where love withdrawal and guilt induction were often grouped together (e.g., L. Nelson et al., 2006).

Little is known about the use and effects of psychological control among Asian immigrant families with young children in a Western context, which are now the fastest growing ethnic minority group in the United States (U.S. Census, 2011). Asian American samples are unique in that they are influenced both by Western cultures that emphasize autonomy, assertiveness, and independence as desirable child characteristics (Greenfield, Keller, Fuligni, & Maynard, 2003) and Asian cultures that value interdependence, group harmony, and emotional restraint over independence and individual self-expression (Grusec, 2008). The current study focused on Chinese immigrant mothers in the U.S. and their preschool children to help fill this gap in the literature. Another limitation of previous research on psychological control is that most studies are cross-sectional in design (see several exceptions by Albrecht, Galambos, & Jansson, 2007; Pettit, Laird, Dodge, Bates, & Criss, 2001; Wang et al., 2007), which precludes drawing conclusions regarding the predictive directional relations between psychologically controlling parenting and children's developmental outcomes. The use of a longitudinal design would allow for the examination of the bidirectional associations between psychologically controlling practices and child behaviors. For example, Albrecht and colleagues (2007) examined a community sample of Canadian adolescents (mean age 16 years). The authors found that adolescents' perceptions of parental use of psychological control did not predict their internalizing and aggressive behaviors two years later but Time 1 internalizing problems and aggression in adolescents predicted increases in their perceptions on maternal use of psychological control.

In contrast, Wang et al. (2007) examined seventh graders (mean age 13 years) from the United States and China and found that perceived parental use of psychological

control significantly predicted children's decreased emotional functioning six months later in both cultural groups. However, they did not find any "child effects" on parenting behavior over time. These studies either focused on hostile forms of psychological control (Albrecht et al., 2007) or combined guilt induction, love withdrawal, and authority assertion (Wang et al., 2007), and also provided contradicting evidence for the bidirectional relations between perceived psychological control and child development. The present study aimed to advance the field by: (1) separately examining a hostile (love withdrawal) and an inductive form of psychological control (guilt induction), (2) utilizing a short-term longitudinal design to reveal bidirectional parent and child effects, and (3) using different reporters for parenting practices and children's adjustment outcomes.

The child adjustment outcomes in this study included both internalizing (reticence) and externalizing (physical aggression and relational aggression) behaviors. Reticence is a form of social withdrawal that reflects an approach-avoidance conflict in that reticent children desire to approach others but have a simultaneous avoidance tendency. It has been found to be associated with peer rejection, psychological control, and internalizing problems in Chinese samples (Hart et al., 2000; L. Nelson et al., 2006). In contrast, physical or overt aggression includes behaviors such as pushing, hitting, or threatening others with physical harm, whereas relational aggression includes acts involving manipulation or damage to social relationships (e.g., exclusion or threats of social harm); both subtypes of aggression are externalizing behaviors readily engaged in by preschool-aged children and are important indices of psychosocial maladjustment that are related to psychological control (Crick & Grotpeter, 1995; Crick, Casas, & Mosher, 1997; Hart et al., 1998; Nelson et al., 2013; McNeilly-Choque, Hart, Robinson, Nelson, & Olsen, 1996).

Method

Participants

Participants were 133 first-generation Chinese-American mothers ($M_{age} = 37.82$, $SD = 4.55$) with young children ($M_{age} = 4.48$, $SD = 0.91$, 52.6% boys). The families were recruited from various organizations across the Maryland-Washington DC region, including Chinese churches, preschools, daycare centers, Chinese language schools, grocery supermarkets, and libraries to reach potential participants with diverse socioeconomic backgrounds and maximize the representativeness of the sample. Both parents were identified as first-generation Chinese immigrants, but 91.7% of the children were born in the U.S. (i.e. second generation). More than 98% of the children were from two-parent intact families. Mothers had been in the U.S. for 10.84 years on average ($SD = 5.56$), and were originally from Mainland China (81.2%), Taiwan (13.5%), or Hong Kong (5.3%). About 30% of the participants had a bachelor's degree or lower and 70% of them had a graduate or professional degree (e.g., master or doctoral degree). Mothers immigrated to the U.S. for educational and work reasons (48.9%), to accompany their spouse or join extended family in the U.S. (42.7%), or to enhance their life experiences, for a better lifestyle or other reasons (8.4%). About 29.8% of the mothers had one child, 52.4% had two children, and 17.8% had three or more children. Half of the mothers were Christian, 4.5% of them were Buddhist or of another religion, and about 45.5% had no religious affiliation.

Procedure

With the permission and assistance of the directors in these organizations, announcements were made to the parents regarding the study. Data collection on mothers'

psychologically controlling parenting practices was conducted in the participants' homes by bilingual trained research assistants. Almost all mothers (94.0%) preferred to have the home visit conducted in Chinese. Teacher ratings of the children's social withdrawal, physical or proactive aggression in a peer setting were obtained primarily by calling, faxing, or emailing their preschool teachers. Ethical approval for the study was obtained from the University Institutional Review Board, and parents provided their written consent prior to data collection. Two waves of longitudinal data were collected spaced approximately six months apart.

Measures

The parenting and child measures that were originally in English were translated to Chinese by graduate students who were fluent in both English and Chinese. An extensive translation and back-translation process was used as recommended by Pena (2007) to ensure the linguistic equivalence and maintain the original meaning of the measures.

Demographic information. Mothers completed the Family Description Measure (Bornstein, 1991) that obtained demographic information about their marital status, educational levels, reasons for moving to the U.S. and length of stay in the U.S. since immigration, number of children, and date of birth and gender of their children who participated in our study.

Maternal love withdrawal and guilt induction. Mothers self-reported their parenting practices at both Wave 1 (W1) and Wave 2 (W2), using the Psychological Control Measure (Olsen et al., 2002). Mothers rated how often they exhibit each parenting behavior on a 5-point Likert scale: 1 (never), 2 (once in a while), 3 (half of the

time), 4 (very often), and 5 (always). The current study utilized items from the love withdrawal and guilt induction subscales, which were found to be statistically distinct dimensions of psychologically controlling parenting (Yu et al., 2015). Items that represent each construct were selected based on the confirmatory factor analyses conducted by Yu et al. (2015). Specifically, only those items that worked across the multidimensional three-factor and bi-factor models in Yu et al. (2015) were used. Items that worked best for guilt induction were parent-oriented for this age group. Sample items include, “Is less friendly with child if child does not see things my way” for love withdrawal and “Say, if you really care for me, you would not do things that cause me to worry” for guilt induction.

Child social withdrawal and aggression. Preschool teachers rated children’s social and behavioral functioning with peers at both W1 and W2 using the Social Skills Questionnaires (SSQ; Hart & Robinson, 1996). Specifically, the SSQ-Withdrawal was used to measure children’s reticent behaviors (four items), and the SSQ-Aggression was used to measure children’s physical (four items) and relational aggression (five items). The psychometric properties of these measures are described below. Teachers were asked to describe the focal child’s behavior at school in the past six months, and indicate how often a child exhibited withdrawn or aggressive behavior on a 3-point Likert scale: 0 (never), 1 (sometimes), and 2 (very often). Sample items include, “Stares at other children without interacting with them” for social withdrawal, “Hits, kicks, or pushes to get something he or she wants” for physical aggression/ overt aggression, and “Tells other children not to play with someone” for relational aggression.

Analysis Plan

The rate of missing data was less than 5% and the data were found to be missing completely at random (MCAR) with Little's MCAR test, $\chi^2(324, N = 133) = 327.80, p = .431$ (Little, 1998). The mean- and variance-adjusted weighted least squares estimator (WLSMV) in *Mplus* version 7 (Muthén & Muthén, 1998-2012) was used to conduct confirmatory factor analysis (CFA) and structural equation modeling (SEM). WLSMV treats the items as categorical indicators and makes use of all of the available data in order to estimate the models. CFA was first conducted to ensure the measurement equivalence of the parenting and child outcome measures across the two waves. The structural paths between parenting and child constructs were specified as a cross-lagged model. All W2 latent variables were controlled for demographic variables, including child age, child gender, and parental education. Model fit was evaluated by χ^2 statistic, root mean square error of approximation (RMSEA), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Weighted Root Mean Square Residual (WRMR). Acceptable model fit is indicated by CFI and TLI above .90, RMSEA below .08, and WRMR with values of 1.0 or lower (Brown, 2006; Hu & Bentler, 1998; Yu, 2002). CFI and TLI larger than .95 and RMSEA smaller than .05 are considered good fit.

Results

The primary goal of this study was to examine whether the two different dimensions of psychologically controlling parenting would be differentially associated with child adjustment outcomes at a later time point as well as whether child behavior would elicit different parenting practices over time. Therefore, measure invariance of the parenting and child constructs across the two waves was established before testing the cross-lagged effects.

Measurement Equivalence

Measurement invariance was tested in the following way. First, for each construct of this study, an unconstrained model was first specified where factor loadings were freely estimated, the constructs at both waves were correlated with each other, and the residual covariances (correlations) of the same indicators repeated over time were freely estimated to account for the uniqueness they shared beyond the stability of the construct they represented. Second, the unconstrained model was further specified to have the factor loadings from the latent construct to the same indicators constrained to be equal between waves. In addition to evaluating the fit of the two nested models on their own, a chi-square change ($\Delta\chi^2$) test was used to examine the measurement invariance: A non-significant $\Delta\chi^2$ corresponding to the change in the degree of freedom indicated that the constrained model fit the data as well as the unconstrained model, namely, equivalence in the factor loadings between waves. For all the measurement models, both the unconstrained and factorial invariance models in this study achieved acceptable model fit, χ^2 s = 9.12 to 46.36, ps = .032 to .398, RMSEA ranged from .02 to .08, CFI ranged from .95 to 1.00, and WRMR ranged from .28 to .80. The $\Delta\chi^2$ tests were all non-significant, $\Delta\chi^2$ s = 1.84 to 7.14, ps > .05, indicating measurement equivalence for all parenting and child constructs across the two waves. The W1 and W2 standardized factor loading of each construct item from the measurement invariance models is presented in Table 1. All standardized factor loadings were statistically significant, ranging from .44 to .95.

Relations over Time between Parenting and Child Functioning

With an invariance established for the measurement of the constructs, sets of cross-lagged SEM models were built to examine the reciprocal effects over time between parenting practices and child functioning (Figure 1). The “parenting effect” paths from W1 parenting to W2 child outcomes and “child effect” paths from W1 child behavior to W2 parenting practices were of major interest. The autoregressive paths from W1 parenting and child constructs to W2 parenting and child constructs were controlled for temporal stability, and the paths from covariates (i.e., W1 child age, child gender, and maternal education) to all parenting and child constructs were included as demographic controls. Concurrent associations between parenting practices and child functioning were also specified at each wave.

The model with child social withdrawal as the outcome (Figure 2a) achieved an acceptable model fit, χ^2 (239, N = 133) = 279.17, p = .038, CFI = .96, WRMR = .79, and RMSEA = .04, 90% CI [.01, .05]. All observed behavioral indicators of the latent variables had standardized factor loadings > .40, which are considered as evidence for sound psychometric properties of the measurement portion of the model (D. Nelson et al., 2006; Steven, 1996). Results indicated that W1 maternal love withdrawal was positively related to W2 child social withdrawal (β = .45, SE = .19, p = .022, 95% CI [.06, .83]) whereas W1 maternal guilt induction was negatively related to W2 child social withdrawal (β = -.40, SE = .17, p = .020, 95% CI [-.73, -.06]). For child effect, more W1 child social withdrawal predicted less W2 maternal love withdrawal (β = -.27, SE = .13, p = .045, 95% CI [-.52, -.01]), but not W2 guilt induction. Maternal love withdrawal (β = .96, SE = .16, p < .001, 95% CI [.65, 1.27]) and guilt induction (β = .87, SE = .12, p

< .001, 95% CI [.64, 1.11]) showed strong time stability but W1 child social withdrawal did not significantly predict W2 child social withdrawal.

The model with child physical aggression as the outcome (Figure 2b) achieved an acceptable model fit, χ^2 (239, N = 133) = 318.21, p = .001, CFI = .92, WRMR = .95, and RMSEA = .05, 90% CI [.03, .06]. All observed behavioral indicators of the latent variables had standardized factor loadings > .40. Results indicated that W1 maternal love withdrawal was related to more W2 child physical aggression (β = .45, SE = .18, p = .011, 95% CI [.10, .79]), whereas W1 maternal guilt induction was related to less W2 child physical aggression (β = -.36, SE = .18, p = .048, 95% CI [-.71, -.003]). For child effect, more W1 child physical aggression predicted more W2 maternal guilt induction (β = .30, SE = .11, p = .005, 95% CI [.09, .51]) but not love withdrawal. Similar to the time stability of the parenting constructs, children's physical aggression at W1 significantly predicted their W2 physical aggression (β = .32, SE = .14, p = .018, 95% CI [.06, .59]).

The SEM model with child relational aggression as the outcome (Figure 2c) also achieved an acceptable model fit, χ^2 (288, N = 133) = 330.86, p = .042, CFI = .96, WRMR = .82, and RMSEA = .03, 90% CI [.01, .05]. All observed behavioral indicators of the latent variables had standardized factor loadings > .40. Results indicated that W1 maternal love withdrawal was related to more W2 child relational aggression (β = .56, SE = .17, p = .001, 95% CI [.22, .89]), whereas W1 maternal guilt induction was related to less W2 child relational aggression (β = -.39, SE = .19, p = .041, 95% CI [-.76, -.02]). No child effects were found from relational aggression to maternal guilt induction or love withdrawal. Moreover, W1 child relational aggression did not predict their W2 relational

aggression. Parenting constructs showed similar time stability as in the other two SEM models.

Discussion

By utilizing SEM to analyze the two-wave longitudinal data, this study provided strong empirical evidence for the reciprocal relations between psychologically controlling parenting and children's social adjustment at school. In general, for parenting effects, W1 maternal love withdrawal predicted more W2 child social withdrawal, physical aggression, and relational aggression, whereas W1 maternal guilt induction predicted less W2 child social withdrawal, physical aggression, and relational aggression, after controlling for corresponding W1 child adjustment outcomes and demographic covariates. Only two significant child effects on parenting practices over time were found: More W1 child social withdrawal predicted less W2 love withdrawal, and more W1 physical aggression predicted more W2 guilt induction, controlling for corresponding W1 parenting practices and demographic covariates as well.

Parent Effects: Love Withdrawal versus Guilt Induction

Love withdrawal represents a harsh and hostile form of psychological control that parents use to manipulate the attachment relationship with the child by implying that love and acceptance will not be restored until the child changes his or her behavior to meet parents' expectations (Barber, 1996; Hart et al., 1998). As the critical component of the psychological control measure used in most studies, love withdrawal has been associated with a wide variety of child behavioral problems, including social withdrawal (L. Nelson et al., 2006), physical and relational aggression (D. Nelson et al., 2006; Nelson et al., 2013), and depression, anxiety and delinquency (Barber et al., 2005; de Kemp et al., 2006)

in both interdependence- and independence-oriented cultures. Our results were consistent with these previous studies and supported the conjecture that love withdrawal may denote parental hostility through an unhealthy manipulation of the parent-child relationship and threaten the basic bond between parent and child, and is thus universally related to child maladjustment (Rohner et al., 2005). Hostile and harsh parenting is detrimental to the development of children's social competence or positive self-regard (Rubin, Coplan, & Bowker, 2009), which may explain why love withdrawal was predictive of children's withdrawal from social interactions with their peers six months later.

In contrast, guilt induction represents the relational induction form of psychological control that emphasizes children's interpersonal sensitivity and obligations towards their parents (Aunola & Nurmi, 2005). In the United States or other independence-oriented cultures that value individualism, guilt induction may be perceived to be associated with lack of parental support and more parental rejection. Thus, such parenting practices impede positive development in Western children (Rudy et al., 2014). However, in interdependence-oriented cultures, guilt induction may be perceived by children to be associated with parental concern and caring for children's well-being rather than feelings of rejection because of the more interdependent sense-of-self among children from these cultural contexts.

Our findings are consistent with research showing that Asian American children experienced more interdependence with their mothers and were more motivated by mothers' controlling parenting than European American children (Fu & Markus, 2014). Moreover, guilt induction may be used by Chinese or Chinese immigrant parents to foster

culturally-valued qualities and motivate their children to reciprocate parents' sacrifices through proper social conduct. Such practices also help cultivate children's empathy to enhance their social competence within the peer group (Fung & Lau, 2012). Thus, guilt induction has been found to not be associated with problematic child functioning in samples with interdependence-oriented cultural values (Rudy & Halgunseth, 2005) or reported to be associated with positive adjustment outcomes in some previous studies (e.g., Rudy et al., 2014). Importantly, we found that the cultural meanings and culture-specific effects of guilt induction extended to a Chinese immigrant sample residing in a Western context, implying the retention of such cultural processes at least among first-generation mothers and their young children.

Child Effects

Children's reticence and wariness elicited less use of love withdrawal in Chinese immigrant mothers at a later time point. The inhibited, anxious, and withdrawn behaviors reflect anxious shyness among these Chinese American children, which has been associated with fearful temperamental characteristics and insecure parent-child attachment relationships (Rubin et al., 2009). Thus, more feelings of concern and sympathy and less rejection and punishment orientation may be evoked among these Chinese immigrant mothers in reaction to their children's social withdrawal or behavioral inhibition (Chen et al., 1998; Mills & Rubin, 1990). Mothers were thus less likely to withdraw their love and attention as a response to child's social withdrawal in order not to further challenge their insecure child.

In contrast, Chinese immigrant mothers of children who engaged in overtly aggressive behaviors like hitting, throwing things at, making fun of, and threatening other

children were more likely to use guilt induction practices six months later. Unlike social withdrawal or relational aggression, physical aggression may be more likely to be noticed by teachers and reported to parents, and perceived by Chinese immigrant parents as moral misconducts or transgressions and they may feel more angry and embarrassed in response to aggression than withdrawal (Cheah & Rubin, 2004). This may explain why physical aggression had stronger temporal stability than child social withdrawal and relational aggression. Because of the more serious consequence of physical aggression, immigrant mothers may increase the use of guilt induction practices that highlight the effects of children's hurtful behaviors on others (Ho, Fu, & Ng, 2004) in order to help children internalize moral values and realize the consequences of their misbehaviors.

Finally, fewer child effects on parenting were generally found compared to parent effects on children. This pattern of findings differed from Albrecht et al. (2007) but was consistent with Wang et al. (2007)'s findings. One possible reason may be because both the current and Wang et al.'s study were conducted among younger children, compared to Albrecht et al.'s study, which focused on adolescents. The greater presence of parental versus child effects during younger ages could be due to children's greater dependence on their parents, rendering a stronger influence of parenting behaviors during earlier compared to later developmental stages (e.g., Frick, Christian, & Wootton, 1999).

Universalism without Uniformity

The current findings on the effects of love withdrawal and guilt induction on children's social adjustment suggest a "universalism without the uniformity" perspective on the role of culture in human development, which entails both universal and culture-specific features of psychological processes (Shweder & Sullivan, 1993; Wang et al.,

2007). Specifically, the negative effect of love withdrawal on child development was consistent with findings on Western samples, suggesting the culturally-shared negative connotations of such practices even among Chinese children residing in the U.S. In contrast, the finding of the effects of guilt induction on children differed from previous findings on Western children. These findings suggest possible culture-specific meanings of this parenting practice as reflected in less detrimental or even positive effects on Chinese American children.

Thus, although controlling parenting, including psychological forms of control, is considered detrimental because such practices undermine the child's basic psychological needs for autonomy (Deci & Ryan, 2000), different forms of controlling parenting may have varying effects on specific aspects of child development. These effects may differ depending on the specific cultural context. The "universalism without uniformity" perspective leaves room for individual variations within the universalistic perspective and suggests important future directions for research to explore both culturally-shared and unique processes in development. Soenens and colleagues (2015) also proposed that children may differ in how they appraise and cope with controlling behaviors, depending on their cultural backgrounds or personal characteristics. Individual differences in children's interpretation of and coping strategies in response to such practices may also contribute to heterogeneity in the effects of psychologically controlling parenting within or across different cultural contexts.

Limitations and Future Directions

Several limitations in the present study should be noted, which also highlight directions for future research. First, the current sample was comprised of well-educated

and middle-class Chinese immigrants. Although this sample was generally representative of the first-generation Chinese population in the Maryland-DC metropolitan area (McCabe, 2012), the generalization of these findings to other Chinese or Chinese immigrant populations, such as families of different socioeconomic status and different regions of the U.S., should be made cautiously (Park & Lau, 2015). In addition, mothers' immigrant status in addition to their Chinese cultural background may affect the functions of controlling parenting. First-generation immigrant parents may experience greater hardship in the new culture compared to native Chinese parents or American parents. Accordingly, their socialization may highlight greater obligation for children to "repay" their sacrifices and their children may be also more motivated to reciprocate their gratitude through proper social conduct. Future studies are needed to tease out the influence of culture and immigration- or acculturation-related factors in the effects of specific parenting practices by including multiple cultural or ethnic samples and measures on parents' cultural orientations.

The second limitation concerns the measures in the current study. Mothers' self-reports of their parenting has the benefit of capturing a global view of parenting, but also suffer from weaknesses including social desirability biases, recall biases, and ambiguous questions (Power et al., 2013). Future studies should consider multiple measurement tools when possible to collect complementary information, including questionnaires and observational assessments of parenting. For the child measures, we did not include typical indicators of internalizing problems. Given that psychologically controlling parenting is conceptualized to intrude and manipulate children's thoughts and feelings, it may be particularly influential on children's emotional symptoms such as anxiety and

depression. Thus, the conclusion that guilt induction has no negative effects on child development in interdependence-oriented cultures should be limited to the specific outcomes that were assessed in the current study.

Finally, we reported differential effects of love withdrawal and guilt induction on specific child outcomes, but explanatory processes were not examined (Pomerantz & Wang, 2009). Future studies can examine, for example, whether love withdrawal is indeed more likely to be appraised as a threat to children's psychological autonomy and efficacy (Soenens et al., 2015) or elicits more feelings of rejection (Khaleque & Rohner, 2002) compared to guilt induction. In addition, future studies can also examine whether guilt induction indeed motivates Chinese or Chinese American children to reciprocate parents' sacrifices through proper social conduct and enhance children's empathy and perspective-taking skills to facilitate their interactions with peers.

Conclusions

The current short-term longitudinal study advances knowledge of the bi-directional relations between psychological control dimensions and children's social adjustment outcomes. Only two child-driven effects were found in this study, indicating perhaps a stronger influence of parents on children rather than the other way around during early childhood. For parent effects, love withdrawal was found to be associated with children's problematic behaviors (more social withdrawal, physical and relational aggression) within this Chinese immigrant sample, consistent with findings in previous studies on Western samples. However, the use of guilt induction predicted less problematic child behaviors, which differed from previous findings in Western samples. These results suggest a synthesis of both culturally similar and different processes and

highlight the importance of construct specificity in the examination of the effects of psychologically controlling parenting on child development. Our study also sheds light on potential culturally informed ways for educators and service providers to promote positive and effective parenting among Chinese immigrant families to improve their children's social adjustment in the U.S. school setting.

Chapter 4: Paper Three

Underlying Processes Linking Parenting, Self-Regulation, and Chinese American Children's Social-Emotional School Readiness

Background

There is a general consensus that school readiness is characterized by children's performance across multiple domains of functioning (Sabol & Pianta, 2012). In addition to linguistic and cognitive competence, children's school readiness skills include a broad constellation of behaviors and abilities that enable children to learn in school, such as social-emotional competence, directions or rule following, and attentional skills (e.g., Rimm-Kaufman, Pianta, & Cox, 2000). Children's school readiness is a strong predictor of their later academic achievement (Duncan et al., 2007). In particular, enhancing the school readiness skills of young children from low-income and/or ethnic minority families (Dotterer, Iruka, & Pungello, 2012) is an important way to address the national concern of the achievement gap that has tremendous economic and social impact on U.S. society (McKinsey & Company, 2009). Although Chinese American children are thought to do well academically, recent research indicates that these children may be at risk for experiencing social-emotional difficulties at school (Cheah & Leung, 2011; Liew, Castillo, Chang, & Chang, 2011; Yamamoto & Li, 2012). Thus, this paper focused on the social, emotional, and behavioral school readiness of Chinese American children, and child regulatory skills and mothers' parenting practices that may contribute to these skills.

Warm and Responsive Parenting

Parenting has been considered a crucial contextual factor contributing to children's cognitive and social-emotional school readiness (e.g., Lugo-Gil & Tamis-

LeMonda, 2008; Merz et al., 2015). The relations between authoritative parenting and children's school readiness skills have been largely found (e.g., Chao, 2001; Cheah, Leung, Tahseen, & Schultz, 2009; Chen et al., 1997; Dornbusch, et al., 1987; Stewart et al., 2000). Authoritative parents are high on warmth and firm control, and described as loving, supportive, and encouraging of children's individual interests (Baumrind, 1989). Parental warmth is one key dimension of authoritative parenting, and is characterized by warm acceptance of the child's needs, sensitive responsiveness to the child's cues, and expressions of nurturance and affection toward the child (Wu et al., 2002). Parental warmth and responsiveness may play an important role in early cognitive and social-emotional development (e.g., Landry, Smith, & Swank, 2006; Stams, Juffer, & van IJzendoorn, 2002). For example, controlling for child age, gender, parental education, and initial levels of school readiness skills, parental responsiveness significantly predicted children's cognitive skills, math, literacy, and emotion knowledge a year later among socioeconomically disadvantaged preschoolers (Merz et al., 2015).

Harsh and Controlling Parenting—Physical Coercion

In contrast to parental warmth, the associations between authoritarian or harsh parenting and children's developmental outcomes are more equivocal (e.g., Querido, Warner, & Eyberg, 2002; Williams et al., 2009). Authoritarian parents are described as high on firm control and low on warmth; these parents value child obedience, favor punitive and forceful strategies, and believe that children should accept their parents' word for what is right (Baumrind, 1989). Researchers have found that authoritarian practices are related to deleterious academic and psychosocial outcomes (e.g., internalized distress, conduct disorder, and delinquent behavior) for children from both

Western and Asian cultures (e.g., Chang et al., 2003; Chen et al., 1997; Thompson, Hollis, & Richards, 2003). However, some scholars suggest that high parental control may denote concern, care, and involvement in the Chinese cultural context, and thus promote achievement and conformity to societal expectations among Chinese children (e.g., Chao, 1994). In support of this assertion, Leung et al. (1998) found positive effects of general authoritarianism on Hong Kong Chinese children's school achievement. On the other hand, Chen and colleagues (1997) showed the negative influence of authoritarian parenting on mainland Chinese children's school and social outcomes. Therefore, contradictory findings on the effects of authoritarian parenting are found even within the Chinese culture (Chen et al., 1997; Leung et al., 1998).

It is possible that the typology approach captures a configuration of parenting practices making it difficult to ascertain what aspects of parenting affect which child developmental outcomes (Lewis, 1981). A dimensional or variable-centered approach may be useful to complement the typology approach, to articulate the dimensional effects, and to help explain the mixed findings involving harsh and controlling parenting. Physical coercion is one crucial dimension of authoritarian parenting, characterized primarily by the use of physical punishment or spanking (Wu et al., 2002). The effectiveness of spanking as a discipline strategy and its association with child developmental outcomes have been found to vary, which might be the main drive of the inconsistent findings regarding authoritarian parenting in the literature. A meta-analysis by Gershoff (2002) showed that parental corporal punishment is related to negative child adjustment including decreased moral internalization, increased aggression and antisocial behavior, and decreased overall mental health. Nevertheless, this meta-analysis was

criticized because it did not discriminate between non-abusive and abusive physical discipline and included effect size estimates mainly from cross-sectional analyses (Baumrind, Larzelere, & Cowan, 2002). When the physical punishment is not abusive and used conditionally in response to defiance and misbehavior, it has been found to be effective at reducing non-compliance and antisocial behavior (Larzelere & Kuhn, 2005). In a comprehensive review based on 35 longitudinal studies, only 34% of the studies showed detrimental outcomes associated with physical coercion or spanking, whereas 40% of the studies found neutral results and 26% of the studies even found beneficial effects (Larzelere, 1996).

Moreover, much of the research on physical coercion has been based on middle-class European American families. The meaning and consequences of parenting practice in other cultures or other race/ethnic groups within the United States need to be examined more comprehensively. Several of the existing studies indicated that spanking was only associated with aggressive behavior for Caucasian children but not for Hispanic or African American children (e.g., Gunnoe & Mariner, 1997; McLeod, Kruttschnitt, & Dornfield, 1994; Stacks, Oshio, Gerard, & Roe, 2009). Yet other studies found negative child adjustment outcomes associated with a measure of spanking, slapping, and hitting across White, Black, and Hispanic families (e.g., Grogan-Kaylor, 2005; Lau, Litrownik, Newton, Black, & Everson, 2006; Pardini, Fite, & Burke, 2008). Spanking among Asian or Chinese American families has been significantly understudied. A recent study on a nationally representative sample found that spanking predicted an increase in externalizing behaviors over time, and child externalizing behaviors predicted more spanking over time, equally across White, Black, Hispanic, and Asian families in the U.S.

(Gershoff, Lansford, Sexton, & Davis-Kean, 2012). The effect of physical coercion on other adjustment outcomes (e.g., internalizing problems, positive social adjustment, and school outcomes) in Asian American children largely remains unknown.

Psychologically Controlling Parenting—Guilt Induction

Similarly, the effect of psychologically controlling parenting on child development is equivocal and not extensively studied among immigrant families in the United States with an interdependence-oriented cultural background such as Chinese Americans. Significant associations between psychological control and problematic adolescent functioning are generally found in Western adolescents (Barber & Harmon, 2002; Barber et al., 2005). Some studies that involved Asian samples of children provide similar evidence for the negative effects of psychological control on child development (L. Nelson et al., 2006; D. Nelson et al., 2006; Soenens et al., 2012; Wang et al., 2007), supporting the universalist perspective. However, several cross-cultural studies (e.g., Rudy & Halgunseth, 2005) found that mothers from the interdependence-oriented cultures (e.g., South Asia) scored higher on psychological control than mothers from independence-oriented backgrounds (e.g., Western Europe). The authors also reported that mothers' use of psychological control was not associated with maladaptive child outcomes in interdependence-oriented cultures.

These contradictory findings have been partly attributed to the lack of attention to the multidimensional nature of psychological control (Yu et al., 2015). Recent studies have shown that, unlike hostile and rejecting forms of psychological control (e.g., invalidating feelings), guilt induction was not associated with children's behavioral problems in European American or Chinese children and was even positively associated

with self-esteem in Indian college students (Fung & Lau, 2012; Rudy et al., 2014). In cultures guided by interdependence values, relational induction forms of psychological control (including guilt induction) may reflect parental commitment to encouraging children to attune to the feelings, needs, and perspectives of others and is perhaps associated with less negative parental cognitions and rejection than in independence-oriented cultures (Fung & Lau, 2012; Rudy & Halgunseth, 2005). Thus, my third dissertation study also focused on this inductive form of psychological control, in addition to maternal warmth and physical coercion, and examined the unique relations between each of these parenting practices and various positive and negative school readiness outcomes among Chinese American preschool children.

The Role of Self-Regulation

To better understand the contradictory findings in the literature outlined above, mechanisms that may underlie the parenting-child adjustment associations should be examined. One potential mechanism of parenting effects on child adjustment is how parents shape children's self-regulatory characteristics, which in turn are critical predictors of children's school or social adjustment (Davidov & Grusec, 2006; Kiff, Lengua, & Zalewski, 2011). Self-regulation generally refers to the ability to manage one's attention, thoughts, emotions, and actions in voluntary and adaptive ways (Blair & Diamond, 2008; McClelland & Cameron, 2012). In the field of temperament research, effortful control is one important framework for studying self-regulation that has received considerable attention (Liew, 2012; Zhou, Chen, & Main, 2012). Effortful control is defined as individual differences in emotional, behavioral, and attentional reactivity,

including the ability to inhibit a dominant response and/or to activate a subdominant response, to plan, and to detect errors (Rothbart & Bates, 2006).

Many empirical studies have provided evidence for the links between temperamental effortful control and children's early academic and social-emotional competence (i.e., the *b* paths of the mediation) in both Western and non-Western children (e.g., Liew, McTigue, Barrois, & Hughes, 2008; Sektnan, McClelland, Acock, & Morrison, 2010; Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008; Valiente, Lemery-Chalfant, & Swanson, 2010; Valiente et al., 2011; Zhou, Main, & Wang, 2010). For example, in a two-wave longitudinal study, Zhou and colleagues (2010) found that temperamental effortful control predicted social competence and externalizing problems in Chinese children and in turn their academic achievement (indexed by grade point average, GPA).

With respect to the links from parenting to self-regulation (i.e., the *a* paths of the mediation), many studies have shown that parental warmth is associated with higher self-regulation abilities (e.g., Gustafsson, Cox, & Blair, 2012; Kochanska, Murray, & Harlan, 2000), even though a previous meta-analysis indicated that warmth or responsiveness is not significantly correlated with children's self-regulation (Karreman, van Tuijl, van Aken, & Deković, 2006). Parents who are warm and responsive may provide children with a sense of security and help children manage their negative affect, which may facilitate the development of effortful control (Davies & Cummings, 1994; Lengua, Honorado, & Bush, 2007). In contrast, physically coercive parenting is associated with lower effortful control in some studies (e.g., Zhou, Eisenberg, Wang, & Reiser, 2004) but higher self-regulation abilities in others (e.g., Brody & Flor, 1998). Therefore, the effect

of physical coercion on children's self-regulation or effortful control is much less conclusive. The effects of psychologically controlling parenting on children's self-regulation and school readiness have rarely been studied. Further studies are needed to explore how specific aspects of parenting may promote or hinder children's self-regulation and school readiness outcomes.

A growing number of studies have examined the mediating role of effortful control in the associations between parenting and children's social-emotional school readiness, i.e., the *ab* paths. For example, two cross-sectional studies showed that authoritative parenting (warmth, reasoning, and autonomy-supporting) and low physical punishment predicted higher effortful control, which was in turn associated with fewer externalizing problems in Chinese children (Eisenberg et al., 2009; Zhou et al., 2004). In a three-wave longitudinal study with primarily European American children, parental warmth when the children were nine years of age positively predicted children's effortful control two years later at age 11, which in turn predicted lower levels of externalizing problems at age 13 (Eisenberg et al., 2005). The authors did not find evidence that child effortful control predicted parenting. In another longitudinal study also mostly involving European American children (Swanson, Valiente, Lemery-Chalfant, Bradley, & Eggum-Wilkens, 2014), effortful control mediated the relation between parents' reactions at kindergarten (emotion-focused, expressive-encouraging and less punitive reactions to child's negative emotions) and children's math achievement in early elementary school. However, the mediating effect was no longer significant after controlling for all time-invariant covariates and prior math achievement scores. Child-driven effects were not salient in this study as well.

Interestingly, in the two-wave longitudinal study conducted among Chinese children (Lee, Zhou, Eisenberg, & Wang, 2013), bidirectional relations between authoritarian parenting, but not authoritative parenting, and child effortful control were found: Effortful control (or authoritarian parenting) at Wave 1 negatively predicted authoritarian parenting (or effortful control) at Wave 2. However, the authors did not examine the mediating role of effortful control. Thus, additional longitudinal studies are needed to assess the mediating role of effortful control in the relation between parenting and children's social and school adjustment in different cultural groups.

The Role of Acculturation and Enculturation

In addition to the need for longitudinal studies examining the mediating role of effortful control, indigenous parenting practices, such as guilt induction, and cultural orientations, including acculturation and enculturation, should be considered when Asian or Asian immigrant families are studied. American culture values independence, assertiveness, and autonomy in individuals. In contrast, Chinese culture traditionally emphasizes interdependence and emotional restraint to foster harmonious interpersonal relationships, and filial piety to maintain parent-child relationship hierarchies (Chao & Tseng, 2002; Greenfield, Keller, Fuligni, & Maynard, 2003; Kim & Sherman, 2007; Wu, 1996). In addition, Chinese parents have been described as behaviorally engaging in more physically coercive and psychologically controlling practices than European American parents (Wu et al., 2002), perhaps to maintain the values of interdependence and obedience in children. Instead, European American parents' engagement in more warmth than their Chinese counterparts has been attributed to their greater valuing of

expressivity to foster individuality and positive self-esteem in their children (Cheah, Li, Zhou, Yamamoto, & Leung, 2015).

Given these cultural differences, it is reasonable to propose that, for Chinese immigrant parents, higher acculturation (i.e., individuals' socialization to the mainstream cultural norms) and lower enculturation (i.e., individuals' (re)socialization to ethnic cultural norms, Kim, 2007), would be associated with more parenting warmth and less control. However, empirical evidence supporting the direct associations between cultural orientations and parenting practices has been inconsistent. Whereas some researchers found no associations between acculturation or enculturation and parental control (Chuang, 2006) and the use of physical discipline (Lau, 2010) among Chinese immigrant parents in North America, others reported that the acculturation was related to lower levels of harsh discipline in Asian American parents (e.g., Liu, Lau, Chen, Dinh, & Kim, 2009). Thus, the nature of the direct link between cultural orientations and parenting is not conclusive and was explored in the current study.

Moreover, some researchers contend that the sociocultural context should be considered in understanding the implications of controlling parenting, including physical coercion and psychological control, on child developmental outcomes (Chao, 1994; Chao & Aqua, 2009). Controlling parenting practices in the Chinese cultural context are proposed to be intended to help children fit in with group norms, reflecting the *training* ideologies that emphasize the importance of instilling self-discipline in children through investments of sacrifices, strict governance, and continual involvement (Chao, 1994). When parents adhered to *training* ideologies, the negative effects of physical punishment on child behavior problems were not apparent (Fung & Lau, 2009). Thus, in cultural

communities where parental control is normatively accepted and considered a legitimate form of parenting done out of concern for the child (Deater-Deckard, Dodge, Bates, & Pettit, 1996), the effects of such control may be less detrimental. Due to the different cultural meanings underlying controlling practices and greater normativeness of such practices in the Chinese versus American culture, certain forms of controlling practices may not lead to negative developmental outcomes in Chinese American children depending on the cultural fit.

Chinese immigrant parents in the U.S. are influenced by both American and Chinese cultures (Cheah, Leung, & Zhou, 2013), thus the effects of controlling parenting (physical coercion and guilt induction in this study) may depend on mothers' cultural orientations towards their heritage Chinese and mainstream American cultures. The moderating role of acculturation and enculturation in the effects of Chinese immigrant parenting has not received sufficient attention despite the significance of understanding the cultural meaning and functionality of Chinese parenting for child development in a Western cultural context (Cheah et al., 2009). Investigating the role of cultural orientations on the use and effects of parenting can be an important means of studying cultural influences on parenting, and the implications of specific parenting behaviors on child adjustment especially controlling parenting. Even though the cultural difference in the mean levels of parental warmth was revealed by some studies (e.g., Wu et al., 2002), the effects of parenting warmth were not expected to be moderated by acculturation because of the relatively consistent findings on the positive effects of warmth on child development across different cultural contexts.

Summary of the Present Study

The overall goal of my third dissertation study was to explore the longitudinal associations among parenting practices, child effortful control, maternal acculturation and enculturation, and Chinese immigrant children's social-emotional school readiness in the U.S. in a two-wave longitudinal design. The direct effects of the three specific parenting practices (maternal warmth, physical coercion, and guilt induction) on children's school readiness six months later, and the indirect effect of parenting on school readiness through effortful control were investigated. In addition, the moderating role of mothers' behavioral acculturation and enculturation in the parenting effects was examined. Finally, the bidirectional relations between parenting practices and child outcomes across the two waves were also explored.

Aims and Hypotheses

All the aims were tested within the overall model where the latent school readiness variable was the outcome variable and all predictors (i.e., three parenting practices, two acculturation variables, and child effortful control) were included in the same model, but different parts of the model were used to test each specific aim. Different figures are provided to illustrate each of the main aims.

Aim 1: The first main aim was to test the a paths, b path, c paths, and $a \times b$ paths of the mediation effects (see Figure 3).

Aim 1.1: To examine the unique direct effect of maternal warmth, physical coercion, and psychological control (i.e., guilt induction) at W1 on children's temperamental effortful control (a_1 , a_2 , and a_3) and social-emotional school readiness (c_1 ,

c_2 , and c_3) at W2 six months later after controlling for the prior levels of these constructs at W1.

Hypothesis 1.1: Maternal warmth at W1 would be positively associated with child effortful control and social-emotional school readiness at W2 because warm and responsive parenting may provide children with a sense of security and help children positively manage their negative feelings and behaviors. In contrast, physically coercive parents highly rely on external and punitive control of children's emotions and behaviors, which may undermine parent-child relationship and interfere with the development of children's self-regulatory abilities and social-emotional adjustment (Zhou et al., 2004). No specific hypothesis was proposed for the effects of guilt induction on child effortful control and social-emotional school readiness at W2. As a controlling parenting practice, guilt induction can adversely affect children's sense of autonomy and induce negative emotions in children (e.g., anxious feelings) on the one hand; Guilt induction can also facilitate children's development in empathy or perspective taking and increase their sensitivity to other people's thoughts and feelings especially in families influenced by interdependence-oriented cultures.

Aim 1.2: To examine the unique effect of W1 child effortful control in predicting W2 children's social-emotional school readiness (b path).

Hypothesis 1.2: Children's effortful control would positively predict their school readiness skills, after controlling for the effects of maternal warmth, physical coercion, and guilt induction on children's school readiness and initial levels of school readiness.

Aim 1.3: To examine the mediating role of child effortful control in the associations between W1 maternal warmth, physical coercion, and guilt induction and W2 child social-emotional school readiness.

Hypothesis 1.3: Children's effortful control would mediate the effects of maternal warmth and physical coercion on children's school readiness skills. Specifically, W1 maternal warmth would be positively, and physical coercion would be negatively, associated with child effortful control at W2 after controlling for W1 child effortful control (a_1 and a_2 path); W1 children's effortful control would be positively associated with their W2 social-emotional school readiness after controlling for W1 school readiness (b path); Mediation would be revealed by a significant $a_1 \times b$ and $a_2 \times b$ indirect paths. No specific hypothesis was proposed for the mediating role of effortful control in the association between maternal guilt induction and child school readiness (i.e., $a_3 \times b$), due to the rationale described in Hypothesis 1.1.

Aim 2: The second aim was to test the role of W1 maternal behavioral acculturation and enculturation in predicting W2 maternal warmth, physical coercion, and guilt induction and in moderating the associations between W1 maternal practices and W2 child social-emotional school readiness (Figure 4).

Hypothesis 2: Mothers who were more behaviorally engaged in the larger mainstream American culture, or engaged less in the heritage Chinese culture, would be likely to use less physical coercion and guilt induction and more likely to show warmth. Moreover, the effects of physical coercion and guilt induction were expected to be moderated by acculturation. Cultural orientations were not expected to moderate the associations between maternal warmth and child developmental outcomes.

Aim 3: The third main aim was to test the bidirectional relations between maternal practices and child behavior across the two waves (see Figure 5 for the relevant paths). Parent-drive effects (a_1 , a_2 , a_3 , c_1 , c_2 , and c_3) were examined in Aim 1.1 and Aim 3 focused on child-driven effects (d_1 , d_2 , d_3 , d_4 , d_5 , d_6), i.e., whether W1 child effortful control would and school readiness predicted W2 parenting practices after controlling for the W1 maternal practices.

Hypothesis 3: Based on the available longitudinal empirical studies (e.g., Eisenberg et al., 2005; Swanson et al., 2014), fewer child effects were expected compared to parent-driven effects. Moreover, lower child effortful control was expected to elicit more coercive parenting but not predict a reduction in maternal warmth (e.g., Lee et al., 2013). No specific hypothesis was proposed for other child-driven effects.

All these aims and hypotheses were also tested in four separate models where one of the four school readiness indicators (i.e., on-task behavior, prosocial behavior, internalizing behavior, and externalizing behavior) was as the outcome variable of interest in each path model, respectively.

Method

Participants

The participants comprised a subset of the families in the same longitudinal study from which I drew data for my first two dissertation papers. Four waves of short-term longitudinal data are being collected for the larger project, but only half or fewer of the participants completed all three or four home visits at the time in which the current study was conducted. In order to obtain sufficient sample size for testing the mediating mechanisms, the first two waves of data, which are six months apart, were used. Half-

longitudinal mediation and moderation analyses were conducted, as described in more detail in the proposed analyses section. The final sample size, with complete two waves of data, was 154.

Procedure

The procedures for participant recruitment and data collection were identical to that of Study One and Two. Mother data were collected during home visits by trained research assistants who were fluent in the mothers' and children's preferred language (Chinese or English) and teacher data were obtained by calling, faxing, or emailing school teachers after the home visits were completed with parents' written approval.

Measures

All measures (see Appendix A to F) were available in the English and Chinese language and have been used in Chinese or Chinese American samples with acceptable psychometric properties (Wu et al., 2002; Yu et al., 2015; Yu, Sun, & Cheah, 2015).

Warmth and physical coercion. The Parenting Styles and Dimensions Questionnaire (Wu et al., 2002) was used to measure maternal warmth and physical coercion. Immigrant mothers described how often they exhibited each parenting behavior on a 5-point Likert scale: 1 (never), 2 (once in a while), 3 (half of the time), 4 (very often), and 5 (always). The warmth scale contains seven items (e.g., "Gives comfort and understanding when child is upset," "Tells child that I appreciate what the child tries or accomplishes," "Expresses affection by hugging, kissing, and holding child"). The reliability (Cronbach's alpha) of the warmth dimension was $\alpha = .73$ for W1 and $\alpha = .79$ for W2 in this study. The physical coercion scale contains four items (e.g.,

“Guides child by punishment more than by reason,” “Spansks when child is disobedient”), and reliability was $\alpha = .76$ for W1 and $\alpha = .79$ for W2.

Guilt induction. The Parental Psychological Control Measure (Olsen et al., 2002; Yu et al., 2015) was used to measure maternal use of guilt induction. Immigrant mothers described how often they exhibited each parenting behavior on a 5-point Likert scale: 1 (never), 2 (once in a while), 3 (half of the time), 4 (very often), and 5 (always). Three items were selected, based on the results of the bi-factor model in the confirmatory factor analysis of Yu et al. (2015), to construct the guilt induction scale. Sample items include “Says, if you really care for me, you would not do things that cause me to worry.” The reliability of guilt induction was $\alpha = .75$ for W1 and $\alpha = .72$ for W2 in this study.

Acculturation and enculturation. The Cultural and Social Acculturation Scale (CSAS; Chen & Lee, 1996) was administered to measure participants’ behavioral participation in their heritage Chinese culture and mainstream American culture at W1. The CSAS is a bilinear scale that includes two separate subscales reflecting behavioral participation in both heritage and mainstream cultures in the domains of language proficiency, living styles/media use, and social relationships. Example items include: “How often do you spend time with your American (or Chinese) friends?”, “How well do you speak in English (Chinese)?”, and “Do you celebrate American (or Chinese) festivals?” Mothers reported on the frequency of involvement in the described behaviors or degree of proficiency in the language using a five point Likert-type scale (e.g., 1 = “almost never” to 5 = “more than once a week” or 1 = “extremely poor” to 5 = “extremely well”). A total of eleven items for each scale were averaged to create the

mean scores of mothers' acculturation and enculturation levels. The reliability for acculturation and enculturation was $\alpha = .75$ and $\alpha = .66$, respectively, in this study.

Child effortful control. Mothers also rated children's temperamental effortful control using the Child Behavior Questionnaire (Rothbart, Ahadi, Hershey, & Fisher, 2001) at both waves. Nineteen items that reflect children's inhibitory control and attention focusing abilities, were measured to capture effortful control (Rothbart & Bates, 2006), and each item was rated on a 7-point Likert-scale from 1 (extremely untrue of your child) to 7 (extremely true of your child). Sample items include, "When picking up toys or other jobs, usually keeps at the task until it's done," and "Is usually able to resist temptation when told s/he is not supposed to do something." However, confirmatory factor analysis results indicated that, to ensure factorial validity and measurement equivalence of the 19 items across the two waves, the finally retained model was comprised of 10 inhibitory control items. Thus, the proposed analyses were based on the inhibitory control items to represent effortful control. The reliability of effortful control was $\alpha = .82$ for W1 and $\alpha = .84$ for W2 in this study.

Social-emotional school readiness outcomes. Four sets of children's school behaviors from the Social Skills Questionnaire (Hart & Robinson, 1996) were assessed as social-emotional school readiness indicators: on-task behavior, prosocial behavior, internalizing problems, and externalizing problems (Gray, Heberle, & Carter, 2012). Teachers rated children's on-task/compliant school behaviors on a 3-point scale. Sample items include "Produces correct school work," and "Finishes class assignments within time limit." In addition, children's prosocial behavior (e.g., "Shares readily with other children, for example toys, treats, pencils"), internalizing (e.g., "Many worries or often

seems worried,” “Rather solitary, prefers to play alone”) and externalizing (e.g., “Often fights with other children or bullies them,” “Restless, overactive, cannot stay still for long”) problems were measured using the Strengths and Difficulties Questionnaire (Goodman, 2001) after removing two items that did not work well for Asian American children (Yu et al., 2015). The reliability of W1 on-task behavior, prosocial behavior, internalizing behavior, and externalizing behavior was α 's = .76, .81, .65, and .83, respectively, and the corresponding W2 reliability estimate of these constructs were α 's = .80, .75, .71, and .82, respectively.

Analysis Plan

In the SEM model, a latent social-emotional school readiness variable was constructed as the outcome variable, based on on-task, prosocial, internalizing, and externalizing behaviors. In the four separate path models, the composite score of each school readiness indicators was included as the outcome variable in each model. The SEM or path models were analyzed using *Mplus 7* (Muthén & Muthén, 1998-2012). The robust maximum likelihood (MLR) estimator was used for the analyses to correct the probable violation of multivariate normality assumption. The MLR estimator provides standard errors and χ^2 test statistic that are robust to non-normality and is also recommended for small and medium sample sizes (Yuan & Bentler, 2000; Muthén & Asparouhov, 2002). To evaluate the overall model fit, the robust scaled chi-square statistic (S-B χ^2), CFI, RMSEA, and the standardized root mean square residual (SRMR) would be considered. Good model fit was indicated by CFI >.95, RMSEA <.06, and SRMR <.08 (Hu & Bentler, 1998). Acceptable model fit was evidenced by CFI >.90, RMSEA <.08, and SRMR <.10 (Bollen, 1989). The full-information maximum

likelihood estimation (FIML; Little et al., 2014) was used to handle missing data in *Mplus* 7.

In all SEM or path models, W1 and W2 variables (three parenting practices, acculturation, child effortful control, and child school readiness) were regressed on the demographic variables to ensure full control of the influences of selected covariates, including maternal education levels, child age and gender. All possible structural paths (i.e., autoregressive paths for the same construct across waves and cross-lagged paths for all different constructs across waves) and correlations among the constructs within the same wave were estimated. Such a model is said to be saturated and generally not very informative because it is not a parsimonious representation of how the predictive associations unfold over time (Little, 2013). Therefore, a reduced set of structural paths by removing nonsignificant structural paths, which can explain the pattern of associations in the data just as well as the saturated model, would be eventually retained.

To examine the mediating role of child effortful control, three indirect effects would be calculated by multiplying *a* paths (i.e., the paths from maternal warmth, physical coercion, or guilt induction to W2 child effortful control after controlling for W1 effortful control and covariates) and *b* path (i.e., the path from W1 child effortful control to W2 child school readiness after controlling for W1 school readiness and covariates). When there was a significant mediation, the significance of the indirect effect ($a \times b$) would be further tested using the bootstrap procedure, which generated the confidence intervals for the indirect effects through resampling 5,000 random samples (Preacher, Rucker, & Hayes, 2007; Preacher & Hayes, 2008; Shrout & Bolger, 2002). The null hypothesis of indirect effects can be rejected if the confidence intervals do not contain 0.

To test the moderating role of cultural orientations, six interaction terms were created by taking the cross-product of the three parenting practices (warmth, physical coercion, and guilt induction) and the two acculturation scales (maternal acculturation and enculturation). The six interaction terms were included in the regression equations to predict W2 child effortful control and W2 child social-emotional school readiness. When there was a significant moderation, MODEL CONSTRAINTS command in *Mplus* would be used to probe the conditional effects of parenting at different levels of acculturation or enculturation (i.e., the simple effects).

Alternative Model Testing

Theoretically, it is possible that parenting and child effortful control interact to predict children's social-emotional school readiness (Kiff et al., 2011). In other words, the pathways underlying the associations between parenting and child adjustment may be moderated, rather than mediated, by individual differences in child effortful control (Belsky, 2005). In order to eliminate this alternative possibility, the moderation model where parenting and child effortful control interact to predict school readiness were tested (see Figure 6). The same procedure would be used to probe the simple effects if a significant moderation was found.

Results

Preliminary Analysis

Table 5 displays descriptive statistics of the main study variables and the zero-order correlation among the variables. The temporal stability of the parenting and child constructs was revealed by the moderate to large correlations between the same constructs across time (ranging from .21 to .71) based on the guideline proposed by

Hemphill (2003). At W1, maternal warmth was positively, whereas physical coercion was negatively, correlated with child effortful control. In turn, child effortful control was positively correlated with on-task and prosocial behavior and negatively correlated with externalizing behaviors. Maternal guilt induction was not correlated with child effortful control but positively correlated with child on-task and prosocial behavior. Maternal warmth was negatively correlated with child internalizing behavior but not significantly correlated with other school readiness outcomes. Physical coercion was not correlated with any of the school readiness outcomes at W1.

At W2, similar patterns were found for the correlations between maternal warmth and physical coercion and child effortful control. Child effortful control was also similarly correlated with more on-task behavior and less externalizing behavior. Different from correlations at W1, maternal guilt induction was negatively correlated with child effortful control and internalizing behavior. In addition, maternal warmth was not correlated with any child school readiness outcomes, and maternal physical coercion was only significantly correlated with fewer on-task behaviors. The cross-time correlations involving W2 child constructs showed that W1 maternal warmth was correlated with higher W2 child effortful control but not correlated with other W2 child outcomes. W1 maternal physical coercion was correlated with lower W2 child effortful control and more W2 child externalizing behavior. W1 maternal guilt induction was not correlated with W2 child effortful control but positively correlated with W2 child prosocial behavior and negatively correlated with W2 child internalizing behavior. In turn, W1 child effortful control was correlated with more on-task and less internalizing and externalizing behavior at W2.

The cross-time correlations involving W2 parenting constructs showed that W1 maternal guilt induction was negatively, and child effortful control was positively, correlated with W2 maternal warmth. In contrast, W1 maternal guilt induction was positively, and child effortful control and internalizing behavior were negatively, correlated with W2 maternal physical coercion. Moreover, W1 maternal physical coercion and child prosocial behavior were both positively correlated with W2 maternal guilt induction. Finally, W1 maternal behavioral acculturation was positively correlated with W1 and W2 maternal warmth, whereas W1 maternal behavioral enculturation was positively correlated with both physical coercion and guilt induction at both waves.

The SEM School Readiness Model

CFA was first conducted for the latent school readiness to ensure the psychometric properties and measurement invariance of the outcome variable across the two waves. The measurement invariance model with factor loading of the same indicator constrained to be equal across time ($\chi^2 (18, N = 154) = 34.41, p = .011, CFI = .92, SRMR = .07$, and $RMSEA = .08$, 90% CI [.04, .12], $p = .122$) did not significantly worsen the model fit, compared to the fully unconstrained measurement model ($\chi^2 (15, N = 154) = 30.11, p = .012, CFI = .93, SRMR = .06$, and $RMSEA = .08$, 90% CI [.04, .12], $p = .107$), $\Delta\chi^2 (3, N = 154) = 4.30, p > .05$. Thus, the longitudinal measurement equivalence was achieved. A SEM model was then fit to the data based on the measurement invariance CFA model to examine the associations among the parenting practices, acculturation/enculturation, child effortful control and social-emotional school readiness.

The final SEM model (Figure 7) achieved good model fit: $\chi^2 (133, N = 154) = 190.88, p = .001, CFI = .95, SRMR = .07$, and $RMSEA = .05$, 90% CI [.04, .07], $p = .366$.

All observed indicators of the latent child school readiness variable had standardized factor loadings $> .40$. Results indicated that W1 child effortful control ($\beta = .31$, $SE = .09$, $p = .001$) and maternal behavioral enculturation ($\beta = .20$, $SE = .09$, $p = .031$) had a direct positive effect on child social-emotional school readiness at W2 after controlling for W1 school readiness ($\beta = .26$, $SE = .12$, $p = .029$). Moreover, W1 maternal physical coercion interacted with maternal behavioral acculturation ($\beta = -1.50$, $SE = .57$, $p = .009$) to predict W2 child school readiness. To probe the interaction effect (i.e., Physical Coercion \times Behavioral Acculturation in predicting child school readiness), we performed simple slopes analyses (Aiken & West, 1991) to examine the effect of maternal physical coercion on child school readiness at low (one *SD* below the mean), mean, and high (one *SD* above the mean) levels of maternal behavioral acculturation. As shown in Figure 8, W1 maternal physical coercion was not significantly associated with W2 child school readiness at low ($b = 0.33$, $p = .317$) or mean ($b = -0.24$, $p = .158$) levels of maternal behavioral acculturation, whereas at high levels of maternal behavioral acculturation W1 physical coercion was negatively associated with W2 child school readiness ($b = -0.81$, $p = .001$). W1 maternal warmth and guilt induction was not directly associated with W1 school readiness in children.

Perhaps due to the high stability of child effortful control across the six months period, W2 child effortful control was only predicted by W1 child effortful control ($\beta = .71$, $SE = .06$, $p < .001$). Accordingly, none of the proposed indirect effects of parenting practices through child effortful control were significant. For the prediction of W2 parenting, W2 maternal warmth ($\beta = -.22$, $SE = .06$, $p < .001$) and physical coercion ($\beta = .26$, $SE = .06$, $p < .001$) were only predicted by W1 guilt induction, after controlling for

autoregressive effects. However, W2 maternal guilt induction was predicted by W1 maternal warmth ($\beta = .15$, $SE = .06$, $p = .013$), child effortful control ($\beta = -.12$, $SE = .06$, $p = .029$), maternal behavioral acculturation ($\beta = -.11$, $SE = .05$, $p = .042$) and enculturation ($\beta = .15$, $SE = .06$, $p = .009$), and child age ($\beta = .16$, $SE = .06$, $p = .011$).

The significant concurrent associations among the constructs within each wave were in the expected directions. Specifically, at W1, child effortful control was positively associated with child school readiness ($r = .35$, $p < .001$). Maternal warmth was positively associated with child effortful control ($r = .31$, $p < .001$), maternal behavioral acculturation ($r = .20$, $p = .003$), and child school readiness ($r = .21$, $p = .018$), whereas maternal physical coercion was negatively associated with child effortful control ($r = -.14$, $p = .007$) and positively associated with maternal behavioral enculturation ($r = .19$, $p = .001$). Maternal guilt induction was not correlated with child outcomes at W1 but was negatively associated with maternal behavioral acculturation ($r = -.16$, $p = .018$) and positively associated with maternal behavioral enculturation ($r = .15$, $p = .030$). Among the parenting practices, physical coercion was related to more use of guilt induction ($r = .12$, $p = .043$) and less warmth ($r = -.13$, $p = .011$), but guilt induction and warmth were not correlated with each other at W1. At W2, maternal warmth was associated with lower levels of child effortful control ($r = .21$, $p = .006$) and less use of maternal guilt induction ($r = -.22$, $p = .012$). Moreover, maternal guilt induction was negatively associated with child effortful control ($r = -.18$, $p = .022$). No other residual correlations were found among W2 parenting and child constructs.

The Path Model for On-Task Behavior

Given that different patterns of predictive relations may exist across the four school readiness indicators, similar models were run for on-task behavior, prosocial behavior, internalizing behavior, and externalizing behavior separately. The final path model for on-task behavior (Figure 9) achieved good model fit: $\chi^2 (37, N = 154) = 39.06$, $p = .378$, CFI = 1.00, SRMR = .06, and RMSEA = .02, 90% CI [.00, .06], $p = .861$. Compared to the results from the SEM model, W1 effortful control ($\beta = .19$, $SE = .09$, $p = .023$) but not maternal behavioral enculturation, had a direct positive effect on children's W2 on-task behavior after controlling for W1 on-task behavior ($\beta = .17$, $SE = .07$, $p = .019$). Moreover, W1 maternal physical coercion interacted with maternal behavioral acculturation ($\beta = -1.42$, $SE = .50$, $p = .005$) to predict W2 child on-task behavior. Simple effects analysis (Figure 10) indicated that W1 maternal physical coercion was not significantly associated with W2 child on-task behavior at low ($b = 0.70$, $p = .064$) or mean ($b = -0.09$, $p = .695$) levels of maternal behavioral acculturation, whereas at high levels of maternal behavioral acculturation, W1 maternal physical coercion was negatively associated with W2 child on-task behavior ($b = -0.87$, $p = .013$). W1 maternal warmth and guilt induction were also not directly associated with W1 on-task behavior in children. Results for the prediction of W2 child effortful control and the three parenting practices remained the same.

The concurrent associations among the constructs within each wave were in the expected directions and similar to that in the SEM model. The exceptions for the W1 correlations included that maternal guilt induction was positively associated with child on-task behavior ($r = .14$, $p = .038$) and maternal behavioral acculturation was positively

associated with child effortful control ($r = .20, p = .003$). The exception for the W2 correlations was that maternal physical coercion was negatively associated with child on-task behavior ($r = -.18, p = .026$).

The Path Model for Prosocial Behavior

The final path model for child prosocial behavior (Figure 11) achieved good model fit: $\chi^2 (32, N = 154) = 24.96, p = .808$, CFI = 1.00, SRMR = .03, and RMSEA = .00, 90% CI [.00, .04], $p = .981$. Compared to the results from the SEM model, neither W1 child effortful control nor maternal behavioral enculturation significantly predicted children's W2 prosocial behavior after controlling for W1 child prosocial behavior ($\beta = .27, SE = .09, p = .002$). W1 maternal physical coercion did not interact with maternal behavioral acculturation to predict W2 child prosocial behavior either. However, W1 maternal guilt induction's prediction of more W2 child prosocial behavior tended towards significance ($\beta = .14, SE = .08, p = .066$). Results regarding the prediction of W2 child effortful control and the three parenting practices remained the same. The concurrent associations among the constructs within each wave were similar to that in the SEM model. The only exception was that maternal guilt induction was positively associated with child prosocial behavior ($r = .16, p = .028$) at W1.

The Path Model for Internalizing Behavior

The final path model for internalizing behavior (Figure 12) achieved good model fit: $\chi^2 (28, N = 154) = 28.10, p = .459$, CFI = 1.00, SRMR = .03, and RMSEA = .01, 90% CI [.00, .06], $p = .864$. Consistent with the results from the SEM model, W1 child effortful control ($\beta = -.18, SE = .08, p = .019$) and maternal behavioral enculturation ($\beta = -.20, SE = .08, p = .013$) had a direct effect on children's W2 internalizing behavior after

controlling for their W1 internalizing behavior ($\beta = .20, SE = .07, p = .005$). However, W1 maternal physical coercion did not interact with maternal behavioral acculturation to predict W2 child internalizing behavior. Instead, maternal physical coercion ($\beta = .20, SE = .07, p = .005$) and guilt induction ($\beta = -.24, SE = .05, p < .001$) had a direct effect on W2 child internalizing behavior. The direct effect of maternal warmth on W2 child internalizing behavior did not reach significance. Results on the prediction of W2 child effortful control and the three parenting practices also remained the same. The concurrent associations among the constructs within each wave were similar to that in the SEM model. The only exceptions included that child effortful control was not associated with child internalizing behavior and maternal guilt induction was not correlated with maternal behavioral acculturation at W1.

The Path Model for Externalizing Behavior

The final path model for externalizing behavior (Figure 13) achieved good model fit: $\chi^2 (37, N = 154) = 40.31, p = .326$, CFI = 1.00, SRMR = .06, and RMSEA = .02, 90% CI [.00, .06], $p = .830$. Similar to the results from the SEM model, W1 child effortful control ($\beta = -.28, SE = .07, p < .001$) and maternal behavioral enculturation ($\beta = -.17, SE = .07, p = .012$) had a direct effect on children's W2 externalizing behavior after controlling for their W1 externalizing behavior ($\beta = .26, SE = .08, p = .002$). Moreover, W1 maternal physical coercion interacted with maternal behavioral acculturation ($\beta = 1.24, SE = .48, p = .010$) to predict W2 child externalizing behavior. Simple effects analysis (Figure 14) indicated that W1 maternal physical coercion was not significantly associated with W2 child externalizing behavior at low ($b = -0.28, p = .474$) or mean ($b = 0.39, p = .061$) levels of maternal behavioral acculturation, whereas at high levels of

maternal behavioral acculturation, W1 maternal physical coercion was positively associated with W2 child externalizing behavior ($b = 1.06, p < .001$). Moreover, W1 maternal warmth and guilt induction were not directly associated with W1 child externalizing behavior in children. Again, results on the prediction of W2 child effortful control and the three parenting practices remained the same. The concurrent associations among the constructs within each wave were also similar to that in the SEM model. The exceptions included that maternal warmth was not associated with child externalizing behavior but maternal behavioral acculturation was positively associated with child effortful control ($r = .20, p = .003$) at W1.

The Alternative Model Testing

In the models where the parenting \times child temperament interactions were tested, none of the interaction terms (maternal warmth \times child effortful control; maternal physical coercion \times child effortful control, and maternal guilt induction \times child effortful control) significantly predicted W2 latent child school readiness or the four observed indicators. Thus, the possibility that parenting interacted with child effortful control to predict child social-emotional development was not supported by the data.

Discussion

The third study of my dissertation aimed to test the mechanisms underlying the associations between parenting and child development in Chinese immigrant families. The mediating role of child effortful control and the moderating role of maternal cultural orientations were explored, on the effects of three parenting practices (warmth, physical coercion, and guilt induction) on children's social-emotional school readiness outcomes six months later. Overall, the proposed hypotheses were partially supported. Results

showed that W1 child effortful control positively predicted W2 child social-emotional school readiness even after controlling for W1 school readiness (i.e., a significant *b* path), as expected. Contrary to our expectations, however, despite significant concurrent associations between parenting and child effortful control, W1 parenting practices did not significantly predict W2 child effortful control after controlling for W1 effortful control (i.e., nonsignificant *a* paths), which led to nonsignificant mediation effects.

For the direct effects of parenting, as predicted, mothers' behavioral acculturation moderated the effects of their engagement in physical coercion at W1 on children's social-emotional school readiness at W2. Moreover, mothers' engagement in physical coercion predicted more internalizing behavior in their children whereas mothers' use of guilt induction predicted less internalizing behavior in their children. For child effects, no child effects were found except that W1 child effortful control negatively predicted W2 maternal guilt induction. Finally, when individual school readiness indicators were examined in separate path models, the results for on-task and externalizing behavior were largely consistent with the overall SEM model, whereas the results for prosocial and internalizing behavior differed.

Why Was the Mediating Role of Child Effortful Control Not Found?

Chinese American children's effortful control, as indicated by their inhibitory control scores, significantly predicted their social-emotional school readiness six months later after controlling for construct stability and other predictor variables. Thus, these findings confirmed the unique role of self-regulatory ability in promoting children's social-emotional development. This finding is consistent with many other studies that show the importance of self-regulation or effortful control in children's social and

cognitive development in both Western and Eastern social-cultural contexts (e.g., Brown, Ackerman, & Moore, 2013; Liew et al., 2008; Sektnan et al., 2010; Valiente et al., 2010; Valiente et al., 2011; Zhou et al., 2010), and further extends the importance of self-regulatory skills for Chinese children residing in the U.S. With better ability to inhibit impulses and more automatic responses in favor of less dominant but adaptive responses, children may have an easier adjustment in the structured classroom environment (Allan, Hume, Allan, Farrington, & Lonigan, 2014). Effortful control can particularly contribute to on-task performance and decrease internalizing and externalizing behaviors as indicated by our path analysis results, which support previous studies (e.g., Bierman, Nix, Greenberg, Blair, & Domitrovich, 2008; Hughes & Ensor, 2011).

However, no unique parenting effects, at least from maternal warmth, physical coercion and guilt induction, were found in the prediction of W2 child effortful control, resulting in nonsignificant indirect effects of parenting on child school readiness through child effortful control abilities. On the one hand, the lack of longitudinal effect of parenting on children's regulatory abilities is consistent with some studies (e.g., Bernier, Carlson, & Whipple, 2010; Karreman et al., 2006; 2008). On the other hand, many studies do find significant effects of maternal warmth and physical coercion on children's effortful control longitudinally and in different cultural samples (e.g., Gustafsson et al., 2012; Kochanska et al., 2000; Lee et al., 2013). Thus, the lack of the significant associations may be due to the high temporal stability of children's effortful control during the short period time of six months (with standardized autoregressive path coefficient of .71, larger than the autoregressive path coefficients of all other constructs in this study). That is, children's temperamental effortful control may not change much

within the six months, which leaves little room for other contextual factors to exert their influences. Eisenberg et al.'s (2005) longitudinal study revealing the mediating role of effortful control in the associations between parental warmth and children's externalizing behavior employed a time interval of two years, suggesting that the causal effects of parenting on child self-regulation may take a longer time than six months to unfold. The temporal design (i.e., timing of the measurements) is an aspect of longitudinal research design that is often overlooked, and no studies have thus far empirically tested the time interval that must elapse for parenting to have an effect on child effortful control (Cole & Maxwell, 2003; Little, 2013). It is possible that, given an adequate time interval, a significant *a* path (from maternal warmth or physical coercion to child effortful control) would be revealed and significant mediation would be detected.

Bidirectional Effects between Parenting and Child Development

Although no indirect effects of parenting through child effortful control were found in this study, certain parenting practices had conditional or direct effects on children's social-emotional development in the SEM or path models. Specifically, maternal physical coercion had a conditional effect on the latent construct of child school readiness, observed on-task behavior, and observed externalizing behavior. This finding partly explains the contradictory patterns of associations between physical coercion and child development. In short, cultural orientations play a role. When immigrant mothers were highly acculturated to American culture, their use of physical coercion predicted poorer overall school readiness, fewer on-task behaviors, and more externalizing problems in their children over time. Chinese immigrant mothers who participated in the mainstream culture by interacting with European American mothers and watching

television and reading books from the mainstream culture, may be more likely to receive socialization messages from the larger American culture regarding the negative evaluations of physically coercive parenting. Their engagement in such practices may be also more likely associated with hostile emotional expressions and motivations and thus lead to negative outcomes in children. This finding is consistent with the large literature that shows the detrimental effects of physical coercion on children's development in Western or independence-oriented cultures (e.g., Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994; Thompson, Hollis, & Richards, 2003).

In contrast, Chinese immigrant mothers who participated less in the mainstream American culture and were less exposed to Western child rearing ideologies, may still hold beliefs regarding the effectiveness of physical coercion in regulating children's problem behavior and promoting children's compliance (Fung & Lau, 2009). Less acculturated mothers' use of physical coercion might be more likely associated with positive motivations, and thus did not lead to maladaptive outcomes in their children. These findings would be consistent with some studies indicating less detrimental effects of physical coercion on children with non-Western or interdependence-oriented cultural backgrounds (e.g., Brody & Flor, 1998; Leung et al., 1998). It should be noted that some other studies found maternal physical coercion to have a negative influence on children's social and academic development, even in Chinese samples (e.g. Chang, Schwartz, Dodge, & McBride-Chang, 2003; Chen et al., 1997). Our results in the path model for internalizing behavior also showed that mothers' engagement in physical coercion at W1 predicted more internalizing problems in their children at W2, regardless of mothers'

acculturation levels. Physical coercion was concurrently associated with lower levels of temperamental effortful control and prospectively associated with various problem behaviors in children as well, suggesting that such practices do have some negative effect on Chinese children in a Western cultural context.

However, despite sharing the controlling nature with physical coercion, maternal guilt induction at W1 was significantly associated with lower levels of internalizing problems in their children at W2, consistent with the positive implications of this particular form of psychologically controlling practices found in Study Two of my dissertation and some other recent studies (e.g., Rudy et al., 2014). As discussed in Study Two, guilt induction is an indigenous parenting practice in Asian cultures and may be used by Chinese immigrant mothers to foster culturally-valued characteristics in children (e.g., being aware of and accommodating to others' thoughts and feelings). In more interdependent cultures, parental use of guilt induction may also help children gain an appreciation and understanding of parents' sacrifices and efforts in promoting their well-being, which in turn drive children to reciprocate through hard work and proper conduct to relieve parents from worry (Fung & Lau, 2012). Guilt induction was also not associated with negative child outcomes in other model and even had a marginally positive effect on child prosocial behavior in the current study. These findings suggest the harmless nature and perhaps adaptive value of guilt induction for Chinese immigrant families with young children even in a Western cultural context.

The only child-driven effect was found in the association between W1 child effortful control and W2 maternal guilt induction such that the better children were at behaviorally controlling themselves at W1, the less likely their mothers would be to use

guilt inductive practices at W2. This finding indicates that these Chinese immigrant mothers were responsive to children's temperamental characteristics and used guilt induction more only when their children lacked internal control and needed the external control to regulate their behavior. The general pattern of fewer child effects compared to parenting effects is also consistent with the pattern found in Study Two, and previous studies (e.g., Wang et al., 2007). In sum, there is some evidence for the bidirectional relations between parenting and child characteristics but parent-driven effects are more dominant in early childhood, relative to child-driven effects.

The Role of Acculturation and Enculturation

As expected, our findings indicated that Chinese immigrant mothers were indeed influenced by both American and Chinese cultures, and the patterns of the associations between cultural orientations and parenting are consistent with the cultural differences in these parenting practices found in studies that compared mothers from China and the U.S. (e.g., Wu et al., 2002). Specifically, Chinese immigrant mothers who participated more in the mainstream American culture, in which controlling practices are negatively evaluated, and those mothers who participated less in their heritage Chinese culture where controlling practices used to regulate children are more normative, were less likely to report engaging in guilt inductive practices longitudinally. Concurrently, the more Chinese immigrants participated in the mainstream American culture, the less likely they were to report engaging in guilt inductive practices and the more likely they were to report engaging in parenting warmth. Moreover, the more Chinese immigrant mothers engaged behaviorally in their heritage Chinese culture, the more likely they were to use physical coercion and guilt inductive practices. Chinese immigrant mothers with better

English language skills, more interactions with American friends, and more used to American living styles may have greater access to social and parenting resources, gain more professional opportunities, and form more positive self-evaluation (Costigan & Koryzma, 2011). Highly acculturated mothers may also have internalized the value of promoting autonomy in children and thus use less coercive parenting and can form warm, trusting relationships with their children. In contrast, immigrant mothers with better Chinese language skills, more interactions with Chinese friends, and more used to Chinese living styles may not necessarily help or hinder them from forming more positive self-evaluations or broader networks of support to cope with the intercultural living in the U.S. (Yu, Cheah, & Calvin, 2016). Thus, whereas these mothers were more likely to keep the cultural tradition of using more controlling parenting, they were not less likely to show warmth in this study.

In addition, as discussed above, mothers' behavioral acculturation significantly moderated the effects of maternal physical coercion on their children's outcomes. However, Chinese immigrant mothers' behavioral enculturation did not significantly moderate the effects of physical coercion on their children's social-emotional school readiness skills, which was perhaps because first-generation immigrant parents had a much higher enculturation level than acculturation level. What can really differentiate them more might be how much they acculturated themselves to the mainstream American culture rather than the degree to which they maintained the heritage Chinese culture. This finding is consistent with other research that has suggested stronger implications of immigrants' orientation toward the mainstream culture for parents' psychological adjustment and parenting practices than their orientation towards the ethnic culture

(Abbott et al., 2003; Hwang & Ting, 2008; Ryder et al., 2000; Kim, Shen, Huang, Wang, & Orozco-Lapray, 2014; Yu et al., 2016). Interestingly though, maternal enculturation measured at W1 was directly associated with lower levels of child internalizing and externalizing behaviors at W2. In addition, there was a positive main effect of W1 mothers' acculturation to the mainstream culture on their children's W2 school readiness or on-task behavior. These beneficial effects of cultural orientations to both Chinese and American cultures on child outcomes may reflect the adaptive importance of biculturalism or the integration acculturation strategy for the adjustment of immigrant mothers and their children (Nguyen & Benet-Martínez, 2013). In addition, maternal acculturation and enculturation seemed to be contributing to different aspects of child development (e.g., enculturation reduced child problem behaviors whereas acculturation promoted positive behaviors in children), suggesting that acculturation and enculturation are two independent processes and may have their unique pathways to parenting and child adjustment outcomes.

Latent School Readiness versus Observed Behaviors

The absolute standardized factor loading of children's on-task and externalizing behaviors (.68 to .83) on the latent school readiness were much larger than that of prosocial and internalizing behaviors (.41 to .51). The relatively high loadings may explain why the results for child on-task and externalizing behaviors were largely consistent with the overall SEM model whereas the results for child prosocial and internalizing behaviors were somewhat different. The mitigating effect of maternal guilt induction and the exacerbating effect of maternal physical coercion (which was not moderated by maternal acculturation) were unique to children's internalizing behavior

but not to other child outcomes. This finding implies that Chinese American children's emotional well-being and interpersonal relationship were particularly subject to the influence of controlling parenting practices especially psychological control. By explaining to children how their actions can affect others, the use of guilt inductive practices may facilitate children's social-emotional competence to facilitate the establishment of positive interpersonal relationship with peers and maintain positive emotions at school accordingly. The results regarding children's prosocial behavior were largely different from other models: after controlling for temporal stability, none of the individual (child effortful control) or contextual (parenting practices, acculturation) factors predicted W2 child prosocial behavior. The lack of predictive significance for maternal warmth, physical coercion, and child effortful control on children's prosocial behavior is unexpected (e.g., Knafo & Plomin, 2006; Moore, Barresi, & Dalhousie, 1998). One possibility for this finding is that children's prosocial behavior is a multidimensional construct that denotes a wide range of desirable interpersonal behaviors, including helping, comforting, and sharing (Grusec & Davidov, 2010). Different types of prosocial behavior may have their own developmental patterns and unique individual and social-contextual predictors (Brownell, 2013). For example, Smith, Blake, and Harris (2013) found that self-regulation did not explain the individual differences in children's prosocial behavior of sharing when sharing is costly to the self. When the recipients or targets of prosocial behavior are under consideration, the associations between parenting, self-regulation, and specific types of prosocial behavior can be more complex. For example, positive parenting was the only significant predictor of prosocial behavior (i.e., planned helping) toward family members whereas self-regulation mediated the relations

between positive parenting and child prosocial behavior toward strangers and friends (Padilla-Walker & Christensen, 2011). Thus, differentiating distinct types of prosocial behavior within the general category can help direct future research into the mechanisms that underlie and maintain different prosocial behaviors (Dunfield, 2014).

Limitations and Future Directions

There are several limitations of this study that should be noted. The first limitation pertains to the research design. The time interval of six months between the two measurements was chosen arbitrarily and may not have allowed for the influence of parenting practices on child effortful control or school readiness skills to unfold. Thus, future studies should assess these constructs in multiple lags to model different magnitudes of parenting effects as a function of the chosen intervals. Moreover, the current design has only two waves; thus, stationarity (e.g., the degree to which W1 child effortful control predicts W2 child school readiness remains the same to the degree to which W2 child effortful control predicts W3 child school readiness) is assumed in the testing of mediation and cannot be tested without at least three waves of data (Cole & Maxwell, 2003). Despite these shortcomings, our half-longitudinal design rigorously tested the relations of X to M and M to Y by controlling for prior levels of M and Y . Failing to control for construct stability typically produces more serious consequences than does violations of stationarity assumptions (Cole & Maxwell, 2003). Future studies should collect multiple waves of data to test the full-longitudinal mediation and the assumptions associated with it.

The second limitation of the current study concerns the measurement of the constructs. Child self-regulation or effortful control is manifested by inhibitory control

(i.e., behavioral control). It will be important to utilize an integrative measure that reflects behavioral, attentional, and emotional self-regulation, which may be a stronger predictor or mediator of social, emotional and cognitive development in children than measures of individual components (McClellan & Cameron, 2012). Future research can also examine other individual components of self-regulation such as anger regulation and sadness regulation (Cui, Morris, Criss, Houlberg, & Silk 2014), which may have different mediating roles compared to behavioral regulation. In addition, measures of the distinct types of prosocial behavior are recommended for future research to explore the ontogenetic origins of helping, comforting and sharing behavior respectively (Dunfield, 2014). We also focused only on measures of behavioral acculturation and enculturation, which assessed individuals' participation in the external aspects of American and Chinese cultures. Behavioral acculturation/ enculturation has been shown to be different from psychological acculturation/enculturation which reflects individuals' identification with values, norms, beliefs, and attitudes of the two cultures (Berry, 1992; Birman & Tran, 2008). Future examination of both behavioral and psychological acculturation/ enculturation and their relations to parenting behaviors and child outcomes are warranted. Finally, we examined maternal parenting practices and cultural orientations only. Given that there are potential differences in immigrant mothers' and fathers' acculturation and enculturation levels and parenting practices (Chuang & Su, 2009; Costigan & Dokis, 2006), future studies should sample both mothers and fathers when possible to better understand these processes.

Implications and Conclusion

The findings from this third dissertation paper can advance our empirical understanding of how child traits and parenting warmth and control contribute to young Chinese American children's social-emotional school readiness. The short-term longitudinal design with two waves of measurement of both parenting and child constructs can help to more robustly test the role of child effortful control in promoting child school readiness outcomes and to determine the reciprocal relations between parenting and child behavior (e.g., Lee et al., 2013).

The findings highlight specific ways in which parenting warmth, physical coercion, and guilt induction, in conjunction with maternal cultural orientations, are associated with children's school readiness outcomes. Self-regulation is perhaps a universally positive factor that can promote children's school readiness. In contrast, the effects of controlling parenting are more variable and may have adaptive value for some ethnic minority families in the U.S. The lack of findings regarding the indirect paths from parenting to children's school readiness through their effortful control is perhaps due to the improper temporal design of the half-longitudinal study to capture change in children's effortful control. However, the testing of the second mechanism (i.e., the moderating role of acculturation) can help to explain some of the inconsistencies in the effects of physically coercive parenting on children's developmental outcomes across studies. Despite the benefit of using latent approach, examining how parenting and child temperamental characteristics contribute to individual observed behaviors is useful for revealing the unique developmental pathways of each school readiness indicator.

Overall, the findings can inform educators and practitioners to be more attuned to the myriad of factors that can influence parenting practices and child school adjustment, and to be cognizant of the role of indigenous Chinese parenting and mothers' acculturation in shaping the use and effects of their controlling parenting in the American cultural context. Specifically, the use of inductive parenting practices may be effective for reducing internalizing problems in young Chinese American children. Moreover, providing opportunities for immigrant mothers' behavioral participation into both the mainstream and heritage cultures can promote social-emotional school readiness in Chinese American children.

Chapter 5: Overall Conclusions

Across the three papers, this dissertation project confirmed the multidimensional nature of psychologically controlling parenting and the unique effects of different parenting dimensions on children's social and emotional adjustment. In addition, the mediational and moderational processes linking different parenting practices to children's adjustment outcomes (i.e., the mediating role of child self-regulation and moderating role of maternal acculturation) were assessed using half-longitudinal design. Together, these findings can contribute to the understanding of cultural variations in the effects of parenting in the literature by illustrating the dimensional effects of psychological control and revealing the mechanisms linking parenting to children's social-emotional functioning in Chinese immigrant families in the U.S.

In addition, the dissertation findings across the three studies may have practical implications through raising awareness and understanding of the diversity in the ways that parents of different cultural and ethnic groups may effectively parent their children. Parenting-focused early education and intervention practitioners can be informed regarding ways to provide culturally sensitive services to Chinese immigrant and Chinese American parents, as well as parents from other ethnic minorities who share similar interdependence-oriented cultural values, toward the shared goal of promoting their children's social-emotional development and school success.

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Table 1

Items that Construct the Proposed Psychological Control Dimensions

Psychological Control (PC) Dimensions
Love Withdrawal (LW)
PC4. Will avoid looking at child when our child has disappointed me.
PC13. Ignores child when he/she tries to get attention.
PC14. If child has hurt my feelings, stops talking to child until she/he pleases me again.
PC18. Is less friendly with child if child does not see things my way.
PC31. Doesn't pay attention when child is talking to me.
Guilt Induction (GI)
PC12. Makes child aware of how much I sacrifice or do for him/her.
PC16. Says, if you really care for me, you would not do things that cause me to worry.
PC20. Tells child of all the things that I have done for him/her.
PC25. Tells child that I get embarrassed when he/she does not meet my expectations.
PC26. Makes child feel guilty when child does not meet my expectations.
Shaming (SH)
PC6. Let child know when he/she has disappointed me.
PC8. Tells child he/she is not as good as I was when I was growing up.
PC10. Let child know when I am angry with him/her.
PC22. Acts disappointed when child misbehaves.
PC24. Tells child that he/she should be ashamed when he/she misbehaves.
PC27. Informs child that punishment will always find him/her when misbehavior occurs.
PC35. Let child know how disappointed I am when he/she misbehaves.
PC37. Tells child he/she is not as good as other children.

Table 2

Model Fit Indices for Confirmatory Factor Analysis Models

Model	Model Type	Number of Items	χ^2	<i>df</i>	RMSEA	CFI	TLI	WRMR
Model 0	U	18	481.97 ***	135	.123	.799	.773	1.498
Model 1	M	18	373.87 ***	132	.104	.860	.838	1.299
Model 2	B	18	177.53 ***	117	.055	.965	.954	.780
Model 3	M	18	162.94 *	126	.042	.979	.974	.751
Model 4	B	18	171.67 **	119	.051	.970	.961	.759
Model 5	M	16	129.92 *	97	.045	.981	.976	.737
Model 6	B	16	122.65 *	90	.046	.981	.974	.690
Model 7	S	16	132.82 *	98	.046	.980	.975	.751

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. U = Unidimensional single factor model; M = Multidimensional correlated factors model; B = Bi-factor model; S = Second-order factor model; Items 4 and 37 were removed for Models 5 to 7.

Table 3

Standardized Item Factor Loadings for Selected Models

	Multidimensional Models										Bi-Factor Models											
	Model 1			Model 3			Model 5			G	Model 2			G	Model 4			G	Model 6			
	LW	GI	SH	LW	GI	SH	LW	GI	SH		LW	GI	SH		LW	GI	SH		LW	GI	SH	
PC4.	.36			.37						.24	.27			.26	.24							
PC13	.51			.41			.44			.29	.54			.30	.54			.31	.61			
PC14.	.65			.65			.63			.45	.36			.47	.33			.47	.27			
PC18.	.79			.78			.75			.53	.42			.55	.39			.55	.35			
PC31.	.51			.45			.45			.28	.65			.29	.66			.30	.66			
PC12.		.57			.50			.50		.52		.41		.48		.55		.48		.54		
PC16.		.56			.57			.58		.54		.24		.53		.30		.54		.30		
PC20.		.65			.38	.27		.38	.27	.63		.66		.49		.67	.26	.49		.68	.26	
PC25.		.96			.96			.98		.94		-.15		.97				.99				
PC26.		.84			.84			.83		.84		-.24		.84				.84				
PC6.			.60			.66			.66	.33			.60	.29			.62	.27			.64	
PC8.			.66		.62			.62		.69			-.21	.68				.63				
PC10.			.48			.55			.56	.23			.58	.18			.59	.20			.58	
PC22.			.72			.78			.78	.47			.61	.43			.63	.44			.62	
PC24.			.75		.40	.42		.39	.43	.64			.32	.62			.37	.62			.36	
PC27.			.59			.64			.64	.39			.50	.34			.54	.33			.56	
PC35.			.77			.84			.84	.52			.63	.46			.68	.46			.68	
PC37.			.50		.74	-.30				.62			-.34	.65			-.26					

Note: G = General factor; LW = Love withdrawal; GI = Guilt induction; SH = Shaming; Items shaded grey were not included in the model; All other blank factor loadings were fixed to zero.

Table 4

Standardized Factor Loadings from the Measurement Invariance Models

Constructs and Items	W1	W2
Love withdrawal:		
PC13- I ignore my child when he/she tries to get attention.	.68	.89
PC14- If my child has hurt my feelings, I stop talking to my child until my child pleases me again.	.44	.57
PC18- I am less friendly with my child if my child does not see things my way.	.50	.65
PC31- I don't pay attention when my child is talking to me.	.56	.73
Guilt induction:		
PC12- I make my child aware of how much I sacrifice or do for him/her.	.74	.72
PC16- I say, if you really care for me, you would not do things that cause me to worry.	.72	.70
PC20- I tell my child of all the things I have done for him/her.	.83	.81
Reticence or social withdrawal:		
SQW2- Wanders aimlessly around when outdoors or during free play.	.64	.68
SQW16- Stares at other children without interacting with them.	.84	.89
SQW18- Is fearful in approaching other children.	.57	.60
SQW27- Waits and hovers around other children.	.86	.91
Physical or proactive aggression:		
SQA16- Throws things at other children when he/she does not get his/her way.	.95	.85
SQA19- Intimidates or threatens to get something he/she wants.	.86	.77
SQA22- Hits or kicks others for the sake of doing it.	.85	.76
SQA41- Makes fun of peer's possessions (e.g., cloths, projects).	.78	.69
Relational aggression:		
SQA10- Tells other children not to play with someone.	.72	.78
SQA12- Walks away or turns his/her back when he/she is mad.	.56	.60
SQA38- Does not listen to other children when he/she is mad (may cover ears).	.67	.72
SQA43- Tries to get others to dislike peer (e.g. whispering mean things about the child behind their back).	.74	.80
SQA53- Gives mean looks or frowns when upset by others.	.68	.74

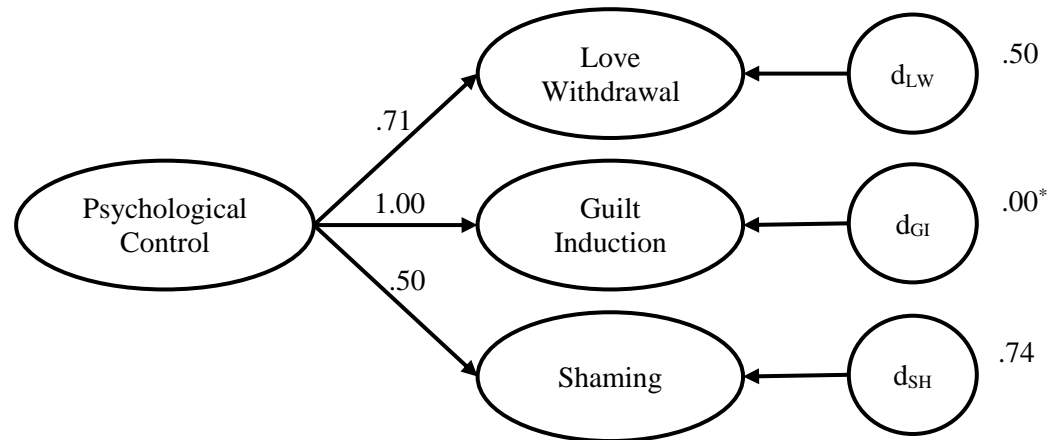
Note: Standardized factor loading of each item at W1 and W2 from the measurement invariance models are reported in Table 4.

Table 5

Descriptive Statistics of and Correlation among the Main Study Variables in Study Three

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Warmth W1	—																	
2. Physical coercion W1	-.16*	—																
3. Guilt induction W1	-.06	.31**	—															
4. Effortful control W1	.29**	-.25**	-.08	—														
5. On-task W1	.16	.06	.18*	.23**	—													
6. Prosocial W1	.14	.08	.17*	.25**	.38**	—												
7. Internalizing W1	-.20*	-.11	-.12	-.09	-.37**	-.36**	—											
8. Externalizing W1	-.11	.04	-.11	-.36**	-.62**	-.38**	.34**	—										
9. Warmth W2	.63**	-.15	-.26**	.23**	.15	-.07	-.05	-.13	—									
10. Physical coercion W2	-.13	.63**	.42**	-.20*	.01	.05	-.18*	.02	-.19*	—								
11. Guilt induction W2	.05	.25**	.64**	-.13	.11	.22**	-.13	-.06	-.24**	.35**	—							
12. Effortful control W2	.23**	-.22**	-.04	.71**	.26**	.13	-.12	-.34**	.28**	-.17*	-.16*	—						
13. On-task W2	.08	-.08	.01	.25**	.23**	.20*	-.15	-.26**	.02	-.16*	-.02	.25**	—					
14. Prosocial W2	.01	.13	.18*	.06	.03	.29**	-.12	.02	-.07	.10	.15	.02	.30**	—				
15. Internalizing W2	.03	.08	-.23**	-.19*	-.01	-.27**	.21*	.04	.08	.02	-.19*	-.10	-.27**	-.35**	—			
16. Externalizing W2	-.13	.18*	-.05	-.39**	-.19*	-.27**	.15	.36**	-.07	.06	-.03	-.36**	-.54**	-.21**	.43**	—		
17. Acculturation	.18*	.02	-.02	.10	.06	-.03	-.12	-.05	.19*	-.01	-.11	.11	.06	-.05	.01	.08	—	
18. Enculturation	.03	.21*	.16*	-.01	-.02	.04	-.10	.02	.08	.16*	.19*	-.01	.01	.12	-.21**	-.11	.13	—
<i>Mean</i>	4.27	1.74	2.01	4.82	8.71	7.53	1.18	1.57	4.27	1.66	2.06	4.90	8.84	6.27	1.12	1.67	3.00	3.71
<i>SD</i>	0.44	0.53	0.79	0.89	1.74	2.31	1.19	1.65	0.48	0.50	0.78	0.88	1.65	1.86	1.22	1.63	0.65	0.56

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



*Parameter constrained to be non-negative

Figure 1. The second-order factor model.

Note: d_{LW} , d_{GI} , and d_{SH} refer to the residual variances of love withdrawal, guilt induction, and shaming that cannot be explained by the second-order factor of psychological control.

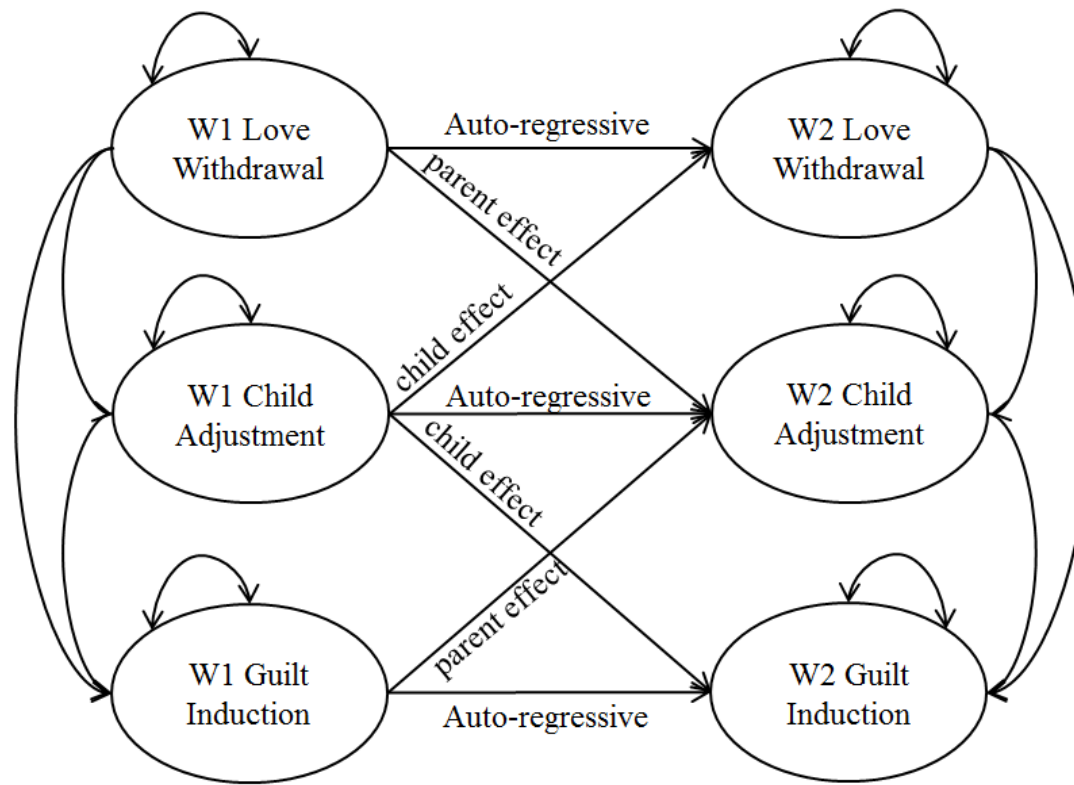


Figure 2. The Conceptual Cross-Lagged Model for the Bidirectional Effects between Psychological Control Dimensions and Child Adjustment. Observed indicators of the latent constructs and residual correlations among the corresponding indicators over time are not drawn. The Child Adjustment variable refers to social withdrawal, physical aggression, or relational aggression. The analyses were controlled for Wave 1 child age, child gender, and maternal education.

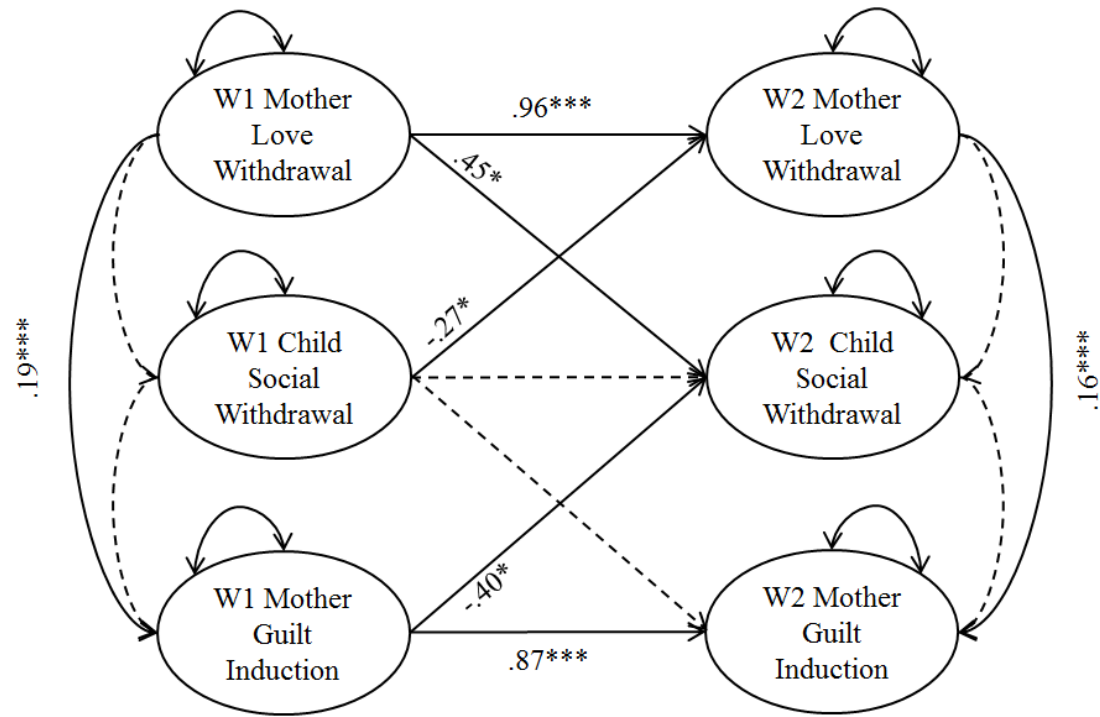


Figure 2a. The Final Cross-Lagged Model for Child Social Withdrawal. Observed indicators of the latent constructs and residual correlations among the corresponding indicators over time are not drawn. W1 child age, child gender, and maternal education were included as covariates. Dashed lines represent non-significant paths at $p = .05$ level. * $p < .05$. *** $p \leq .001$

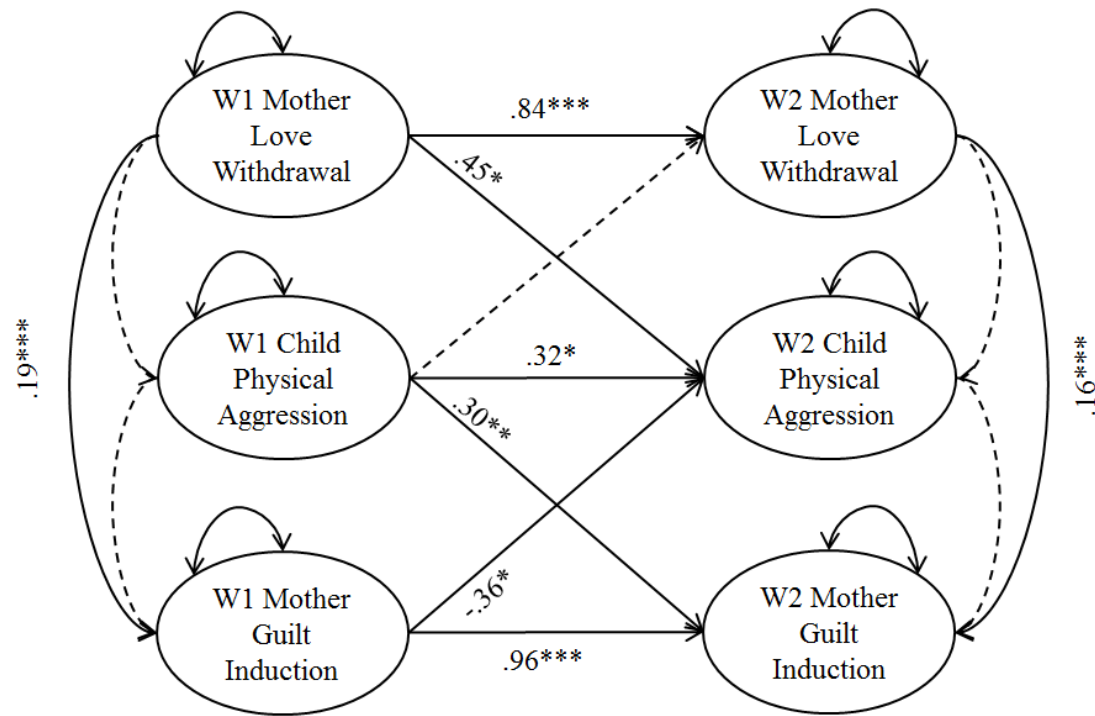


Figure 2b. The Final Cross-Lagged Model for Child Physical/Proactive Aggression. Observed indicators of the latent constructs and residual correlations among the corresponding indicators over time are not drawn. W1 child age, child gender, and maternal education were included as covariates. Dashed lines represent non-significant paths at $p = .05$ level. * $p < .05$. ** $p < .01$. *** $p \leq .001$

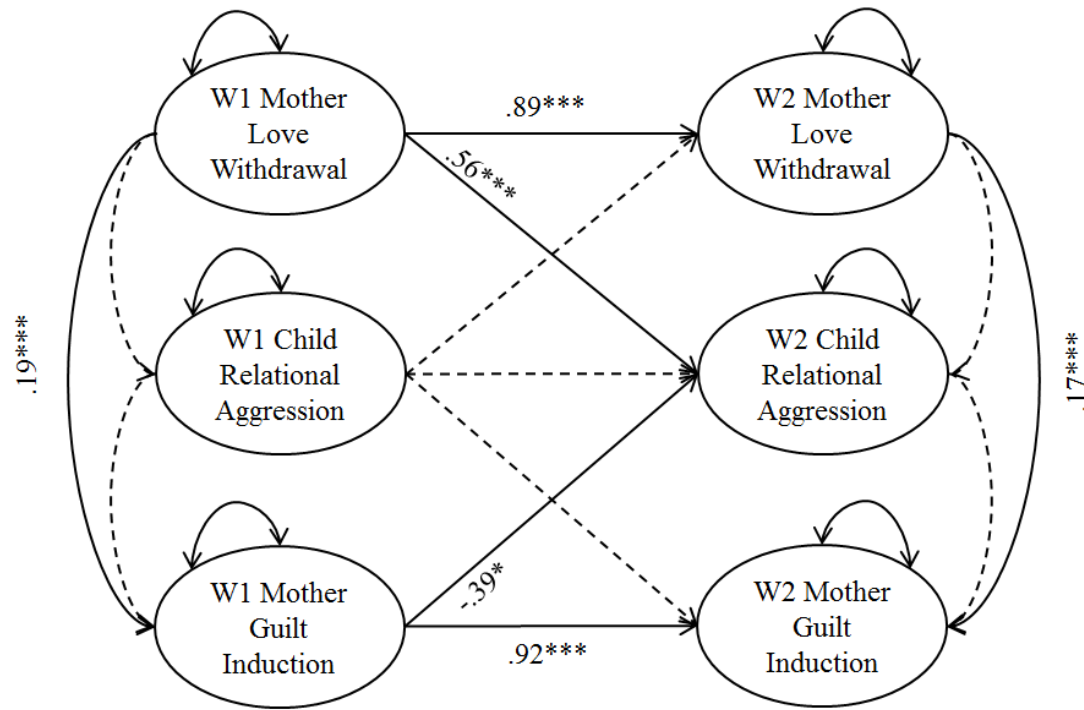


Figure 2c. The Final Cross-Lagged Model for Child Relational Aggression. Observed indicators of the latent constructs and residual correlations among the corresponding indicators over time are not drawn. W1 child age, child gender, and maternal education were included as covariates. Dashed lines represent non-significant paths at $p = .05$ level. * $p < .05$. *** $p \leq .001$

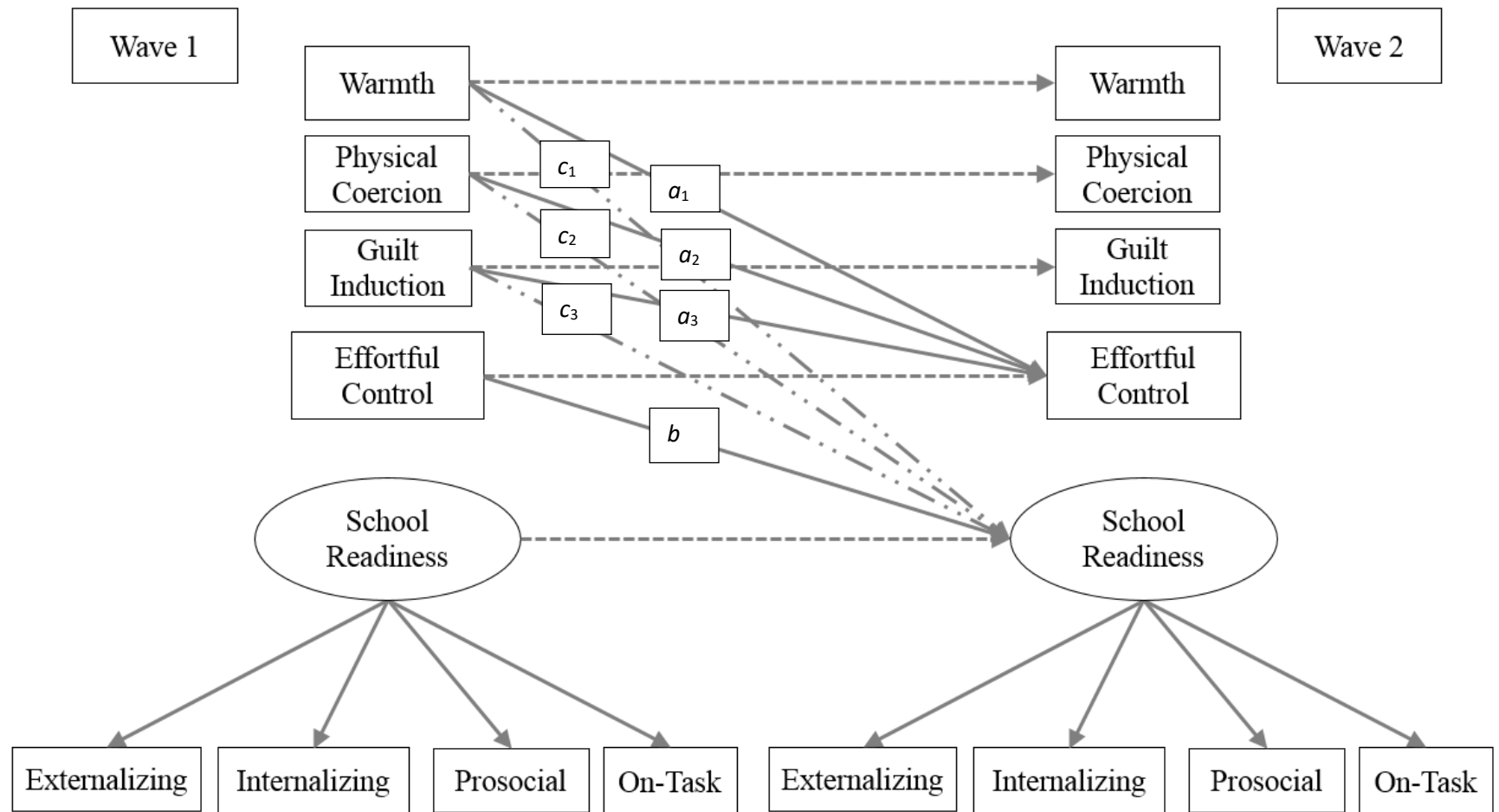


Figure 3. The Proposed Half-Longitudinal Mediation Model. The indirect effects of parenting on school readiness through effortful control are $a_1 \times b$, $a_2 \times b$, and $a_3 \times b$.

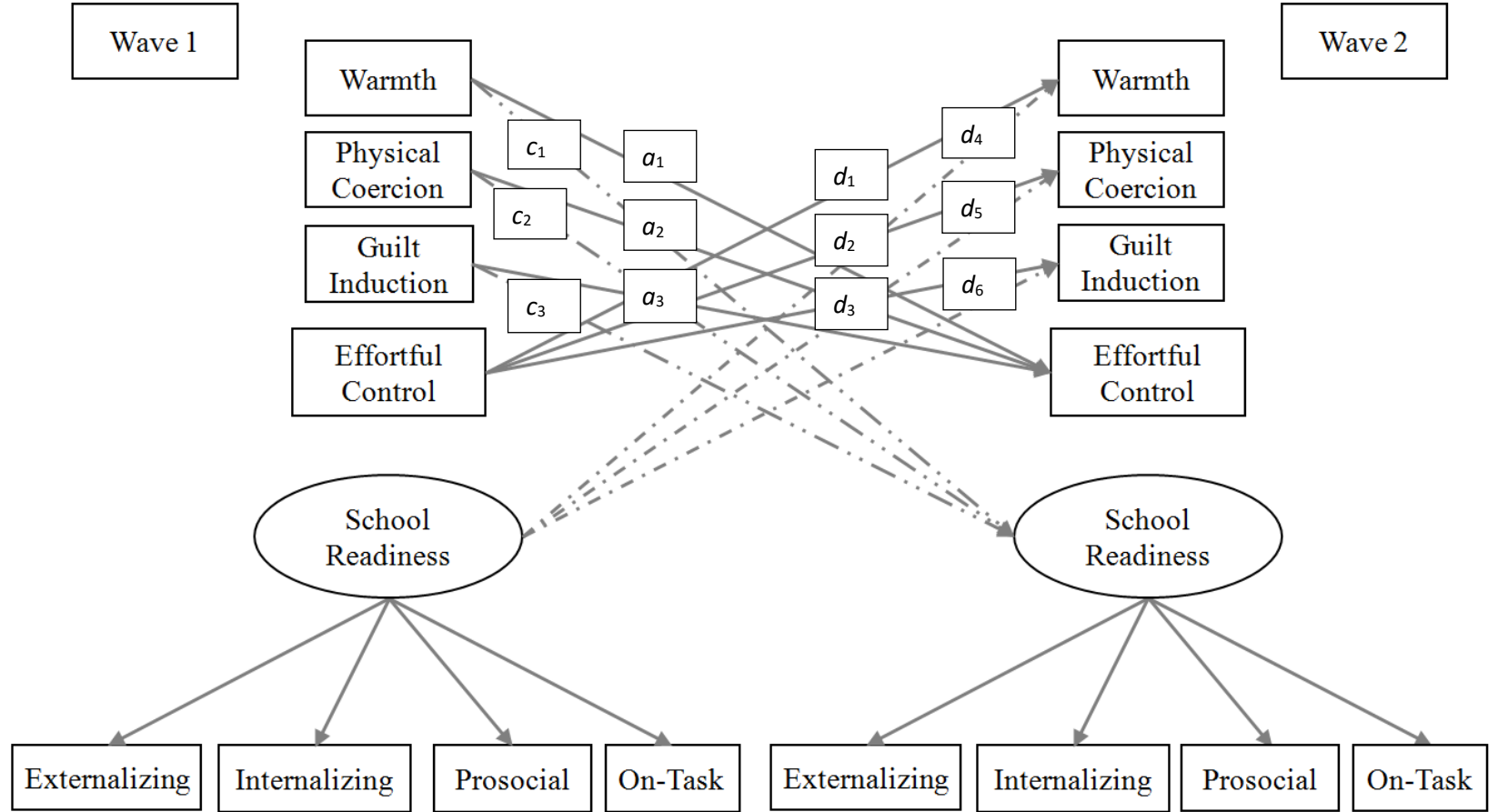


Figure 5. The Bi-Directional Relations between Parenting Practices and Child Behavior. The paths of a_1 , a_2 , a_3 , c_1 , c_2 , and c_3 represent parent-driven effects and the paths of d_1 , d_2 , d_3 , d_4 , d_5 , and d_6 represent the child-driven effects.

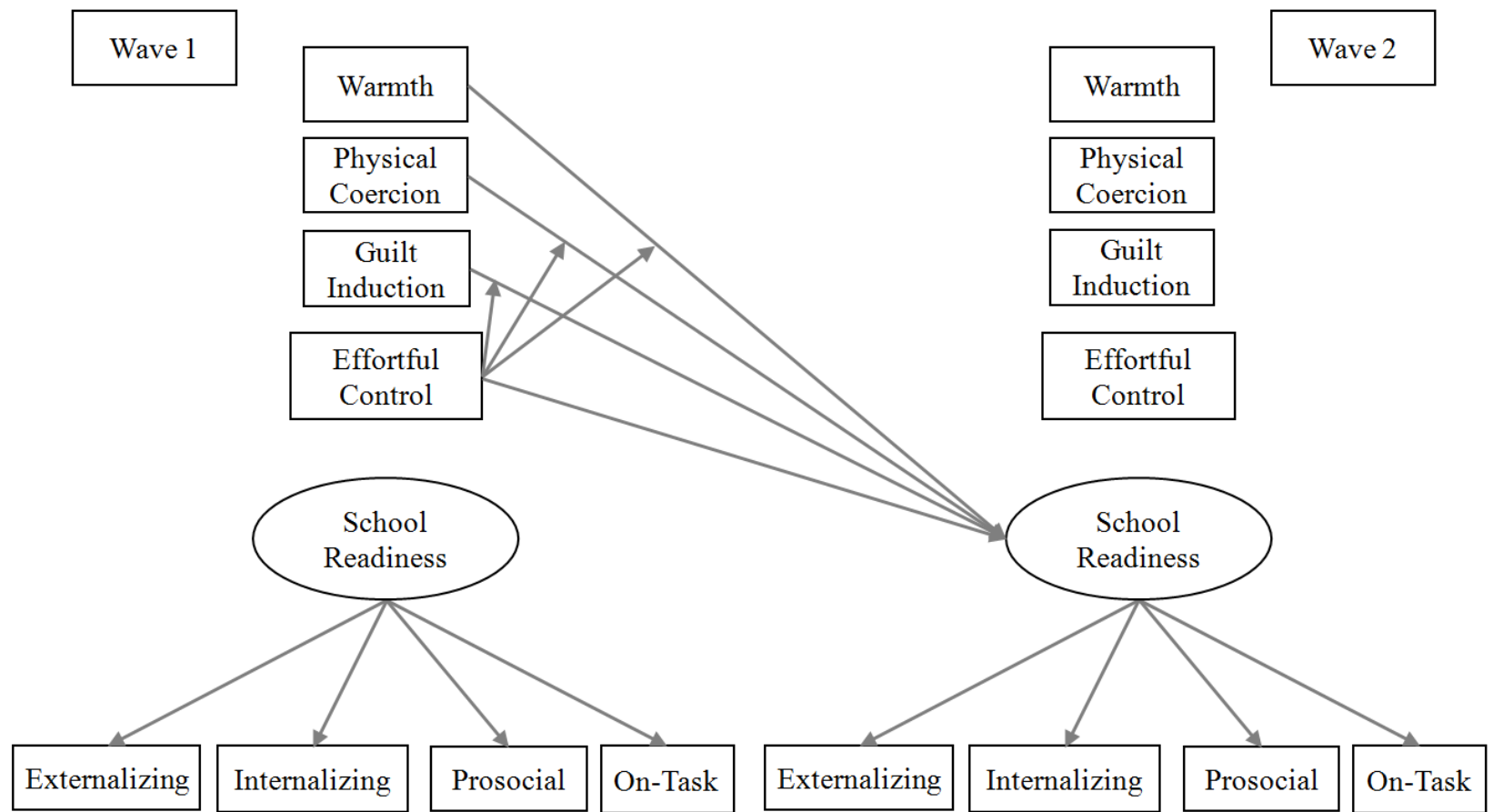


Figure 6. The Proposed Alternative Longitudinal Moderation Model.

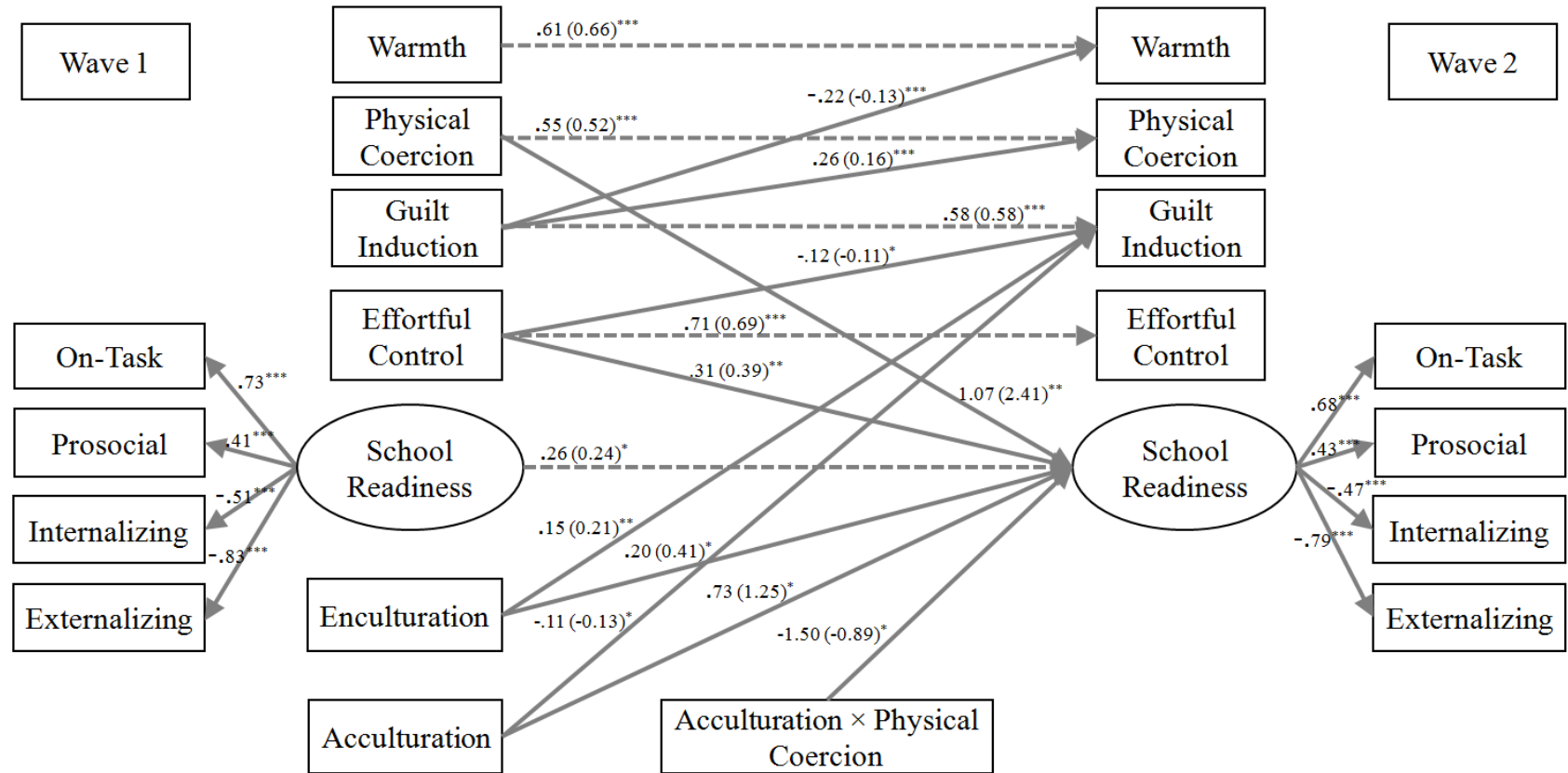


Figure 7. The Final SEM Model for the Latent School Readiness Variable. Standardized regression coefficients are reported. Numbers in parentheses are unstandardized regression coefficients. Nonsignificant paths predicting W2 variables were pruned out from the model. Concurrent correlations among the constructs were included in the model but omitted from the figure. * $p < .05$. ** $p < .01$. *** $p < .001$.

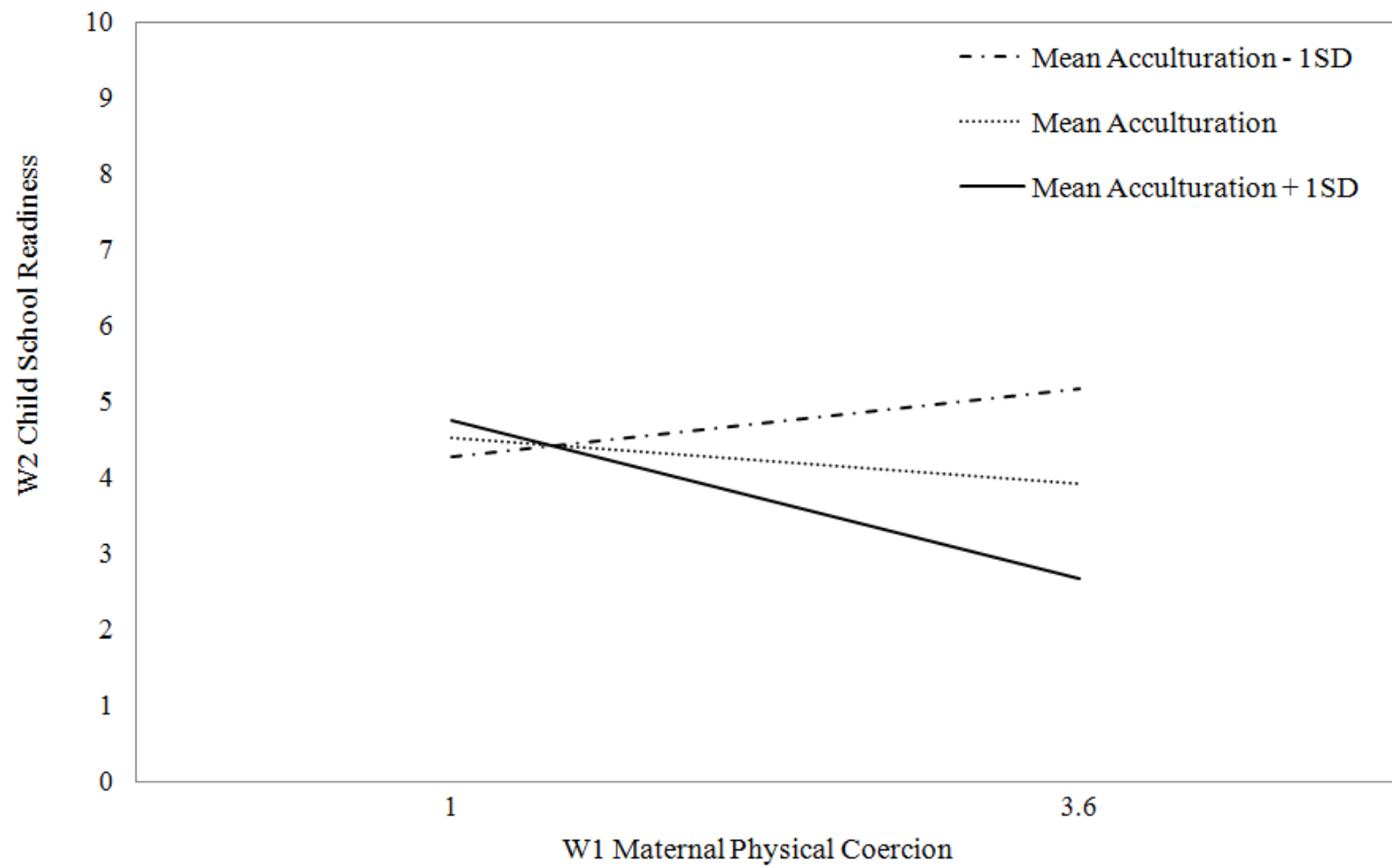


Figure 8. Physical Coercion and Maternal Behavioral Acculturation Interacted to Predict Child School Readiness.

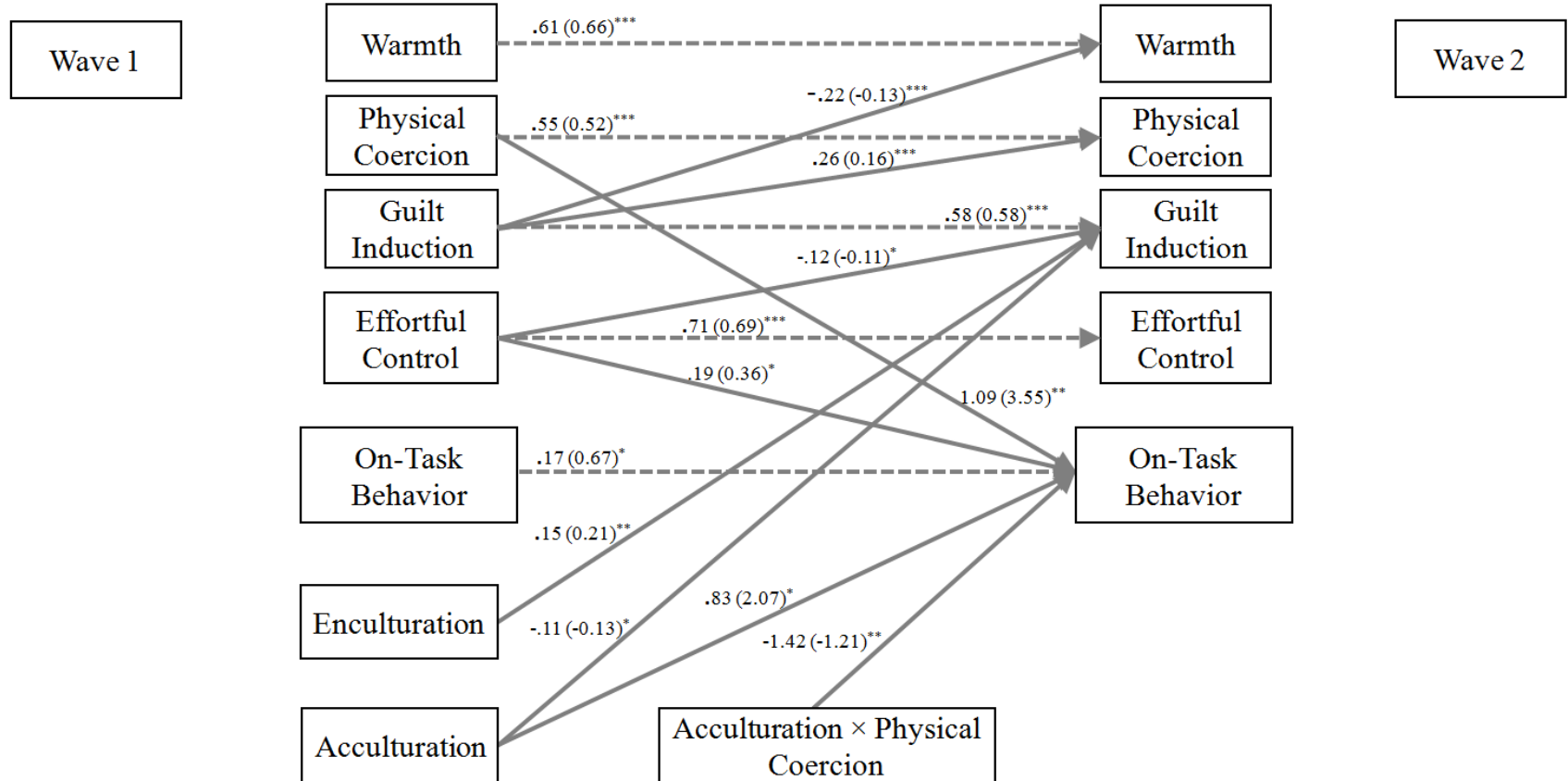


Figure 9. The Final Path Model for Child On-Task Behavior. Standardized regression coefficients are reported. Numbers in parentheses are unstandardized regression coefficients. Nonsignificant paths predicting W2 variables were pruned out from the model. Concurrent correlations among the constructs were included in the model but omitted from the figure. * $p < .05$. ** $p < .01$. *** $p < .001$.

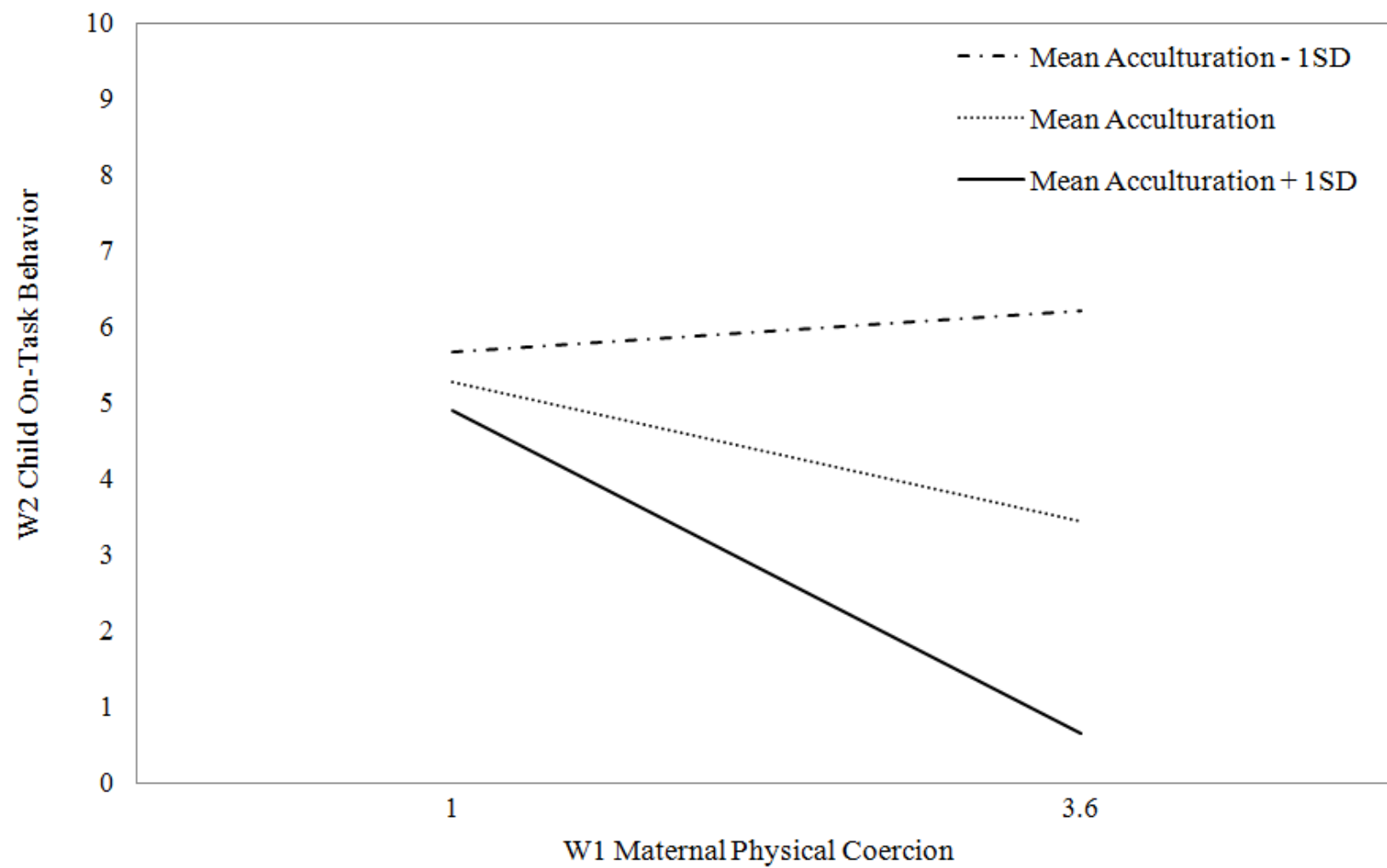


Figure 10. Physical Coercion and Maternal Behavioral Acculturation Interacted to Predict Child On-Task Behavior.

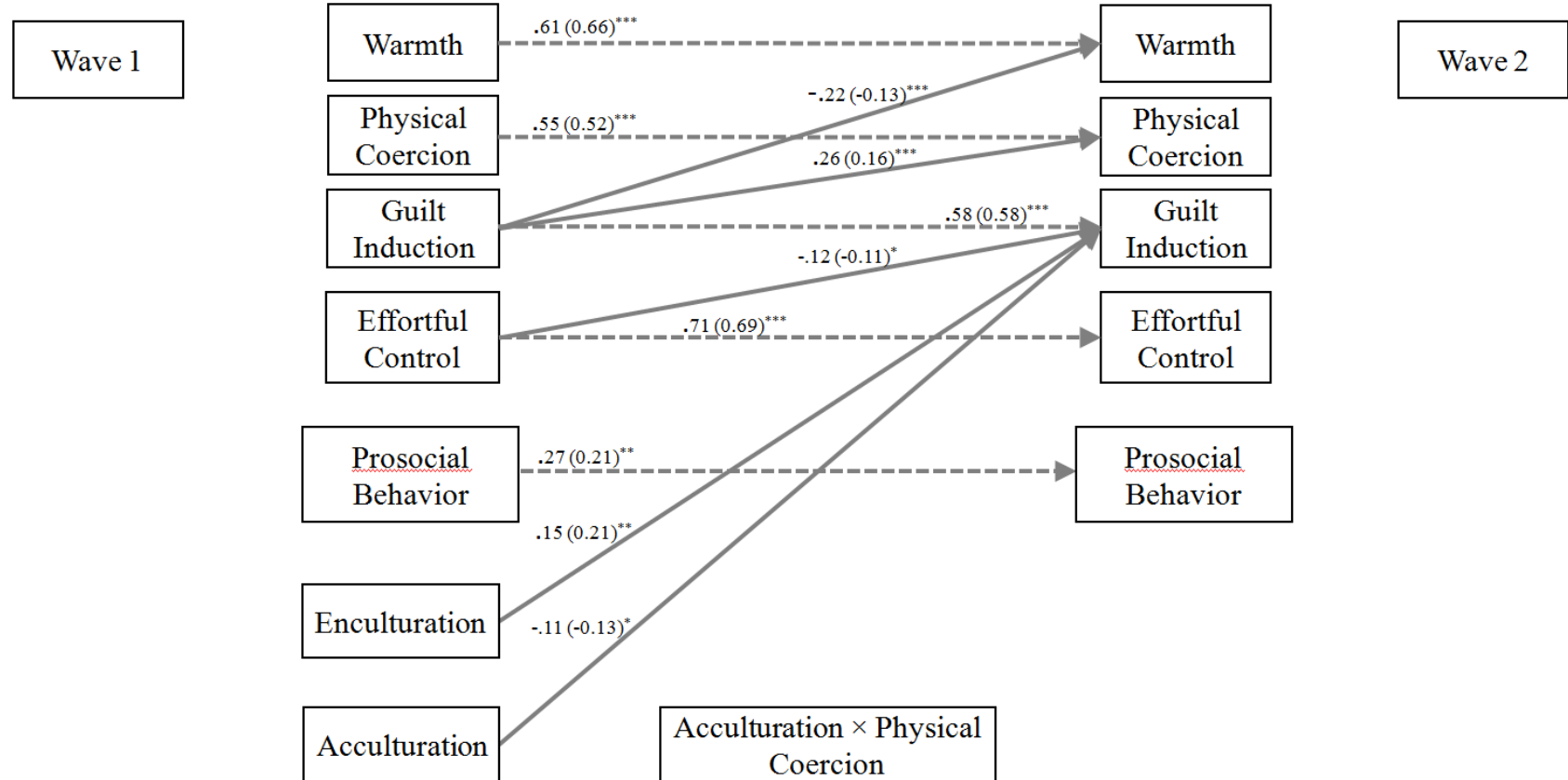


Figure 11. The Final Path Model for Child Prosocial Behavior. Standardized regression coefficients are reported. Numbers in parentheses are unstandardized regression coefficients. Nonsignificant paths predicting W2 variables were pruned out from the model. Concurrent correlations among the constructs were included in the model but omitted from the figure. * $p < .05$. ** $p < .01$. *** $p < .001$.

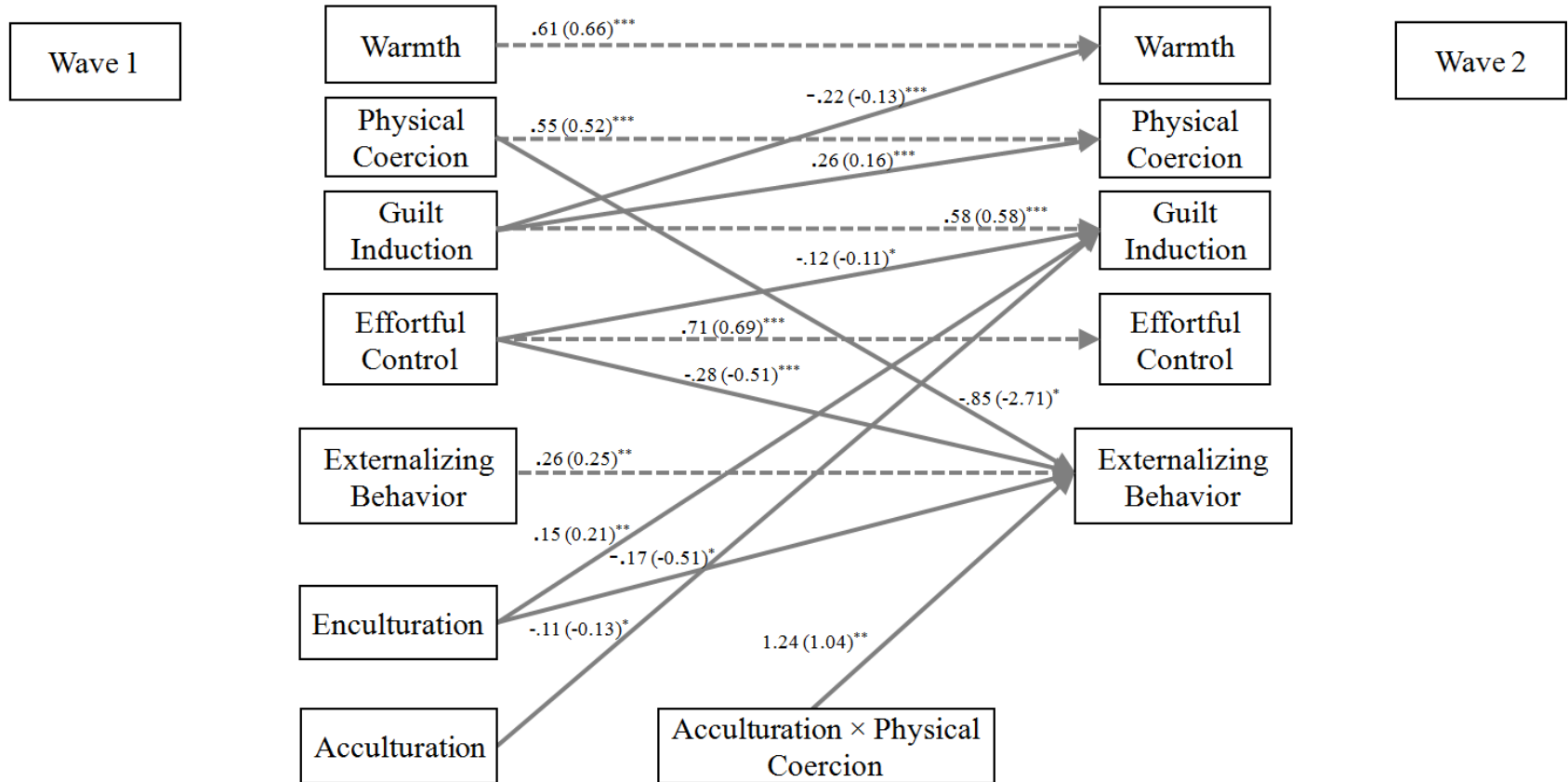


Figure 13. The Final Path Model for Child Externalizing Behavior. Standardized regression coefficients are reported. Numbers in parentheses are unstandardized regression coefficients. Nonsignificant paths predicting W2 variables were pruned out from the model. Concurrent correlations among the constructs were included in the model but omitted from the figure. * $p < .05$. ** $p < .01$. *** $p < .001$.

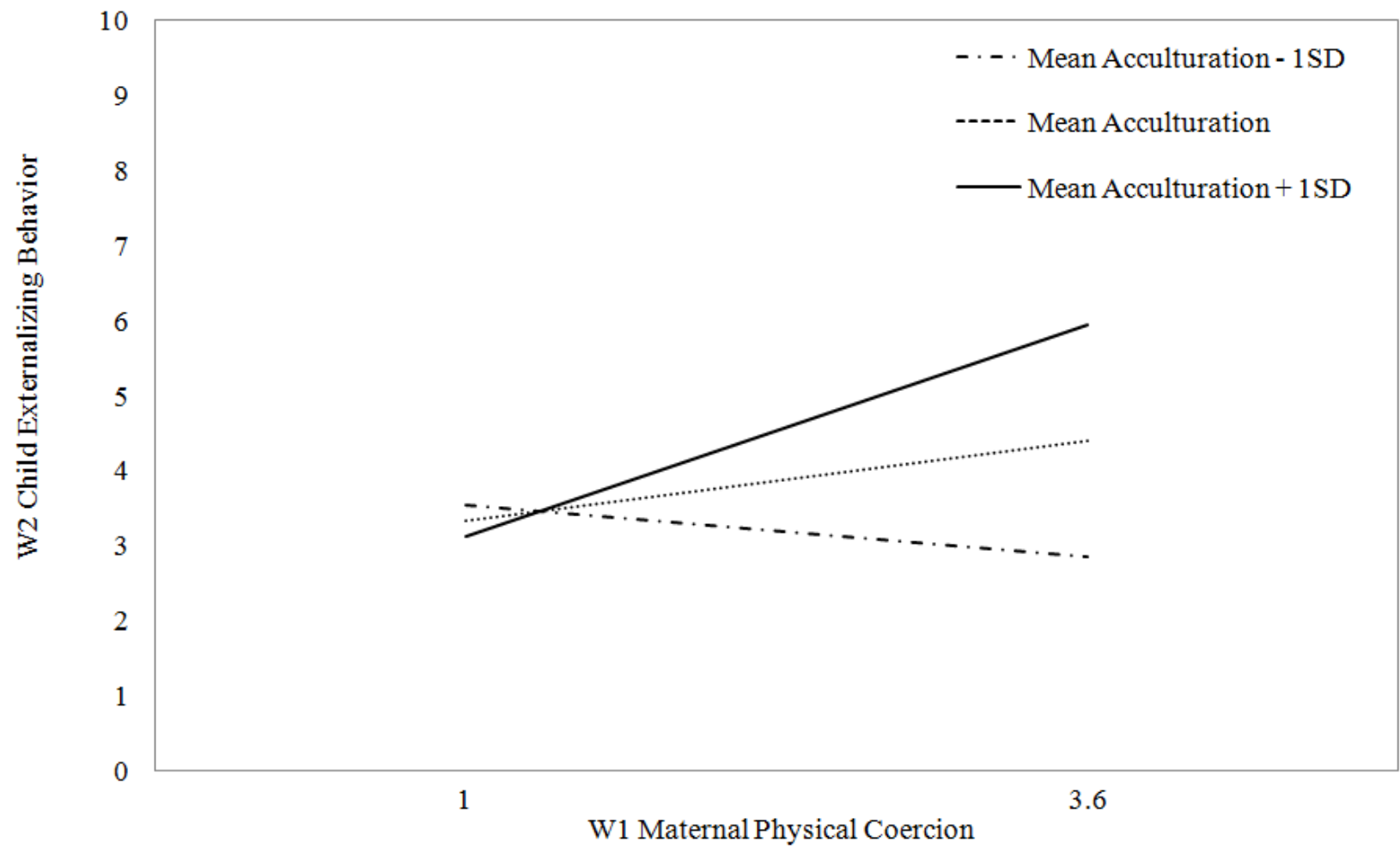


Figure 14. Physical Coercion and Maternal Behavioral Acculturation Interacted to Predict Child Externalizing Behavior.

Appendix A: Measure for Maternal Warmth

Direction: Please rate how often you exhibit this behavior and place your answer on the line to the left of the item.

I EXHIBIT THIS BEHAVIOR

1 = Never

2 = Once in a while

3 = About Half of the Time

4 = Very Often

5 = Always

_____PSDQ2. Show sympathy when child is hurt or frustrated.

_____PSDQ11. Encourages child to talk about the child's troubles.

_____PSDQ 15. Gives comfort and understanding when child is upset.

_____PSDQ 17. Tells child that I appreciate what the child tries or accomplishes.

_____PSDQ 19. Gives praise when child is good.

_____PSDQ 20. Expresses affection by hugging, kissing, and holding child.

_____PSDQ 37. Aware of problems or concerns about child in school.

Appendix B: Measure for Physical Coercion

Direction: Please rate how often you exhibit this behavior and place your answer on the line to the left of the item.

I EXHIBIT THIS BEHAVIOR

1 = Never

2 = Once in a while

3 = About Half of the Time

4 = Very Often

5 = Always

_____ PSDQ3. Guides child by punishment more than by reason.

_____ PSDQ10. Spanks when child is disobedient.

_____ PSDQ24. Slaps child when the child misbehaves.

_____ PSDQ30. Grabs child when being disobedient.

_____ PSDQ34. Uses physical punishment as a way of disciplining child.

Appendix C: Measure for Guilt Induction

Direction: COMPARED WITH PARENTS THAT YOU KNOW, rate how often you exhibit this behavior with your child.

I EXHIBIT THIS BEHAVIOR

- 1 = Never
- 2 = Once in a while
- 3 = About Half of the Time
- 4 = Very Often
- 5 = Always

_____ PC12. Makes child aware of how much I sacrifice or do for him/her.

_____ PC16. Says, if you really care for me, you would not do things that cause me to worry.

_____ PC20. Tells child of all the things that I have done for him/her.

Appendix D: Measure for Effortful Control

Instructions: Please read carefully before starting

The following is a set of statements that describe children's reactions to a number of situations. We would like you to tell us what your child's reaction is likely to be in those situations. There are of course no "correct" ways of reacting; children differ widely in their reactions, and it is these differences we are trying to learn about. Please read each statement and decide whether it is a "true" or "untrue" description of your child's reaction within the past six months. Although some of these questions might seem similar, each one is important for us so that we can paint an accurate picture of your child. Use the following scale to indicate how well a statement describes your child:

If you cannot answer one of the items because you have never seen the child in that situation, for example, if the statement is about the child's reaction to your singing and you have never sung to your child, then circle NA (not applicable).

Parent to Complete (circle): MOM DAD

1	2	3	4	5	6	7	NA
Extremely untrue	Quite untrue	Slightly untrue	Neither true nor untrue	Slightly true	Quite true	Extremely true	Not applicable

My child:

____ ~~CBQ1. Has difficulty leaving a project s/he has begun.~~

____ ~~CBQ10. Has a hard time concentrating on an activity when there are distracting noises. [Reversed Item]~~

____ ~~CBQ12. Is easily distracted when listening to a story. [Reversed Item]~~

____ ~~CBQ19. Will move from one task to another without completing any of them. [Reversed Item]~~

____ ~~CBQ30. Sometimes becomes absorbed in a picture book and looks at it for a long time.~~

____ ~~CBQ44. When picking up toys or other jobs, usually keeps at the task until it's done.~~

- ____ ~~CBQ51. When building or putting something together, becomes very involved in what s/he is doing and works for long periods.~~
- ____ ~~CBQ90. When practicing an activity, has a hard time keeping her/his mind on it.~~
- ____ ~~CBQ101. When drawing or coloring in a book, shows strong concentration.~~
- ____ CBQ5. Has trouble sitting still when s/he is told to (at movies, church, etc.). [Reversed Item]
- ____ CBQ15. Has difficulty waiting in line for something.
- ____ CBQ17. Approaches places s/he has been told are dangerous slowly and cautiously.
- ____ CBQ29. Is usually able to resist temptation when told s/he is not supposed to do something.
- ____ CBQ58. Can lower his/her voice when asked to do so.
- ____ CBQ68. Is able to resist laughing or smiling when it is not appropriate.
- ____ CBQ87. Is good at following instructions.
- ____ CBQ98. Can wait before entering into new activities if s/he is asked to.
- ____ CBQ99. Has a hard time following instructions.
- ____ CBQ104. Can easily stop an activity when s/he is told "no."

Appendix E: Measure for On-Task/Compliant Behavior

Directions: This questionnaire is designed to measure how often a child exhibits different types of prosocial/conformance behaviors. Understanding the development of social skills is important for promoting the educational and psychological well-being of students. Therefore, your careful response to each item is requested.

Reflecting on your experience with children in this age group, read each item in this questionnaire and think about the child's present behavior relative to others you know or have known. Decide how often the child does the things described. If you are not sure about a particular item use your best judgment based on your knowledge of the child's personality.

If the child never does this behavior, fill in the line with a 0 in it.

If the child sometimes does this behavior, fill in the line with a 1 in it.

If the child very often does this behavior, fill in the line with a 2 in it.

HOW OFTEN?

0=Never

1=Sometimes

2=Very Often

_____ SQS3. Produces correct school work.

_____ SQS 8. Finishes class assignments within time limit.

_____ SQS 10. Puts work material or school property away.

_____ SQS 19. Is efficient in carrying out daily tasks (e.g., cleanup).

_____ SQS 23. Attends to teachers' instructions.

Appendix F: Measure for Prosocial, Internalizing and Externalizing Behaviors

This questionnaire was completed by: _____

Directions: For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of your child's behavior over the last six months.

1= Not True

2 = Somewhat True

3 = Certainly True

____ SDQ1. Considerate of other people's feelings

____ SDQ2. Restless, overactive, cannot stay still for long

____ SDQ3. Often complains of headaches, stomach-aches or sickness

____ SDQ4. Shares readily with other children, for example toys, treats, pencils

____ SDQ5. Often loses temper

____ SDQ6. Rather solitary, prefers to play alone

____ SDQ7. Generally well behaved, usually does what adults request.

____ SDQ8. Many worries or often seems worried

____ SDQ9. Helpful if someone is hurt, upset or feeling ill

- ____SDQ10. Constantly fidgeting or squirming
- ____SDQ11. Has at least one good friend
- ____SDQ12. Often fights with other children or bullies them
- ____SDQ13. Often unhappy, depressed or tearful
- ____SDQ14. Generally liked by other children
- ____SDQ15. Easily distracted, concentration wanders
- ____SDQ16. Nervous or clingy in new situations, easily loses confidence
- ____SDQ17. Kind to younger children
- ____SDQ18. Often lies or cheats
- ____SDQ19. Picked on or bullied by other children
- ____SDQ20. Often offers to help others (parents, teachers, other children)
- ____SDQ21. Thinks things out before acting
- ____~~SDQ22. Steals from home, school or elsewhere~~
- ____~~SDQ23. Gets along better with adults than with other children~~
- ____SDQ24. Many fears, easily scared
- ____SDQ25. Good attention span, sees chores or homework through the end

Appendix G: Measure for Behavioral Acculturation and Enculturation

Directions: In this questionnaire, we want to know about your experiences living in America. Please circle only one answer which best describes you in each question.

1. When you feel happy or proud, how often do you share this with your Non-Chinese friends?

Almost Never Once a month Twice a month Once a week More than once a week

2. When you feel happy or proud, how often do you share this with your Chinese friends?

Almost Never Once a month Twice a month Once a week More than once a week

3. When you feel sad or bad, how often do you share this with your Non-Chinese friends?

Almost Never Once a month Twice a month Once a week More than once a week

4. When you feel sad or bad, how often do you share this with your Chinese friends?

Almost Never Once a month Twice a month Once a week More than once a week

5. How often do you spend time with your Non-Chinese friends?

Almost Never Once a month Twice a month Once a week More than once a week

6. How often do you spend time with your Chinese friends?

Almost Never Once a month Twice a month Once a week More than once a week

7. How well do you speak in English?

Extremely poor Poor Average Good Extremely well

8. How well do you read in English?

	Extremely poor	Poor	Average	Good	Extremely well
9. How well do you <u>write</u> in English?					
	Extremely poor	Poor	Average	Good	Extremely well
10. How well do you <u>speak</u> in Chinese?					
	Extremely poor	Poor	Average	Good	Extremely well
11. How well do you <u>read</u> in Chinese?					
	Extremely poor	Poor	Average	Good	Extremely well
12. How well do you <u>write</u> in Chinese?					
	Extremely poor	Poor	Average	Good	Extremely well
13. How often do you read English novels or magazines?					
	Almost never	Once or twice a month	Once a week	2 to 4 times a week	Almost Everyday
14. How often do you read Chinese novels or magazines?					
	Almost never	Once or twice a month	Once a week	2 to 4 times a week	Almost Everyday
15. How often do you watch TV in Chinese?					
	Almost never	Once or twice a month	Once a week	2 to 4 times a week	Almost Everyday
16. How often do you watch TV in English?					
	Not at all	A little	Somewhat	A lot	Very much
17. How often do you listen to Western music?					

- | | | | | | |
|--|--------------|-----------------------|-------------|---------------------|-----------------|
| | Almost never | Once or twice a month | Once a week | 2 to 4 times a week | Almost Everyday |
|--|--------------|-----------------------|-------------|---------------------|-----------------|
18. How often do you listen to Chinese music?
- | | | | | | |
|--|--------------|-----------------------|-------------|---------------------|-----------------|
| | Almost never | Once or twice a month | Once a week | 2 to 4 times a week | Almost Everyday |
|--|--------------|-----------------------|-------------|---------------------|-----------------|
19. Do you like Western food?
- | | | | | | |
|--|------------|----------|---------|-------|-----------|
| | Not at all | A little | Neutral | A lot | Very much |
|--|------------|----------|---------|-------|-----------|
20. Do you like Chinese food?
- | | | | | | |
|--|------------|----------|---------|-------|-----------|
| | Not at all | A little | Neutral | A lot | Very much |
|--|------------|----------|---------|-------|-----------|
21. How often do you celebrate Western festivals (e.g. Thanksgiving, Halloween etc.)?
- | | | | | | |
|--|-------|-------------|-----------|-------|---------------------|
| | Never | Hardly ever | Sometimes | Often | Almost all the time |
|--|-------|-------------|-----------|-------|---------------------|
22. Do you celebrate Chinese festivals (e.g. Chinese New Year, Mid-Autumn Festival etc.)?
- | | | | | | |
|--|-------|-------------|-----------|-------|---------------------|
| | Never | Hardly ever | Sometimes | Often | Almost all the time |
|--|-------|-------------|-----------|-------|---------------------|

