

THE ROLE OF PARENTS' CONTROL AND AUTONOMY SUPPORT IN THE  
UNITED STATES AND CHINA: BEYOND CHILDREN'S REPORTS

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DISSERTATION

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## ABSTRACT

Recent research on the effects of parents' control (i.e., intruding into children's thoughts, feelings, and behavior) on children's psychological functioning in the United States and China has almost exclusively relied on children's reports. Such reports may lead to inaccurate conclusions if they do not reflect parents' practices to the same extent in the two countries. The current research addressed this issue in a study of 394 American and Chinese children (mean age = 13.45 years) and mothers. Children and mothers reported on mothers' controlling and autonomy-supportive parenting; trained observers coded such parenting during a laboratory interaction between children and mothers. Information on children's achievement was obtained. Children's reports of parenting were modestly associated with mothers' reports and weakly, if at all, with observers' reports, with no difference in United States and China. The effects of parenting on children's achievement were largely similar in the two countries, irrespective of reporter. Taken together, the current research indicates that the similarity of the effects of American and Chinese parents' control documented in prior research is unlikely to be an artifact of differential correspondence between children's reports and parents' actual practices in the two countries.

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## CHAPTER 1

### Introduction

There has been much research in the West on the role of parents' control in the development of children's psychological functioning (for reviews, see Grolnick & Pomerantz, 2009; Pomerantz & Thompson, 2008; Soenens & Vansteenkiste, 2010). Parents' heightened controlling practices – that is, their attempts to intrude upon children's thoughts, feelings, and behaviors – predict dampened adjustment among children, such that children often develop emotional and academic problems (e.g., Aunola & Nurmi, 2003; Barber, 1996; Conger, Conger, & Scaramella, 1997; Gray & Steinberg, 1999; Grolnick, Gurland, Decourcy, & Jacob, 2002; Rogers, Buchanan, & Winchell, 2003; Silk, Morris, Kanaya, & Steinberg, 2003). In contrast, when parents are autonomy supportive – that is, they encourage children's self-direction by adopting children's perspective and allowing children to make decisions – children flourish (e.g., Cooper, Lindsay, & Nye, 1999; Frodi, Bridges, & Grolnick, 1985; Grolnick & Ryan, 1989; Gurland & Grolnick, 2004; Soenens & Vansteenkiste, 2005; Stiller & Ryan, 1991). Children have been assumed to suffer when parents are controlling rather than autonomy supportive in part because such parenting undermines children's basic need for autonomy (e.g., Grolnick, Ryan, & Deci, 1997; Soenens & Vansteenkiste, 2010).

Several investigators, however, have made the case that in East Asia where less emphasis may be placed on autonomy than in the West (Markus & Kitayama, 1991, 2003), parents' control may not have detrimental effects on children (e.g., Chao, 1994; Iyengar & Lepper, 1991). To date, a sizable number of studies, carried out primarily in the United States and China, have enlightened the debate (for a review, see Pomerantz & Wang, 2009): Consistent with universal view of development which posit an innate need for autonomy (Deci & Ryan, 1985, 2000),

parents' control generally predicts dampened emotional and academic functioning in East Asia as it does in the West; conversely, parents' autonomy support appears to facilitate such functioning among children similarly in the two regions (e.g., Barber, Stolz, & Olsen, 2005; Cheung & Pomerantz, 2011; Hasebe, Nucci, & Nucci, 2004; Olsen et al., 2002; Qin, Pomerantz, & Wang, 2009; Wang, Pomerantz, & Chen, 2009).

Studies comparing the West and East Asia, however, have relied almost exclusively on *children's reports* of controlling and autonomy-supportive parenting (e.g., Barber et al., 2005; Cheung & Pomerantz, 2011; Qin et al., 2009; Wang et al., 2009). Although children have been argued to be reliable reporters of parenting (e.g., Gonzales, Cauce, & Mason, 1996; Sessa, Aveneoli, Steinberg, & Morris, 2001), the associations between children's reports and parents' practices as observed in the lab are generally small (e.g., Gonzales et al., 1996; Noller & Callan, 1988; Sessa et al., 2001), suggesting that children may bring their own perspectives to these reports. This may be problematic in understanding the role of parenting across cultures because the different orientations toward independence versus interdependence in the West and East Asia (e.g., Markus & Kitayama, 1991; Triandis, Bontempo, Villareal, Asai, Lucca, 1988) may influence how children perceive parents' practices. Consequently, children's reports may differentially correspond to parents' use of control and autonomy support, leading to problems in evaluating the similarity of the effects in the two regions. To address this issue, the current research examined if American and Chinese children's reports of parents' control and autonomy support correspond similarly to mothers and observers' reports of such parenting. In addition, the extent to which children, mothers, and observers' reports similarly predict children's achievement was evaluated.

## **Conceptualization of Parents' Control and Autonomy Support**

Although the term “control” has been used to refer to a variety of parenting practices, following Grolnick and Pomerantz (2009), parents' control is conceptualized here as parents' intrusiveness, pressure, or domination. A central form of such control is psychological control, which Barber (1996, p. 3296) defines as “attempts that intrude into the psychological and emotional development of the child (e.g., thinking processes, self-expression, and attachment to the parent).” Psychologically controlling parenting practices include, but are not limited to, parents excessively asserting authority over children, threatening to withdraw love, and inducing anxiety (e.g., a sense of guilt) in children. Psychological control has been contrasted with behavioral control, which has been defined as parents' regulation of children's behavior as manifest in guidance, monitoring, and rule setting. As such, behavioral control does not necessarily involve intrusiveness, pressure, or domination. In fact, it appears to facilitate, rather than undermine children's psychological functioning, presumably because it provides children with structure (for a review, see Grolnick & Pomerantz, 2009). The debate on the effects of parents' control in the West and East Asia has revolved around control in the intrusive sense (e.g., psychological control) rather than the structuring sense (e.g., behavioral control; e.g., Barber et al., 2005; Olsen et al., 2002; Vansteenkiste, Zhou, Lens, & Soenens, 2005; Wang et al., 2007) given that the latter is not viewed as undermining children's autonomy.

The inverse of parents' intrusive control has often been assumed to be autonomy support, which entails parents' taking children's perspective into account, allowing children choice, and encouraging initiative among children (e.g., Grolnick, Deci, & Ryan, 1997; Ryan, Deci, Grolnick, La Guardia, 2006). The absence of control is often considered indicative of the presence of autonomy support (Grolnick & Pomerantz, 2009). However, it has also been argued that control and autonomy support represent two distinct, albeit related, constructs (e.g., Barber, Bean,

Erickson, 2001; Pomerantz & Ruble, 1998; Silk et al., 2003; Soenens, Vansteenkiste, & Sierens, 2009). For example, parents can be neither controlling nor autonomy supportive. Indeed, parents' control and autonomy support are sometimes only moderately inversely associated (e.g., Pomerantz & Ruble, 1998; Silk et al., 2003; Vansteenkiste et al., 2005; Wang et al., 2007).

### **The Debate over Parents' Control and Autonomy Support in the West and East Asia**

The debate over the effects of parents' control in the West and East Asia rests on two antagonistic views – the universal and culture-specific – on whether parents' exertion of control matters for children's adjustment (for reviews, see Pomerantz & Wang, 2007; Vansteenkiste et al., 2005). The *universal view* is reflected in the self-determination theory perspective (Deci & Ryan, 1985, 2000). A key tenet of this perspective is that the need for autonomy (i.e., being able to perform volitional acts such as making decisions independently) is fundamental to optimal psychological functioning. Environments supportive of autonomous or volitional behaviors are argued to be crucial in enhancing individuals' well-being; this is not influenced by the cultural emphasis on independence (vs. interdependence). Hence, according to the universal view, when parents exert excessive pressure to regulate children's thoughts, feelings, and behaviors, children suffer irrespective of the culture in which they reside, because such parenting undermines the fulfillment of the basic need for autonomy among children (Grolnick et al., 1997; Vansteenkiste et al., 2005).

In *culture-specific* views, the distinct cultural orientations of the West and East Asia lead the effects of parents' control to be less negative in East Asia. In countries oriented toward interdependence (vs. independence), the assertion of individual desires is often deemphasized as it may disrupt the maintenance of harmonious relationships in the group (e.g., Markus & Kitayama, 1991). In their analysis, Markus and Kitayama (1991, 2003) contend that in interdependent (vs. independent) societies, individuals' selves are more strongly tied to those of

important others (e.g., parents). Consequently, individuals internalize others' opinions and desires. In this vein, it has been argued that East Asian children are more willing to take on parents' demands as their own because doing so maintains harmonious relationships with parents (Iyengar & Lepper, 1999; see also Menon, Morris, Chiu, & Hong, 1999). In a somewhat different vein, it has been suggested that cultural ideas about parenting in East Asia may diminish the negative effects of parents' control. The Chinese notion of *guan*, for example, which entails meanings of "to love" and "to govern", may lead parents to exert control over children to ensure they meet societally valued standards (Chao, 1994). Consequently, children may view parents' control as motivated by love, which may weaken its negative effects (Chao, 1994, 2001; Chao & Tseng, 2002). Thus, the key idea behind the culture-specific view is that parents' control may not have negative effects in East Asia because children are more willing to embrace parents' demands whether it be to maintain interpersonal harmony or because they feel parents are well intentioned (Chao & Aque, 2009).

### **Empirical Evidence on Parents' Control and Autonomy Support in the West and East Asia**

Several studies aimed at resolving the debate over the effects of parents' control in the West and East Asia have focused solely on China using concurrent designs in which parents' control and children's psychological functioning are assessed at a single point in time. Taken together, the findings from this research suggest that parents' control does matter for Chinese children's adjustment. Among Chinese adolescents residing in Mainland China, children who report parents as psychologically controlling tend to be less motivated in school and have poorer emotional adjustment (Vansteenkiste et al., 2005). Children's reports of parents' heightened intrusiveness have also been linked to dampened self-esteem and life-satisfaction among Chinese early adolescents residing in Hong Kong (Shek, 2007). d'Ailly (2003) found a similar pattern in her research with Taiwanese fifth graders: The more children reported parents as controlling (vs.

autonomy supportive), the less intrinsically motivated children were in school, with a dampened sense of control in this context as well. Using spouses' reports of parents' psychological and physical control, Nelson, Hart, Yang, Olsen, and Jin (2006) found that in Mainland China such control was predictive of heightened aggression among preschool children, although the type of control that was predictive differed for girls and boys.

Research focusing on a single country is informative in that it can suggest that parents' control does matter for children in that country; however, as Wang and colleagues (2007) have noted, such an approach cannot provide insight into whether the size of the effects differs across countries. To that end, comparisons between countries are necessary. The initial studies in this vein, like those focusing only on China, used concurrent designs. In line with the universal view, the effects of parents' control in such studies have been largely similar in the West and East Asia. Adolescents' reports of parents' heightened psychological control are associated with their dampened emotional functioning in Western (e.g., United States and Belgium) and East Asian (e.g., China and Korea) countries to a similar extent (e.g., Barber et al., 2005; Soenens, Park, Vansteenkiste, & Mouratidis, 2012). In terms of parents' control through their unilateral making of decisions for children, American and Japanese high-schoolers who report parents as frequently making decisions for them about personal issues (e.g., what to wear and who to be friends with) experience heightened depressive symptoms (Hasebe et al., 2004). Using parents' reports of psychological control, Olsen and colleagues (2002) found that the more parents reported themselves as controlling, the more prone preschool children were to externalizing problems to a similar extent in both the United States and China.

These concurrent studies have been succeeded by research using longitudinal designs in which parents' control and children's psychological functioning are assessed at multiple time

points with analyses predicting children's later psychological functioning from parents' earlier control taking into account children's earlier psychological functioning to ensure the direction of effects. The findings corroborate those yielded by the earlier concurrent research. For example, studying early adolescents in the United States and China, Wang and colleagues (2007) found that the more children reported parents as using psychological control, the more children suffered emotionally six months later, taking into account their earlier emotional adjustment, with the effects being similar in size in the United States and China. Conversely, the more children reported parents as being autonomy supportive, the more both American and Chinese children reported increased well-being and decreased ill-being six months later. Notably, the effects of autonomy support on children's well-being were stronger in the United States than China. In a follow up of these children, Cheung and Pomerantz (2011) found that the effects of psychological controlling and autonomy-supportive parenting on children's academic and emotional adjustment two years later were either similar in the United States and China or *stronger* in China. In the same sample, the more children reported parents as making decisions for them about personal issues, the poorer children's emotional adjustment two years later, taking into account their earlier emotional adjustment, with similar effects in the United States and China (Qin et al., 2009).

### **Children's Differential Reports: A Potential Threat to Resolving the Debate?**

The research to date comparing the effects of Western and East Asian parents' control and autonomy support has, with the exception of one concurrent study using parents' reports (Olsen et al., 2002), relied exclusively on children's reports of such parenting. Although children's reports of parenting have been argued to be reliable (e.g., Gonzales et al., 1996; Sessa et al., 2001), it is unclear if they similarly correspond to parents' practices in the West and East

Asia. If they do not similarly correspond, comparison of the effects of parents' control and autonomy support relying on children's reports may lead to inaccurate conclusions. There has been much attention to establishing measurement invariance across countries of children's reports of parents' control and autonomy support (e.g., American and Chinese children use the response scale similarly; e.g., Cheung et al., 2011; Qin et al., 2009; Wang et al., 2007). However, consideration has not been given to the possibility that children's reports may differentially reflect parents' use of control and autonomy support across countries. This is surprising given that the associations between children's reports and parents' practices – such as parents' control and warmth – as observed in the lab are generally small (e.g., Gonzales et al., 1996; Noller & Callan, 1988; Sessa et al., 2001), suggesting that there may be sizeable discrepancies in children's reports and parents' practices.

Children's reports of parenting may create problems in making comparisons between countries by way of *differential rank-order correspondence*. Differential rank-order correspondence may occur when culture creates differences between countries in the extent to which children's reports reflect parents' practices. The correspondence between children's reports and parents' practices may differ because culture may shape how children view the various situations in which they interact with parents, which may influence children's detection of parenting practices. As such, culture may influence the extent to which children's reports map on to parents' practices in terms of their relative frequency within country with the extent of such correspondence differing across countries (e.g., the correspondence may be weaker in the United States than China). An example of differential rank-order correspondence is shown in Figure 1. In Country 1, the ranking of parents' control as reported by children does not correspond to the ranking of parents' practices such that the relative position for each case is vastly different for

children's reports and parents' practices. In contrast, the rank-order correspondence between children's reports and parents' practices is fairly similar in Country 2. Because of the lower rank-order correspondence in Country 1, the effect of parents' control yielded by children's reports in this country, but not Country 2, may be underestimated of the real effect. Hence, if differential rank-order correspondence exists in children's reports between the countries under study such that the true effect of parents' control in a particular country is masked, it may lead to erroneous conclusions about the similarity of the effects of parents' control across countries.

It is possible that the distinct cultural orientations toward independence and interdependence in the West and East Asia may differentially shape children's detection of parents' control, such that Western and East Asian children's reports of parents' control are differentially reflective of parents' practices. It appears that there is a heightened emphasis on exercising choice to enhance feelings of autonomy in the West (vs. East Asia; Markus & Kitayama, 2003; Markus, Uchida, Omoregie, Townsend, & Kitayama, 2006; Savani, Markus, Naidu, Kumar, & Berlia, 2010). Hence, when circumstances do not permit choice, Westerners may be particularly threatened, which may interfere with their ability to accurately gauge parents' control – for example, some children may overestimate their parents' control, but some children may underestimate. As a consequence, children's reports may not correspond strongly to their parents' actual practices in the West. East Asians, in contrast, may be less biased given that they may not feel threatened to the same extent.

### **Observers' Reports as a Yardstick**

To understand if differential correspondence exists in children's reports of parenting in the West and East Asia, objective observers' reports of parenting may be used as a yardstick against which children's reports may be compared. Unfortunately, because prior research on

parents' control and autonomy support in the West and East Asia has not employed observational methods in conjunction with children's reports, it unclear whether there is differential correspondence in such reports. However, several studies conducted in the United States have compared children and observers' reports of parenting (e.g., Gonzales et al., 1996; Noller & Callan, 1988; Sessa et al., 2001). The evidence points to a substantial lack of correspondence between children and observers' reports. For example, in a study of preschool children, investigators used age-appropriate interviews to assess young children's views of several aspects of mothers' parenting, including warmth, hostility, and structure (Sessa et al., 2001). During a series of interaction tasks in the laboratory designed to elicit these dimensions of parenting among mothers, independent observers rated mothers' behaviors. The correspondence between children and observers depended on the dimension of parenting, with correspondence for mothers' hostility and warmth ( $r_s = .30$  and  $.23$ ) being somewhat higher than that for mothers' structure, which was negative ( $r = -.10$ ). Correspondence was similarly modest ( $r_s = .38$  and  $.32$ ) when early adolescents' reports of mothers' warmth and control were compared to ratings provided by independent observers, who observed and rated mothers' behaviors in an interaction task involving discussion of topics on which adolescents and mothers may have conflicts (Gonzales et al., 1996). Surprisingly, Noller and Callan (1988) found that adolescents' reports of parents' control, as reflected in their dominance, in a discussion task in the laboratory were inversely associated with observers' ratings ( $r = -.17$ ).

Research conducted in the United States focusing on children and parents' reports of parenting has documented stronger correspondence. For example, focusing on mothers' acceptance in the context of communications between mothers and adolescents, research yields correlations between mothers and younger and older adolescents of  $.15$  and  $.42$  (Hare, Masten, &

Allen, 2011). Agreement between mothers and adolescents on mothers' responsiveness (i.e., expression of warmth and love) is modest ( $r = .30$ ) in a study of eighth to twelfth graders (Bogenschneider & Pallock, 2008). Children's reports of parents' discipline practices and nurturance also correspond modestly, yet consistently, with parents' reports of these practices ( $r$ s = .14 to .21) in a study with early adolescents (Guion, Mrug, & Windle, 2009). Pettit, Laird, Dodge, Bates, and Criss (2001) found modest agreement between adolescents and mothers' reports of psychological control and monitoring ( $r$ s = .19 and .26). Pomerantz (2001) had elementary and middle school children report on how often mothers provided unrequested assistance (i.e., intrusive support); mothers completed a daily checklist in which they reported on such practices every day for two weeks. The association between the two reports was .34.

The correspondence between children and parents' reports of parenting appears to be more consistent than that between children and observers, as well as parents and observers for whom correspondence is as weak or weaker than for children and observers (e.g., Gonzales et al., 1996; Sessa et al., 2001). The more consistent correspondence between children and parents may be due in part to the fact that both children and parents' reports reflect parents' day-to-day practices that occur at home, whereas observations represent a thin slice of what occurs in a situation that may not necessarily be part of children and parents' daily life. It is also possible that the larger correspondence is due to biases shared between children and parents – for example, there may be a similar trend toward depression, which leads the two to report more negative practices. As with children's reports, however, parents' reports may also be subject to cultural influences, thereby leading to differential correspondence. For example, given the Chinese notion of *guan* (e.g., Chao, 1994), some Chinese parents may see controlling practices as indicative of constructive parenting, but others may not because of their exposure to Western

ideas; these different values may contribute to Chinese mothers' reports, dampening correspondence with their practices. To the extent that such conflicting values do not exist in the United States, American parents' reports may have higher correspondence.

### **Overview of the Current Research**

Focusing on the United States and China, the goal of the current research was to make inroads into resolving the debate over whether the effects of parents' control and autonomy support are similar in the West and East Asia. Specifically, this research examined if the similar effects of parents' control and autonomy support on children's adjustment in the West and East Asia documented in prior research are artifacts of differential bias in children's reports. To this end, in addition to using children's reports of parents' control and autonomy support as has been done in prior research, I also used parents' reports. In addition, and of most import, observations of parents' control and autonomy support were made in the laboratory and coded by trained observers. Such a multi-method approach permitted examination of whether American and Chinese children's reports of parents' control and autonomy support are similarly reflective of such parenting, allowing for the identification of differential rank-order correspondence. In this vein, the associations of children's reports with mothers and observers' reports were examined.

These aims were met in the context of the University of Illinois Middle School Motivation Project carried out in the United States and China. During their seventh grade year, children visited the laboratory with their mothers for two hours. During the visit, they completed a set of surveys including measures of psychologically controlling and autonomy supportive parenting that have been used in prior research conducted in the United States and China to evaluate the similarity of the effects of parents' control and autonomy support in the two countries (e.g., Barber et al., 2005; Cheung & Pomerantz, 2011; Wang et al., 2007). Mothers' control and autonomy support were also observed as they worked on an academically

challenging task with children that prior research indicates is seen as equally important to American and Chinese mothers (Ng, Pomerantz, & Lam, 2007). The use of observation in the laboratory warranted a similar, if not identical, context in which American and Chinese mothers administer control and autonomy support (for a similar rationale for the importance of laboratory observations in country comparisons, see Ng et al., 2007). To ensure children and mothers' reports reflected similar situations to that created in the laboratory, in addition to completing the traditional survey measures of psychologically controlling and autonomy-supportive parenting, children and mothers also completed a parallel measure asking solely about such parenting in the academic context. To identify if the effects of parents' control and autonomy support are similar in the United States and China across reporters, children's achievement was examined: Children's performance on the challenging academic tasks before and after working with mothers was assessed; children's school grades before and after their laboratory visit were obtained as well.

## CHAPTER 2

### Method

#### Participants

The current research was part of the University of Illinois Middle School Motivation Project, which focuses on adolescent development in the United States and China. Participants were 203 mothers (mean age = 41.41 years) and their seventh grade children (mean age = 13.50 years; 105 boys) in the United States and 191 mothers (mean age = 39.15 years) and seventh grade children (mean age = 13.39 years; 88 boys) in China. The American sample was recruited from five middle schools in a small urban area in the Midwest. Because the area is home to a major state university, a proportion of the residents are highly educated, but an even larger proportion comes from working- and middle-class backgrounds. The middle schools achieved at the state average, with much variation in achievement within schools. American mothers and children were primarily (78%) European American, with 16% African American, 3% Asian, and less than 1% Hispanic. A majority of the American mothers had at least a college degree (75%); 24% had a high school diploma, with just a single mother not having a high school diploma. Such a distribution of educational attainment is higher than the average for the area from which mothers and children were recruited given that in this area at the time of the study 38% of adults over the age of 25 years had a bachelor's degree or higher, with 9% having not completed high school (US Census, 2010). The majority (79%) of American mothers who participated in the study worked outside the home at least part-time; 74% of mothers were married at the time of the study. On average, children had 1.90 siblings (range = 1 to 4).

The Chinese sample was recruited from local middle schools in a large northeast province of China. The area from which the participants were recruited was largely suburban,

and was in close proximity to a major state university. Participants were primarily from working- and middle-class backgrounds. Families were recruited from two middle schools that achieved at or above the state average. Although students' achievement within each of the schools was relatively homogenous due to region-wise selection and ability streaming, there was still variability in achievement within schools. Reflecting the ethnic composition of the area from which the sample was recruited, Chinese mothers and children were predominantly (99%) of *Han* descent. Approximately half of the Chinese mothers had at least a college degree (54%); 32% had a high school diploma, but 13% did not. Such a distribution of educational attainment is higher than the norm for the area from which mothers and children were recruited. At the time of the study, 9% of the population over 25 years in the area had a bachelor's degree or higher, and 14% had a high school diploma (National Bureau of Statistics of China, 2010). The majority (88%) of Chinese mothers who participated in the study worked outside the home at least part-time and almost all (99%) reported being married at the time of the study. On average, children had .20 siblings (range = 0 to 1), given the One-child Policy in China.

### Procedure

In both the United States and China, mothers and children were invited to visit the laboratory for two hours during the spring of seventh grade. Upon arrival at the laboratory, they were welcomed and provided with an introduction to the study. Mothers and children were then escorted into two separate rooms. At this time, both children and mothers reported on mothers' psychological control and autonomy support. Upon mothers' completion of the survey, a research assistant explained to mothers the academically challenging activity on which children would be working – that is, the Raven's Progressive Matrices (Raven, Court, & Raven, 1977). Mothers were shown two example matrices varying in difficulty. In each of the matrices (for an

example, see Appendix A), a grid of pictures is presented on the top portion. The pictures vary on one dimension from left to right and on another from top to bottom. One of the boxes of the grid in the series is blank. A series of several possible choices that complete the blank box is presented at the bottom. Mothers were told that children would be working on a few sets of the problems from the Raven's Progressive Matrices and that they would be able to see some of their work later.

The matrices were separately explained to children who were also given two example problems; children were asked to point to the answer that best completed the pattern on the examples. The research assistant provided additional explanations if children were confused. Children were then asked to work on a set of eight matrices (i.e., the pre-interaction test). To increase the evaluative pressure as well as to mirror situations in school, children were told that mothers would be able to see their work at the end. Mothers later joined children while they worked on a new set of challenging matrices so that mothers' control and autonomy support could be observed. The research assistant provided mothers with a randomly selected sample of five correct and incorrect items children completed during the pre-interaction test, as well as in other testing sessions subsequent to the pre-interaction test that are not included in the current report. The selected items were placed in two feedback folders (labeled correct and incorrect), set side-by-side on the table. The research assistant informed mothers that they were free to read through the feedback if they would like. The research assistant then presented a new problem set with twenty problems. Mothers were told that they could provide as little or as much help as they wanted. Mothers and children were allowed 15 minutes to complete the new set of problems. They were videotaped as they work on the problem solving activity.

Upon completion of the 15-minute problem solving activity, mothers were ushered into the room where they completed the initial survey on their parenting practices. Children were given a new set of eight problems (i.e., the post-interaction test) to work on. The items in the pre- and post-interaction tests were carefully selected so that they were of similar difficulty level. Pilot tests with a sample of children not included in the current report indicated that the items selected were of medium difficulty level, such that the average correct response rate was 75% for each set. Upon children's completion of the post-interaction test, mothers and children were thoroughly debriefed. Children were informed that they made substantial improvement on the tasks and that some problems were designed for adults. Every effort was made to ensure that children left the laboratory feeling confident and happy. In the United States, mothers were given \$100 and children were given \$25 as a token of appreciation for their participation. In China, mothers were given RMB \$300 and children were given RMB \$45. A summary of the procedure is presented in Appendix B.

### Measures

Measures in the study were carefully translated and back translated following recommended procedures (Brislin, 1981) to ensure that essential meanings were retained in the English and Chinese versions. A full list of items for each measure is presented in Appendix C. For the means and standard deviations of each measure, see Table 1.

#### **Children's and Mothers' Reports of Parenting**

**Mothers' general control and autonomy support.** Following Wang and colleagues (2007), mothers' controlling parenting was assessed with 10 items adapted from prior research assessing psychologically controlling parenting (Barber, 1996; Silk et al., 2003). Because mothers responded to items paralleling those used with children, minor modifications were made

to the items to reduce response bias. For example, relatively extreme wording such as acting cold and unfriendly (e.g., “My mother acts cold and unfriendly if I do something they do not like.”) was modified (e.g., “If I do something that my mom does not like, she acts less friendly to me.”) to lessen the possibility of social desirability, yet with essential meaning retained. Children indicated (1 = strongly disagree, 5 = strongly agree) the extent to which they agree with statements describing mothers’ psychological control (e.g., “For things in my life, my mother is usually in charge.” and “Even if I am not having trouble with things, my mother tells me how to do it.”). Mothers’ made parallel ratings (“For things in my child’s life, I am usually in charge.” and “Even if my child is not having trouble with things, I tell her how to do it.”). The mean of the 10 items was taken separately for each reporter, with higher numbers reflecting greater psychological control in general as reported by children ( $\alpha$ s = .90 in the United States and .86 in China) and mothers ( $\alpha$ s = .88 in the United States and .89 in China).

Following Wang and colleagues (2007), mothers’ autonomy supportive parenting was assessed with eight items from prior research (McPartland & Epstein, 1977; Robbins, 1994; Steinberg, Lamborn, Dornbusch, & Darling, 1992). Children reported on the extent to which mothers are autonomy supportive in general by indicating (1 = strongly disagree, 5 = strongly agree) the extent to which they agree with statements about mothers’ autonomy support (e.g., “My mother allows me to make choices whenever possible.” and “My mother is usually willing to consider my point of view.”). Mothers’ made parallel ratings (“I allow my daughter to make choices whenever possible.” and “I am usually willing to consider my daughters’ point of view.”). The mean of the 8 items was taken separately for each reporter, with higher numbers reflecting greater autonomy support in general as reported by children ( $\alpha$ s = .90 in the United States and .91 in China) and mothers ( $\alpha$ s = .86 in the United States and .88 in China).

**Mothers' academic control and autonomy support.** Modified versions of the general control and autonomy support measures were used to assess mothers' control and autonomy support in the academic context. Items were identical to the general measure, but placed in the academic context (e.g., "Even if I am not having trouble with my schoolwork, my mother tells me how to do it." and "For things related to school, I allow my daughter to make choices whenever possible."). The mean of the items for each type of parenting was taken separately for each reporter, with higher numbers reflecting greater use of the type of parenting in the academic context as reported by children ( $\alpha$ s = .87 - .89 in the United States and .82 - .88 in China) and mothers ( $\alpha$ s = .86-.88 in the United States and .88-.89 in China). In both countries, children and mothers' reports of controlling and autonomy-supportive parenting were highly associated in the general and academic context ( $r$ s = .69 - .73 in the United States and .86 - .88 in China).

### **Observers' Reports of Parenting**

Mothers' control and autonomy support during the 15-minute interaction with children was coded by six native coders in each country and two bi-cultural coders. Native coders were born and lived primarily in a single country (e.g., China); they were fluent in the native language of that country (e.g., Chinese). Bi-cultural coders spent substantial time living in both the United States and China; they were fluent in both English and Chinese. Bi-cultural coders were included to ensure that the coding system was used similarly between the American and Chinese native coders. In essence, the bi-cultural coders served to ensure that the same maternal behaviors were assigned the same code in the two countries. The interaction was coded every 30 seconds, resulting in 30 intervals of coded information per dyad. Coders, who were blind to the hypotheses, were trained by the author, who is familiar with both American and Chinese culture, until an acceptable level of agreement (80%) was reached. All native coders overlapped with

each of the other coders in their country on at least 10% of the videos, so that inter-rater reliability could be assessed among all the coders. The two bicultural coders each coded 20% of the videos from each country, with overlap with one another on 50% of the videos. Coders met weekly to discuss disagreements. Because instances of mothers' control and autonomy support were coded as present (1) or absent (0) at each 30-second interval, Cohen's kappa was used to assess inter-rater reliability. Kappas ranged from .74 to .92 among the American coders, .78 to .99 among the Chinese coders, and .71 to .97 among the bi-cultural coders with one another and with the native coders.

The coding system used in the current research was adapted from the one developed by Grolnick and colleagues (2002, 2007) for coding parents' control and autonomy support on an academic laboratory task. Because the system was originally developed to be used with American parents as well as for a task with younger children, minor changes were needed to ensure it was relevant to Chinese parents as well as adolescents in both countries. These changes also took into account that the current task was different from the tasks used in prior research (e.g., writing a poem). For example, mothers' taking over the task was added given that it was a practice quite commonly observed in China; mothers' writing children's answers at children's request was added to capture a task related practice. In addition, we did not differentiate between verbal and physical practices as such a distinction was not considered relevant in the current research. A summary of the behavioral codes, definition, and examples is presented in Appendix D.

Four behaviors considered indicative of mothers' control were coded as present or absent during each 30-second interval. First, mothers' *leading* behaviors were coded. This includes mothers directing (e.g., "I think the answer is 2." and "Okay, here's what you need to do.") and

questioning or making suggestions to children when they have not requested assistance (e.g., “Why do you think that’s 2?” and “Why don’t you look diagonally?”). Second, mothers’ *telling of answers* without being requested was coded. This includes mothers’ explicit telling, pointing, or writing answers for children when assistance was not requested by children (e.g., “No, that’s wrong, 2 is the answer.”). Third, mothers’ *taking over* was coded. This includes mothers taking over and working on the task for children (e.g., mother pulls the problems away from children and works on them on her own). Fourth, mothers’ *checking of answers* without being requested was coded. This includes mothers’ checking, correcting, and erasing answers without being asked to do so (e.g., turning the page back to see if children have the correct answer when children are ready to move on to the next problem). The sum of the four behaviors was taken for each 30-second interval with the mean then being taken across the 30-second intervals, such that higher numbers indicate greater controlling parenting.

Six behaviors considered indicative of mothers’ autonomy support were coded as present or absent during each 30-second interval. First, mothers’ *waiting* for children was coded. This includes mothers allowing children to take the lead in the problem solving activity. Mother is attentive, but is not physically or verbally involved (e.g., mother watches children as they solve the problem, but sits on her hands without saying anything). Second, mothers’ *treating children as expert* was coded (e.g., “How does this work?” and “Can you explain these to me?”). Third, in the context of allowing children to take initiative, mothers’ *provision of general feedback* was coded. This includes mothers’ giving positive feedback (e.g., “Good job!”), encouragement (“You can do it.”), and reflection – that is, repeating what the child says (“Hmmm, a diamond and a circle.”). Fourth, in the context of allowing children to be in charge, mothers’ *provision of information or questions at request* was coded. This includes mothers giving specific hints,

strategies, or questions, often in response to children's queries or requests (e.g., "Maybe you can look at the answers and see." and "Perhaps you can subtract the outside from the inside?"). Fifth, mothers' *checking of answers at request* was coded. This includes mothers' efforts to look over children's answers when children ask mothers to do so (e.g., "I don't think that's correct." and "Number 2 doesn't seem like the answer."). Sixth, mothers' *writing of answers at request* was coded. This includes mothers filling out the answer sheet for children when she is requested to do so. The sum of the six behaviors was taken for each 30-second interval with the mean then being taken across the 30 30-second intervals, such that higher numbers indicate greater autonomy-supportive parenting.

### **Children's Achievement**

**Raven's achievement.** Children's performance on the academic task in the lab was assessed using selected items from the Raven's Progressive Matrices (Raven et al., 1977). In both the pre- and post-interaction tests, children were given a set of eight items to work on. Children were allowed as much time as they would like to complete the test. As noted earlier, the pre- and post-interaction tests were of similar difficulty level as reflected in the similarity in children's performance on these tests in a pilot study. The number of items children correctly answered within 4 min. – which was the average time most children completed attempting all items – was used as an indicator of their achievement, with higher numbers reflecting heightened achievement. (Results using this indicator were practically identical to those using children's untimed performance.)

**School achievement.** Children's school grades in the four core subjects (language arts, math, social studies, and science in the United States; language arts, math, biology or physics, and English in China) were obtained from schools during seventh (pre-laboratory visit) and eighth (post-laboratory visit) grades. Grades in the American schools were in letters and were

converted to numbers (F = 0 to A+ = 12). In the Chinese schools, grades were numerical, ranging from 0 to 120. In both the United States and China, grades were standardized within country to take into account differences in grading systems. The average of the standardized scores across the four subjects was taken as an index of children's school achievement, with higher numbers indicating better achievement.

## CHAPTER 3

### Results

Three sets of analyses were conducted. The first was preliminary in that it was aimed at establishing measurement invariance across the United States and China of children and mothers' reports of parenting. The second set of analyses focused on differential rank-order correspondence of American and Chinese children's reports of controlling and autonomy-supportive parenting by correlating children's reports with observers and mothers' reports, with attention to similarity in the two countries. Third, analyses examined the extent to which children, mothers, and observers' ratings of mothers' control and autonomy support similarly predict children's achievement in the two countries.

#### **Measurement Invariance of Children and Mothers' Reports in the United States and China**

Two sets of two-group confirmatory factor analysis (CFA) were conducted to evaluate the invariance of the survey measures across countries. Metric invariance was evaluated because it is essential for making valid comparisons of the associations across groups of individuals (e.g., Chen, 2008; Little, 1997), which was required in the two central sets of analyses. The metric invariance of the measures was tested in the context of structural equation modeling (SEM) using AMOS 20.0 (Arbuckle, 2011). AMOS employs full information maximum likelihood estimation (FIML) in the presence of missing data, which provides less biased estimates than other approaches, such as list- and case-wise deletion to handling missing data (Arbuckle, 1996). In evaluating the model fit, three indices commonly viewed as informative were used (McDonald and Ho, 2002): The comparative fit index (CFI) and the Tucker-Lewis index (TLI), with values greater than .90 indicating a good fit; the root mean square error of approximation (RMSEA), with values less than .08 indicating a good fit.

In each set of two-group CFA analyses, an unconstrained model was compared to a constrained model (i.e., the metric invariant model). In each factor model (e.g., autonomy support), four parcels – comprised of randomly selected items from each of the scales – were used as indicators. When suggested by modification indices, and with conceptual justification, errors were correlated to enhance model fit (Keith, 2006; McDonald & Ho, 2002). In the unconstrained models, the parameters were freely estimated without any cross-group constraints. In the more parsimonious constrained models, which were identical to the unconstrained models otherwise, the factor loadings of the same indicators were forced to be equal across groups. Following recommendations by Chen (2007), a change in CFI of less than .01 and in RMSEA of less than .015 between the unconstrained and constrained models was taken as evidence of invariance. The models for children's (CFIs = .97 to .99; TLIs = .96 to .99, RMSEAs = .01 to .07) and mothers' reports (CFIs = .96 to .99; TLIs = .95 to .99, RMSEAs = .01 to .07) fit the data well. When the metric invariance models were compared to the baseline models, the change in model fit were smaller than .01, indicating that valid comparisons of the associations between the two countries can be made.

### **Correspondence among Children, Mothers, and Observers' Reports of Parenting**

The extent to which children's reports of controlling and autonomy-supportive parenting correspond with mothers and observers' reports was evaluated using simple correlation; Fishers' *r*-to-*z* transformation was employed to identify if the associations were different across the two countries, thereby reflecting differential rank-order correspondence. As shown in Table 2, consistent with prior research, children's reports of parenting were only modestly associated with observers' reports,  $r_s = .09 - .14$ , with only the associations for children's reports of control in the learning context and their reports of general autonomy support with observers' reports

reaching significance. Children's reports corresponded with mothers' reports for every type of parenting examined,  $r_s = .22 - .34$ . Fishers' r-to-z transformation revealed that the associations between each pair of informants were similar in the United States and China,  $z_s < 1.70$ , *ns*, such that evidence for differential rank-order correspondence in the two countries was non-existent. As revealed by dependent-correlation comparisons using Fisher's r-to-z transformations with the entire sample, correspondence between children and observers' reports of parents' control and autonomy support was consistently weaker than the correspondence between children and mothers' reports for every type of parenting examined,  $t_s > 2.19$ ,  $p_s < .05$ .

Similar to children's reports, mothers' reports were only modestly associated with observers' reports,  $r_s = .15 - .21$ , but the association was significant for every type of parenting; the associations also did not differ between the United States and China,  $z_s < 1$ . Dependent-correlation comparisons conducted on the entire sample indicated that the correspondence between mothers and observers' reports was largely similar to that between children and observers' reports,  $t_s < 1.50$ , *ns*; the one exception was for general control, which showed a weaker correspondence between children and observers' reports than mothers and observers' reports,  $t = 2.66$ ,  $p < .05$ . To rule out the possibility that the small correspondence that did exist between reporters was due to extraneous factors such as children's gender, sibling status, and mothers' educational attainment, partial correlation analyses controlling for these variables were conducted. The pattern of associations remained practically unchanged, with no moderating effects of country (see Table 2). In addition, children's sex, sibling status, and mothers' educational attainment did not moderate the correspondence among informants' reports of parenting.

Two additional sets of analyses were conducted to examine if the relatively weak rank-order correspondence was due to (1) unevenness of the properties of parents' behaviors being observed and coded and (2) unevenness in the relevance between questions being asked in the survey and parents' practices in the laboratory. First, because mothers' taking over the task may be seen as a more severe form of control, analyses were conducted with this observed practice singled out, while the rest of the practices were combined. The rank-order correspondence was practically identical to when all codes were considered as a single composite (see Appendix E). Similarly, the pattern remained the same when the composite of autonomy support was decomposed into specific aspects of autonomy support (i.e., passive support, active support, and waiting). Hence, it appears that collapsing coded behaviors that may represent distinct facets of mothers' control and autonomy support did not diminish the rank-order correspondence.

Second, three items in the child and maternal reports of control involving explicit guilt induction (e.g., mentioning mothers' sacrifices) are arguably less commonly observable in the laboratory during the mother-child interaction. Hence, inclusion of these items may have weakened the rank-order correspondence. These items were thus excluded to evaluate if the extent of rank-order correspondence was diminished by the inclusion of these items. Analyses conducted with the reduced set of items revealed a very similar pattern of associations to that yielded by the earlier analyses (see Appendix F), indicating that the rank-order correspondence for controlling parenting was not masked by the presence of items in the surveys that may be less commonly observable in the laboratory.

## Effects of Parenting on Children's Achievement

Regression analyses were conducted to examine if children, mothers, and observers' reports of control and autonomy support predict children's achievement (i.e., performance on the Raven's task and grades in school) similarly in the United States and China. To evaluate the effects of parenting on children's achievement on the Raven's task, children's post-interaction performance was regressed on children, mothers, and observers' reports of parenting with one regression model for each reporter and each type of parenting. Children's pre-interaction performance, as well as children's gender (contrast coded with girls = 1 and boys = -1), sibling status, and mothers' education, were included as covariates. Country (contrast coded with the United States = 1 and China = -1) was added along with its interaction with parenting. As shown in Table 3, mothers' control predicted children's dampened post-interaction performance, taking into account their pre-interaction performance,  $\beta_s = -.10$  -  $-.17$ ,  $p_s < .05$ , although the effect of mothers' reports of control was marginal,  $\beta = -.09$ ,  $p < .06$ . These effects were not moderated by country,  $\beta_s < .06$ , *ns*, indicating that the effects of mothers' control were similar in the United States and China even when children did not serve as reporters of such parenting. A similar pattern was evident for mothers' autonomy support (see Table 4): The more mothers were autonomy supportive, the better children's performance on the Raven's task, taking into account children's earlier performance,  $\beta_s = .09$  -  $.14$ ,  $p_s < .05$ ; however, the effects of mother-reported general autonomy support and observer-reported control were marginal,  $\beta_s = .09$  and  $.08$ ,  $p_s < .07$ . These effects were similar in the United States and China,  $\beta_s < .08$ , *ns*, except for mothers' reports of their general autonomy support,  $\beta = .12$ ,  $p < .05$ . Decomposition of the interaction revealed that the effect was evident in the United States,  $\beta = .17$ ,  $p < .01$ , but not China,  $\beta = -.03$ , *ns*.

To examine whether the different the effects of the different reporters reflected overlapping or distinct effects, follow-up analyses were conducted. These analyses included children, mothers, and observers' reports as simultaneous predictors; the interaction of each with country was also examined simultaneously. For mothers' general and academic control, children's and observers' reports predicted unique variance in children's post-interaction performance, taking into account children's pre-interaction performance,  $\beta_s = -.13$  and  $-.15$ ,  $ps < .05$ . Mothers' reports did not uniquely predict children's Raven's performance beyond children's and observers' reports,  $\beta_s = -.06$ ,  $ns$ . As in the earlier analyses, these effects were not moderated by country,  $\beta_s < .01$ ,  $ns$ . For mothers' autonomy support, mothers and observers' reports predicted unique variance in children's achievement on the Raven's,  $\beta_s = .12$  and  $.11$ ,  $ps < .05$ , but children's reports did not,  $\beta_s < .07$ ,  $ns$ . There were no moderating effects of country,  $\beta_s < -.03$ ,  $ns$ .

To evaluate whether the effects of parenting on children's school achievement are similar in the two countries across reporters, children's school grades in eighth grade were regressed on parenting, with one regression model for each reporter and for each type of parenting. As shown in Table 5, children's reports of mothers' control predicted their dampened school achievement a year later in eighth grade, taking into account children's achievement in seventh grade,  $\beta_s = -.09$  and  $-.13$ ,  $ps < .05$ . These effects were not moderated by country,  $\beta_s = .08$  and  $.05$ ,  $ns$ . The effects of control as reported by mothers on children's school achievement depended on country,  $\beta_s = .09$  and  $.10$ ,  $ps < .05$ . Decomposition of the interactions revealed that mothers' reports of control predicted dampened grades over time in the United States,  $\beta_s = -.10$  and  $-.13$ ,  $ps < .05$ , but not China,  $\beta_s = .00$  and  $.02$ ,  $ns$ . Observers' reports of mothers' control were not predictive of children's grades,  $\beta = .04$ ,  $ns$ ; this was not moderated by country,  $\beta = .08$ ,  $ns$ . Mothers'

autonomy support was generally not predictive of children's school achievement over time, regardless of reporter,  $\beta$ s < .02, *ns*, with such effects not moderated by country,  $\beta$ s < .05, *ns* (see Table 6).

## CHAPTER 4

### Discussion

There has been much debate over whether the undermining effects of parents' control evident in the West are also evident in East Asia where less emphasis is placed on independence (e.g., Chao, 1994; Iyengar & Lepper, 1991; Soenens et al., 2012; Wang et al., 2007). Recent research indicates that parents' control is similarly detrimental for children in the two regions (for a review, see Pomerantz & Wang, 2009). However, parents' control has been assessed almost exclusively with children's reports. Such reports may lead to inaccurate conclusions if they do not reflect parents' practices to the same extent in the two countries. The current research indicates that children's reports correspond to mothers and observers' reports similarly in the United States and China. Moreover, as has been the case in research using children's reports, differences in the effects of American and Chinese mothers' control and autonomy support were rare. As a whole, the findings are in line with the *universal view* of parents' control (e.g., Deci & Ryan, 1985, 2000; Grolnick et al., 1997), such that heightened control and dampened autonomy support among parents undermines children's adjustment regardless of the cultural context in which they reside.

### **Correspondence among Children, Mothers, and Observers' Reports of Parenting**

Similar to prior research conducted in the United States (e.g., Gonzales et al., 1996; Sessa et al., 2001), the correspondence among children, mothers, and observers' reports of mothers' control and autonomy support was quite modest. Half the time the associations between children and observers' reports did not reach significance; when they did, the associations were small in size. There are several possibilities for such modest correspondence. For one, observers' reports were based on a thin slice of mothers' practices: There was not only a limited time frame (i.e., 15 minutes), but also a specific type of task that was novel – despite being designed to mirror

academic activities in which children and parents engage. Such novelty along with the laboratory setting in which distractions, such as those posed by the various household tasks mothers need to get done, were not present may have led to parenting practices not fully representative of those used by mothers on a daily basis. However, it is also possible that the bias may lie in children's reports. For example, because children who are depressed often feel that they do not have control over their lives (e.g., Hilsman & Garber, 1995; Weisz, Sweeney, Proffitt, & Carr, 1993; Weisz, Weiss, Wasserman, Rintoul, 1987), they may be more sensitive to controlling parenting, thereby overestimating its occurrence. It is also likely that children's reports may reflect the large context of their interactions with parents, such that such forces as the quality of their relationships with parents influences their reports.

Children's reports of mothers' control and autonomy support were more strongly associated with mothers' reports than with observers' reports in the current study. Because children and mothers filled out practically identical surveys, it is possible that the stronger associations are due in part to the similar mode of assessment. There may also be shared biases (e.g., depression) between children and mothers that inflate the association. However, the stronger associations may also reflect that both children and mothers are reporting on mothers' control and autonomy support in the context of daily interactions, which differs from what mothers do during the laboratory visit. However, importantly, the rather substantial variance that was not shared between children and their mothers' reports of parenting suggests that children and mothers bring distinct perspectives about parents' practices into their reports. Although larger than the associations between children and observers' reports, the associations between children and mothers' reports were not particularly large – similar to prior research conducted in the United States (e.g., Bogenschneider & Pallock, 2008; Dodge et al., 2001; Hare et al., 2011;

Pomerantz, 2001). This may reflect distinct perspectives and concerns on the part of children and mothers. For example, mothers may be more concerned with presenting their parenting in a socially desirable fashion, which may not be of concern to children.

Although the distinct cultural orientations in the West and East Asia may result in differential emphasis on individuality and choice (e.g., Markus & Kitayama, 1991; Savini et al., 2010), the associations between children and observers' reports of mothers' control and autonomy support in the current research were similar in the United States and China; the associations between children and mothers' reports were also similar in the two countries. Hence, there was no evidence for differential rank-order correspondence in American and Chinese children's reports of parents' control and autonomy support. The differential emphasis on individuality and choice in the United States appears to be largely irrelevant to the rank-order correspondence of children's reports of parents' control. This may be due in part to the fact that the items on the measures of parents' control and autonomy support represent concrete practices (e.g., "When I have an argument with my mom, she says things like, 'You'll know better when you grow up.'" and "My mom lets me make my own plans for things I want to do."). Indeed, the concrete nature of the practices may minimize differential reporting, such that American and Chinese children may be equally able to identifying instances when parents are controlling and autonomy supportive.

### **The Role of Parents' Control and Autonomy Support in Children's Achievement**

Not only was there no evidence for differential rank-order correspondence in children's reports of mothers' control and autonomy support in the United States and China, the effects of such parenting on children's achievement were generally quite similar in the two countries whether children, mothers, or observers provided the reports. The only exception was that

mothers' reports sometimes had stronger effects in the United States than China; however, care should be taken in drawing conclusions from such effects because out of eight possible effects of mothers' reports, only three demonstrated this trend. Moreover, out of the 16 other possible effects across children and observers' reports no such difference emerged. Hence, the conclusions that the effects of parents' control are similar in the United States and China made based on research using children's reports (e.g., Barber et al., 2005; Hasebe et al., 2004; Nelson et al., 2006; Olsen et al., 2002; Qin et al., 2009; Soenens et al., 2012; Wang et al., 2007) are likely not an artifact of issues with using children's reports. Indeed, in line with the universal view of parents' control (e.g., Deci & Ryan, 1985; 2000; Grolnick et al., 1997; Vansteenkiste et al., 2005), heightened controlling practices appear to detract from children's feelings of autonomy, thereby dampening children's achievement, regardless of the cultural context (i.e., United States vs. China) in which children reside.

When predicting children's achievement on the Raven's task children completed after working with mothers in the interaction, children, mothers, and observers' reports' of mothers' control and autonomy support similarly predicted children's performance over and above their performance prior to working with mothers. Hence, each reporter appears to be picking up on meaningful aspects of parents' practices. When the effects of all three reporters were examined simultaneously, observers' reports most consistently accounted for unique variance in children's achievement. For children's grades it appeared that across the two countries, children's reports of mothers' control were the most important. It may be that aspects of mothers' control and autonomy support that children do not pick up on – as reflected in observers' reports – matter in the short term for skill and motivational development. However, in the long term, it is what children are aware of that matters. The pattern of findings suggests that children, mothers, and

observers' reports may all be useful in research concerned with parents' control and autonomy support. Moreover, compared to mothers' and observers' reports, children's reports of parents' practices do not appear to be mediocre in explaining children's academic adjustment.

### **Broader Implications**

It is perhaps noteworthy that the modest correspondence among different informants is not unique to reports of parents' control autonomy support but also in other areas pertinent to children's development. For example, for children's psychological adjustment, agreement between different informants (e.g., children and teachers, children and observers, but excluding pairs of parents) as reported in a meta-analysis of 119 studies on children's emotional problems, such as depression, is modest to moderate ( $r_s = .22 - .29$ ; Achenbach, McConaughy, & Howell, 1987). However, as with the case of parents' control and autonomy support in the current research, there is evidence that different informants' reports of children's depression appear to be valid and each uniquely contributes to explaining children's internalizing problems (e.g., Hope, Adams, Reynolds, Powers, Perez, & Kelley, 1999; Jensen et al., 1999; for a review, see Rudolph & Lambert, 2007). Although it is often considered a laudable endeavor to amass information about a subject from multiple informants (e.g., Gonzales et al., 1996; for a counter argument, see Jensen et al., 1999), the low correspondence among informants identified across core constructs in studies of children's development warrants efforts to developing strategies to fully, yet effectively, utilize such information, both at the conceptual and analytic levels (see Cook & Goldstein, 1993; Guion et al., 2009; Tein, Roosa, & Michaels, 1994).

## **Limitations and Future Directions**

There are several limitations in the current research, which point to potential avenues for future inquiry. First, the American and Chinese sample in the current study does not fully reflect the demographic variability of the two countries. The American sample was comprised primarily of European Americans (78%), with 16% being African Americans. There is evidence that that African American parents tend to be more controlling than their European American counterparts (e.g., Dornbusch, Ritter, Liederman, Roberts, & Fraleigh, 1987; Lansford, Deater-Deckard, Dodge, Bates, & Pettit, 2004; Ng, Pomerantz, & Deng, in press). Due to the relatively small sample size of African Americans, the current research could not distinguish between the European and African Americans to evaluate differences between the two. To ensure that the current findings were not driven by the inclusion of African Americans, analyses were conducted without the African Americans, with identical pattern of results evident across the analyses. Beyond ethnic composition, both American and Chinese mothers in the current sample had higher educational attainment than the national average. Given that lower parental education is often associated with stressful living conditions which may lead to the use of heightened controlling practices among parents (e.g., Dix, 1991; Tamis-LaMonda, Briggs, McClowry, & Snow, 2009), the current results may be limited to populations within the higher stratum of maternal education level who tend to use less control.

Second, the current research focused on children's academic adjustment and objectively measured children's achievement, namely, children's performance on a logical reasoning task (i.e., Raven's Progressive Matrices) and grades in school. The two dimensions of children's adjustment were chosen because their assessment did not involve children, mothers, or observers' reports, as child adjustment measures that overlapped with one reporter, but not others, could

have led to an inflated effect for the overlapping reporter (i.e., shared-method bias). However, it is unclear if parents' control and autonomy support predict other dimensions of children's adjustment (e.g., emotional and social adjustment) similarly in the United States and China across reporters.

Third, observations of parents' control and autonomy support were conducted in the laboratory to ensure a standardized environment for eliciting parents' control and autonomy support. However, the laboratory setting may not reflect daily life for many families (see above). For example, parents who are rarely involved in children's homework may feel compelled to become involved in children's work in the laboratory because of the lack of alternative activities. Future research employing more ecologically valid methods, such as the daily-interview methodology (e.g., Pomerantz, 2001; Pomerantz, Wang, & Ng, 2005) and naturalistic observations in the home (e.g., Miller, Wiley, Fung, & Leung, 1997), may provide a window into the naturally-occurring interactions between children and parents in more naturalistic settings, such as the home environment.

## **Conclusions**

Despite these limitations, the findings of the current research make inroads into understanding the effects of parents' control in the United States and China. First, it indicates that American and Chinese children's reports of controlling and autonomy-supportive parenting similarly correspond to observers', as well as mothers', reports of such parenting. Hence, it does not appear that American and Chinese children are differentially accurate in reporting on their parents' use of control and autonomy support. Second, regardless of whether children, mothers, or observers report on control and autonomy-supportive parenting, such parenting predicts children's achievement similarly in United States and China. Taken together, these findings

support the idea that heightened control and dampened autonomy support among parents can undermine children's adjustment even in China where independence is not emphasized to the same extent as in the United States.

**TABLES**

Table 1

*Means of Child, Mother, and Observer's Reports of Parents' Control and Autonomy Support in the United States and China*

	US		China	
	Mean	SD	Mean	SD
Control				
General				
Child	2.48	0.92	2.47	0.77
Mother	2.04	0.64	2.51	0.71
Learning				
Child	2.55	0.88	2.52	0.73
Mother	2.08	0.68	2.43	0.72
Observer	0.32	0.29	0.45	0.30
Autonomy Support				
General				
Child	4.02	0.72	3.77	0.77
Mother	4.18	0.53	3.90	0.57
Learning				
Child	3.99	0.74	3.82	0.74
Mother	4.10	0.63	3.85	0.56
Observer	0.70	0.33	0.41	0.27

Table 2

*Associations Among Child, Mother, and Observer Reports of Parenting in the United States and China*

	Full Sample		US		China	
	Zero-order	Partial	Zero-order	Partial	Zero-order	Partial
Control						
General						
Child-Observer	.09	.10 <sup>^</sup>	.03	.04	.18*	.21**
Child-Mother	.31***	.32***	.38***	.38***	.27***	.26***
Mother-Observer	.21***	.15**	.20**	.17*	.11	.10
Academic						
Child-Observer	.11*	.12*	.04	.04	.20**	.21**
Child-Mother	.34***	.35***	.42***	.42***	.28***	.27***
Mother-Observer	.18***	.13***	.17*	.17*	.10	.10
Autonomy Support						
General						
Child-Observer	.14**	.07	.09	.10	.06	.05
Child-Mother	.31***	.28***	.30***	.32***	.27***	.27***
Mother-Observer	.15**	.05	.08	.08	.01	.01
Academic						
Child-Observer	.08	.03	.05	.05	.02	.02
Child-Mother	.22***	.18***	.17*	.15*	.23**	.22**
Mother-Observer	.17***	.09	.11	.11	.06	.05

*Note.* Fishers' r-to-z transformation revealed no difference between the United States and China in the associations for all reporter pairs. The partial correlations for each country included mothers' education, sibling status, and child sex as covariates. For the partial correlations for the full sample, country mothers' education, sibling status, and child sex were included as covariates.

<sup>^</sup>  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 3

*Predicting Children's Post-Interaction Achievement from Child, Mother, and Observer Reports of Parents' Control in the United States and China*

	General				Academic					
	Child		Mother		Child		Mother		Observer	
	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)
Step 1:										
Pre-interaction achievement	.39***	.38 (.05)	.39***	.38 (.05)	.39***	.38 (.05)	.39***	.38 (.05)	.39***	.38 (.05)
Children's sex	.05	.08 (.07)	.05	.08 (.07)	.05	.08 (.07)	.05	.08 (.07)	.05	.08 (.07)
Sibling status	-.03	-.04 (.08)	-.03	-.04 (.08)	-.03	-.04 (.08)	-.03	-.04 (.08)	-.03	-.04 (.08)
Mothers' education	.02	.01 (.00)	.02	.01 (.00)	.02	.01 (.00)	.02	.01 (.00)	.02	.01 (.00)
Country	-.26**	-.37 (.09)	-.26**	-.37 (.09)	-.26**	-.37 (.09)	-.26**	-.37 (.09)	-.26**	-.37 (.09)
Step 2:										
Parents' control	-.12**	-.20 (.07)	-.09 <sup>^</sup>	-.17 (.10)	-.13**	-.23 (.08)	-.10*	-.19 (.09)	-.15**	-.57 (.18)
Step 3:										
Parents' control x Country	.06	.09 (.08)	-.04	-.08 (.09)	.03	.04 (.08)	-.03	-.06 (.09)	-.04	-.15 (.18)

*Note.* Children's sex (1=girls, -1=boys) and country (1= United States, -1=China) were contrast coded.

<sup>^</sup>  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 4

*Predicting Children's Post-Interaction Performance from Child, Mother, and Observer Reports of Parents' Autonomy Support in the United States and China*

	General				Academic					
	Child		Mother		Child		Mother		Observer	
	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)
Step 1:										
Pre-interaction achievement	.39***	.38 (.05)	.39***	.38 (.05)	.39***	.38 (.05)	.39***	.38 (.05)	.39***	.38 (.05)
Children's sex	.05	.08 (.07)	.05	.08 (.07)	.05	.08 (.07)	.05	.08 (.07)	.05	.08 (.07)
Sibling status	-.03	-.04 (.08)	-.03	-.04 (.08)	-.03	-.04 (.08)	-.03	-.04 (.08)	-.03	-.04 (.08)
Mothers' education	.02	.01 (.00)	.02	.01 (.00)	.02	.01 (.00)	.02	.01 (.00)	.02	.01 (.00)
Country	-.26**	-.37 (.09)	-.26**	-.37 (.09)	-.26**	-.37 (.09)	-.26**	-.37 (.09)	-.26**	-.37 (.09)
Step 2:										
Parents' autonomy support	.11*	.20 (.09)	.09^	.22 (.12)	.09*	.18 (.09)	.14**	.34 (.11)	.08^	.43 (.27)
Step 3:										
Parents' autonomy support	.08	.15 (.09)	.12*	.30 (.12)	.07	.13 (.09)	.06	.15 (.11)	.02	.10 (.27)
x Country										

*Note.* Children's sex (1=girls, -1=boys) and country (1= United States, -1=China) were contrast coded.

^  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 5

*Predicting Children's Eighth Grade School Achievement from Child, Mother, and Observer Reports of Parents' Control in the United States and China*

	General				Academic					
	Child		Mother		Child		Mother		Observer	
	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)
Step 1:										
Pre-interaction achievement	.68***	.68 (.04)	.68***	.68 (.04)	.68***	.68 (.04)	.68***	.68 (.04)	.68***	.68 (.04)
Children's sex	.10**	.11 (.04)	.10**	.11 (.04)	.10**	.11 (.04)	.10**	.11 (.04)	.10**	.11 (.04)
Sibling status	.03	.03 (.05)	.03	.03 (.05)	.03	.03 (.05)	.03	.03 (.05)	.03	.03 (.05)
Mothers' education	.04	.01 (.00)	.04	.01 (.00)	.04	.01 (.00)	.04	.01 (.00)	.04	.01 (.00)
Country	.02	.02 (.05)	.02	.02 (.05)	.02	.02 (.05)	.02	.02 (.05)	.02	.02 (.05)
Step 2:										
Parents' control	-.09*	-.10 (.05)	-.02	-.03 (.06)	-.13**	-.17 (.05)	-.05	-.07 (.06)	.04	.10 (.10)
Step 3:										
Parents' control x Country	-.03	-.04 (.04)	-.09*	-.14 (.06)	-.04	-.05 (.05)	-.10*	-.15 (.05)	-.03	-.07 (.10)

*Note.* Children's sex (1=girls, -1=boys) and country (1= United States, -1=China) were contrast coded.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 6

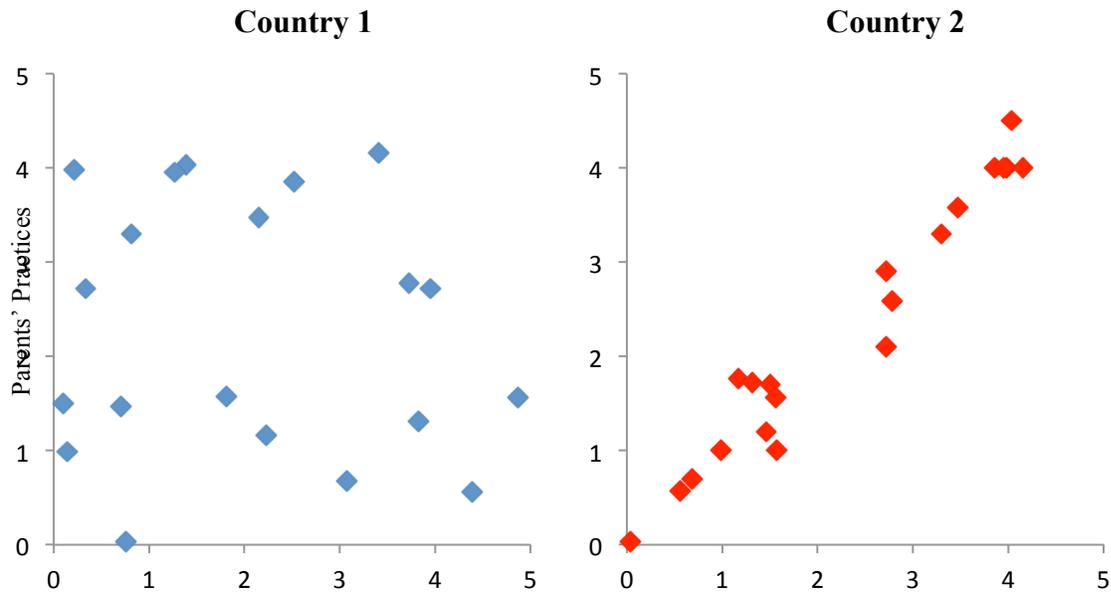
*Predicting Children's Eighth Grade School Achievement from Child, Mother, and Observer Reports of Parents' Autonomy Support in the United States and China*

	General				Academic					
	Child		Mother		Child		Mother		Observer	
	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)	$\beta$	B (SE)
Step 1:										
Pre-interaction achievement	.68***	.68 (.04)	.68***	.68 (.04)	.68***	.68 (.04)	.68***	.68 (.04)	.68***	.68 (.04)
Children's sex	.10**	.11 (.04)	.10**	.11 (.04)	.10**	.11 (.04)	.10**	.11 (.04)	.10**	.11 (.04)
Sibling status	.03	.03 (.05)	.03	.03 (.05)	.03	.03 (.05)	.03	.03 (.05)	.03	.03 (.05)
Mothers' education	.04	.01 (.00)	.04	.01 (.00)	.04	.01 (.00)	.04	.01 (.00)	.04	.01 (.00)
Country	.02	.02 (.05)	.02	.02 (.05)	.02	.02 (.05)	.02	.02 (.05)	.02	.02 (.05)
Step 2:										
Parents' autonomy support	-.02	-.02 (.05)	.00	.00 (.07)	.02	.03 (.05)	.01	.02 (.07)	-.06	-.22 (.15)
Step 3:										
Parents' autonomy support	.07	.09 (.05)	.05	.09 (.07)	.08	.11 (.05)	.02	.03 (.06)	.08	.33 (.16)
x Country										

*Note.* Children's sex (1=girls, -1=boys) and country (1= United States, -1=China) were contrast coded.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

## FIGURES



*Figure 1.* Schematic illustration of differential correspondence of children's reports of parenting (e.g., control) across countries. In this hypothetical scenario, the rank-order correspondence between children's reports and parents' practices is higher in Country 2 than Country 1.

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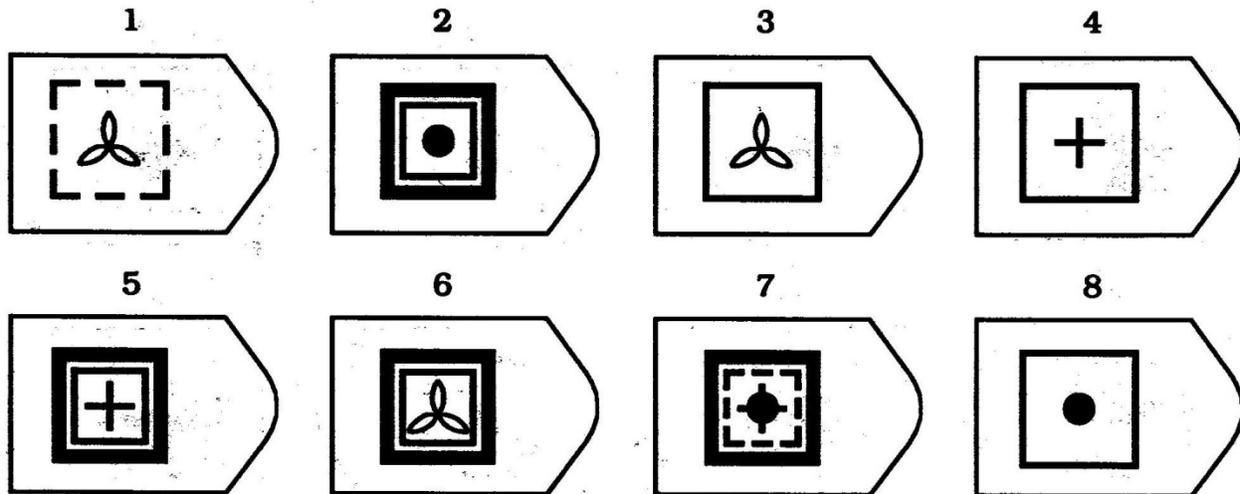
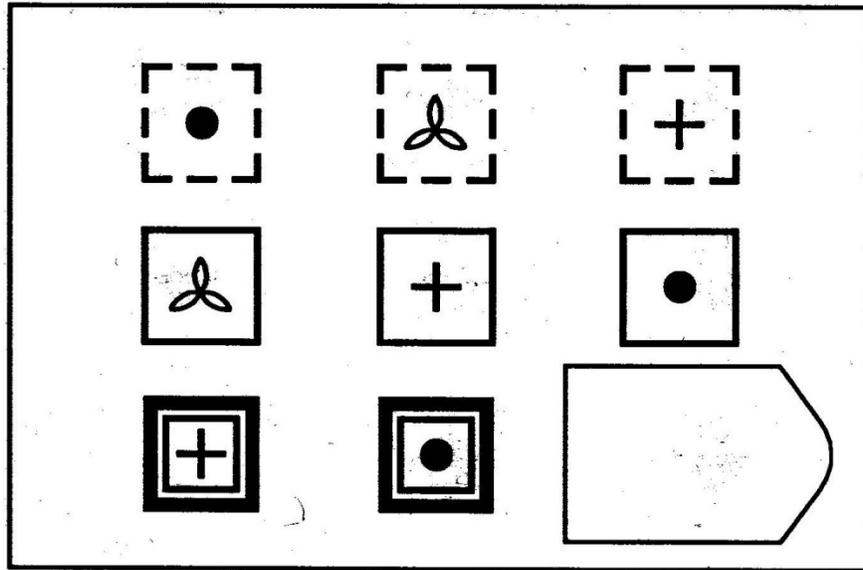
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APPENDIX A

Example of Raven's Task



## APPENDIX B

### Lab Procedures Overview

Overview	Procedure
1. Welcome and introduction	<ul style="list-style-type: none"><li>• Mother and child are greeted upon arrival at the laboratory.</li><li>• Researcher provides brief overview of the laboratory tasks.</li></ul>
2. Survey session	<ul style="list-style-type: none"><li>• Researcher leads mother and child into two separate rooms.</li><li>• Mother and child complete a battery of questionnaires in two separate rooms in private.</li></ul>
3. Pre-test	<ul style="list-style-type: none"><li>• Researcher introduces the Raven's Progressive Matrices to child.</li><li>• Child completes a pre-test in the testing room.</li><li>• Researcher provides mother with information about the Raven's Progressive Matrices.</li></ul>
4. Mother-child interaction	<ul style="list-style-type: none"><li>• Mother waits in the survey room during child's pre-test.</li><li>• Mother joins child in the testing room.</li><li>• A feedback folder containing selected samples of child's correct and incorrect answers on the pre-test is provided to mother and child.</li><li>• Mother and child are told that they are free to read the feedback folder.</li><li>• Researchers provides a new set of Raven's Progressive Matrices for the child to work on.</li><li>• Mother is invited to help as little or as much as she wants.</li></ul>
5. Post-test	<ul style="list-style-type: none"><li>• Researcher escorts mother back into the survey room.</li><li>• Child completes a post-test of the Raven's Progressive Matrices in the testing room.</li></ul>
6. Debriefing	<ul style="list-style-type: none"><li>• Mother and child are thoroughly debriefed.</li><li>• Child is praised for performance on the tasks.</li><li>• A token of appreciation is given to mother and child.</li></ul>

## APPENDIX C

### Measures

#### Mothers' General Control

##### *Child Survey*

1. My mom lets me know that what she wants me to do is the best for me and I should not question it.
2. My mom tells me of all the sacrifices she has made for me.
3. My mom says that when I grow up, I will appreciate all the decisions she has made for me.
4. When I have an argument with my mom, she says things like, "You'll know better when you grow up."
5. My mom lets me know that she is disappointed in me when I do not do things her way.
6. My mom lets me know that I should feel guilty when I do not meet her expectations for me.
7. If I do something that my mom does not like, she acts less friendly to me.
8. My mom insists I do things her way.
9. For things in my life, my mom is usually in charge.
10. Even if I'm not having trouble with things, my mom tells me how to do them.

##### *Mother Survey*

1. I let my daughter know that what I want her to do is the best for her and she should not question it.
2. I tell my daughter of all the sacrifices I have made for her.
3. I tell my daughter that when she grows up, she will appreciate all the decisions I have made for her.
4. When I have an argument with my daughter, I say things like, "You'll know better when you grow up."
5. I let my daughter know that I am disappointed in her when she does not do things my way.
6. I let my daughter know that she should feel guilty when she does not meet my expectations for her.
7. If my daughter does something that I do not like, I act less friendly to her so she knows I am disappointed in her.
8. I insist that my daughter does things my way.
9. For things in my daughter's life, I'm usually in charge.
10. Even if my daughter is not having trouble with things, I tell her how to do them.

## Appendix C continued

### Mothers' Control Children's Learning

#### *Child Survey*

1. When it comes to schoolwork, my mom lets me know that what she wants me to do is the best for me and I shouldn't question it.
2. If I'm not studying as much as she thinks I should, my mom tells me of all the sacrifices she has made for me.
3. My mom says that when I grow up, I will appreciate the standards she has for me in school.
4. When I have an argument with my mom over my schoolwork, she says things like, "You'll know better when you grow up."
5. My mom lets me know that she is disappointed in me when I do not do as well as she wants me to in school.
6. My mom lets me know that I should feel guilty when I do not meet her expectations for me in school.
7. If I do something in school that my mom does not like, she acts less friendly to me.
8. My mom insists I do things her way when it comes to my schoolwork.
9. For things related to school, my mom is usually in charge.
10. Even if I'm not having trouble with my homework, my mom tells me how to do it.

#### *Mother Survey*

1. When it comes to schoolwork, I let my daughter know that what I want her to do is the best for her and she shouldn't question it.
2. If my daughter is not studying as much as I think she should, I tell her of all the sacrifices I have made for her.
3. I tell my daughter that when she grows up, she will appreciate the standards I have for her in school.
4. When I have an argument with my daughter over her schoolwork, I say things like, "You'll know better when you grow up."
5. I let my daughter know that I am disappointed in her when she does not do as well as she should in school.
6. I let my daughter know that she should feel guilty when she does not meet my expectations for her in school.
7. If my daughter does something in school that I do not like, I act less friendly to her to let her know I am disappointed in her.
8. I insist my daughter do things my way when it comes to her schoolwork.
9. For things related to school, I'm usually in charge.
10. Even if my daughter is not having trouble with her homework, I tell her how to do it.

## Appendix C continued

### Mothers' General Autonomy Support

#### *Child Survey*

1. My mom allows me to make choices for myself whenever possible.
2. My mom listens to my opinion or perspective when I've got a problem.
3. My mom allows me to decide things for myself.
4. My mom is usually willing to consider my point of view.
5. When my mom wants me to do something, she explains why.
6. My mom lets me make my own plans for things I want to do.
7. My mom encourages me to give my ideas and opinions when it comes to decisions about me.
8. My mom trusts me to do what she expects without checking up on me.

#### *Mother Survey*

1. I allow my daughter to make choices for herself whenever possible.
2. I listen to my daughter's opinion or perspective when she has a problem.
3. I allow my daughter to decide things for herself.
4. I am usually willing to consider my daughter's point of view.
5. When I want my daughter to do something, I explain why.
6. I let my daughter make her own plans for things she wants to do.
7. I encourage my daughter to give her ideas and opinions when it comes to decisions about her.
8. I trust my daughter to do what I expect without checking up on her.

## Appendix C continued

### Mothers' Autonomy Support in Children's Learning

#### *Child Survey*

1. My mom allows me to make choices about my studying whenever possible.
2. When my mom and I talk about my schoolwork, she takes my opinion or perspective into account.
3. My mom allows me to decide things about my studying for myself.
4. For things related to school, my mom is usually willing to consider my point of view.
5. When my mom wants me to do something related to school, she explains why.
6. My mom lets me make my own plans for what I want to do about my schoolwork.
7. My mom encourages me to give my ideas and opinions when it comes to decisions about my schoolwork.
8. When it comes to my schoolwork, my mom trusts me to do what she expects without checking up on me.

#### *Mother Survey*

1. I allow my daughter to make choices about her studying whenever possible.
2. When my daughter and I talk about her schoolwork, I take her opinion or perspective into account.
3. I allow my daughter to decide things about her studying for herself.
4. For things related to school, I am usually willing to consider my daughter's point of view.
5. When I want my daughter to do something related to school, I explain to her why.
6. I let my daughter make her own plans for what she wants to do about her schoolwork.
7. I encourage my daughter to give her ideas and opinions when it comes to decisions about her schoolwork.
8. When it comes to my daughter's schoolwork, I trust her to do what I expect without checking up on her.

## APPENDIX D

### Parent-Child Interaction Coding Scheme

#### Autonomy Support

Code	Definition	Example
W	<p><b>Waits to be needed</b>            Focused on task, but is not physically or verbally involved; waits for the child  <i>(If nodding in support, code the behavior as F instead)</i></p>	<p>Mother pays attention to the task but is not talking with the child.            Mother watches as child works on the problems.</p>
E	<p><b>Treats child as expert</b>            Treats the child as expert in the task</p>	<p>M: Can you explain this to me?            M: Can you tell me what this is about?            M: Do you understand this? I have no clue.            M: How does this work?</p>
F	<p><b>Provides general feedback</b>            In the context of allowing the child to take initiative (for example, she responds to the child's <i>explicit</i> request: "how does this one work?", "is this right?", "can you help me?" or <i>implicit</i> request: when child is one the same problem for a long time, becomes frustrated, starts staring into the space, looking at mother – must be something that coder can observe, not something the coder assumes the mother can see), provides general positive feedback or reflection (that is, repeating what the child says) or encouragement</p>	<p>M: "You've got it!"            M: "Ahh, you see the pattern now."            Nods yes while watching to indicate that the child is making good progress or has got the answer right</p>
Q	<p><b>Provides information or asks question</b>            In the context of allowing the child to take initiative (see above), provides specific information, hints, strategies, or helpful questions; this is often, but not always, in response to the child's queries or requests</p>	<p>C: This is not making sense            M: Maybe you can look at the answer and see</p>
C	<p><b>Checks answer at request</b>            Checks answer at the request of the child</p>	<p>C: Is this correct?            M: I think so OR            M: That's close, but not the answer OR            M: No, I don't think so</p>

Appendix D continued

W	<p><b>Writes answers at request</b>          Fills in the answer sheet for the child at the request of the child  <i>(If the child asks the mother to write the answer at the start, then the mother's continuation of the writing of the answers should be coded in this category even if in the particular segment, the child does not ask. If at any point, the child indicates she does not want her mother to write the answer, mother's continuation should be coded as T instead)</i></p>	<p>C: I will work on this and you fill in the answer.          Mother fills out the answer upon child solving the problem and telling the answer.</p>
Control		
Code	Definition	Example
L	<p><b>Leads the child</b>          Leads the child, or asks leading questions when not requested to do so. This can happen in the context of teaching, that is, when the mother tries to teach children about the problems – however, such assistance is not requested by the child</p>	<p>M: “Okay, look, here’s what you need to do” (when the child does not request help) (After the child puts 2 as the answer and is ready to move on) M: “Why do you think the answer is 2?”          In telling the child how to do the problems, erases answer and puts a new one</p>
A	<p><b>Tells answer</b>          Tells, points at, or writes the answer without being requested</p>	<p>M: “No, no, no. It’s this one. Look it’s this one”          M: “2.”</p>
T	<p><b>Takes over</b>          Takes the task over or completes the task for the child when not requested to do so</p>	<p>Pulls binder to her side and begins writing the answer (when child is not involved)</p>
C	<p><b>Checks answers when not requested</b>          Checks, looks at and correct, or erases answer without being requested</p>	<p>Flips page back to see if the child got the right answer</p>

## APPENDIX E

### Association between Informants and Specific Types of Observers Codes

	Full Sample		US		China	
	Zero-order	Partial	Zero-order	Partial	Zero-order	Partial
<b>Control – General</b>						
Child-Observer (T)	.05	.03	.12 <sup>^</sup>	.09	.01	.00
Child-Observer (O)	.08	.07	.01	-.05	.19*	.20*
Mother-Observer (T)	.14**	.12*	.16*	.14 <sup>^</sup>	.10	.10
Mother-Observer (O)	.19**	.15*	.19*	.17*	.09	.10
<b>Control – Learning</b>						
Child-Observer (T)	.08	.03	.14*	.09	.05	.00
Child-Observer (O)	.10*	.07	.03	-.05	.20***	.20***
Mother-Observer (T)	.10 <sup>^</sup>	.12*	.17*	.14 <sup>^</sup>	.04	.10
Mother-Observer (O)	.17*	.15*	.16*	.17*	.09	.10
<b>Autonomy Support – General</b>						
Child-Observer (P)	.09	.08	.01	.02	.12	.10
Child-Observer (A)	.14**	.11**	.14 <sup>^</sup>	.15*	.04	.03
Child-Observer (W)	-.06	-.04	-.03	-.08	-.09	-.08
Mother-Observer (P)	-.01	-.04	-.07	-.07	-.05	-.06
Mother-Observer (A)	.18***	.12**	.15*	.16**	.06	.04
Mother-Observer (W)	.03	.00	-.02	-.03	-.03	-.02
<b>Autonomy Support – Learning</b>						
Child-Observer (P)	.06	.05	-.03	-.02	.09	.08
Child-Observer (A)	.12*	.10*	.14 <sup>^</sup>	.13 <sup>^</sup>	.03	.01
Child-Observer (W)	-.07	-.08	-.08	-.12	-.12	-.10
Mother-Observer (P)	-.05	-.08	-.11	-.12	.06	-.06
Mother-Observer (A)	.18**	.14**	.13 <sup>^</sup>	.15*	.11	.10
Mother-Observer (W)	.09	.07	.07	.07	.01	.01

*Note.* T = takes over; O = all other control codes (tells answers, writes/ erases answers, gives info when not requested); P = passive autonomy support (checking, writing at request); A = active autonomy support (treats child as expert, feedback, general info); W = waits to be needed

<sup>^</sup>  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

## APPENDIX F

### Associations among Informants using Full and Selected Items of Parents' Control

	Full Sample		US		China	
	Zero-order	Partial	Zero-order	Partial	Zero-order	Partial
<b>Control – General</b>						
Child-Observer (F)	.09	.10 <sup>^</sup>	.03	.04	.18*	.21**
Child-Observer (S)	.07	.08	.02	-.06	.18*	.18*
Mother-Observer (F)	.21***	.21***	.20**	.17*	.11	.10
Mother-Observer (S)	.11*	.10*	.14*	.12	.06	.07
Child-Mother (F)	.31***	.31***	.38***	.38***	.27***	.26***
Child-Mother (S)	.36***	.35***	.38***	.36***	.35***	.34***
<b>Control – Learning</b>						
Child-Observer (F)	.11*	.12*	.04	.04	.20**	.21**
Child-Observer (S)	.03	.03	-.01	-.07	.12 <sup>^</sup>	.12 <sup>^</sup>
Mother-Observer (F)	.18***	.18***	.17*	.17*	.10	.10
Mother-Observer (S)	.17*	.14*	.17*	.16*	.09	.12
Child-Mother (F)	.34***	.34***	.42***	.42***	.28***	.27***
Child-Mother (S)	.24**	.26**	.22**	.28***	.31***	.27***

*Note.* F = full scale; S = selected items

<sup>^</sup>  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .