



Effortful control and early academic achievement of Chinese American children in immigrant families[☆]



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ABSTRACT

The present study examined the direct and indirect relations of family contextual factors, effortful control (EC), and the early math and English literacy skills of first and second-generation Chinese American immigrant children in early elementary school. Using a socioeconomically diverse sample of 258 Chinese American children (53% receiving free- or reduced-price school lunch), we assessed EC with a combination of parent and teacher reports, computerized neuropsychological tests, and a behavioral frustration task. Children's math calculation and English literacy skills were assessed with standardized achievement tests. Results of structural equation modeling suggested that: (a) EC was positively associated with both math and English literacy skills; (b) parents' enculturation was marginally and positively associated with children's EC, and EC mediated the link between parent's enculturation and children's achievement, (c) authoritarian parenting was marginally and negatively associated with children's EC, and EC mediated the link between authoritarian parenting and children's achievement; (d) parents' enculturation had a direct and negative link to children's English literacy skills; and (e) no evidence of an EC × SES interaction was found. The findings highlight the need to consider joint influences of socioeconomic, interpersonal, and cultural factors on children's academic development in immigrant families; and provide support for promoting children's effortful control as an intermediate target of intervention.

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Introduction

A growing body of literature indicates that self-regulation skills play a critical role in children's school readiness and early academic development (Eisenberg, Valiente, & Eggum, 2010; Ursache, Blair, & Raver, 2012). In particular, effortful control (EC), a self-regulation construct originating from temperament-based

frameworks (Rothbart & Bates, 2006), has been consistently associated with children's higher early academic skills (Eisenberg et al., 2010; Liew, 2012). Though this line of research has been expanded to include children from non-Western cultures (Zhou, Main, & Wang, 2010), low-income families (Blair & Razza, 2007; Morris et al., 2013), and ethnic-minority families (Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008), little is known regarding the role of EC in the early academic achievement among children of immigrants. Further, few researchers have examined associations between family factors – e.g., socioeconomic status (SES), parent acculturation and enculturation, and parenting styles – and EC in young children of immigrants. This line of research can provide theoretical foundations for promoting EC and academic competence in children of immigrant families via culturally competent interventions.

Asian American immigrant families represent the largest group of new immigrants to the United States (Pew Research Center, 2012). In parallel to the wide-spread public stereotype of Asian Americans as a uniformly high-achieving “model minority” (Tran & Birman, 2010), much existing research on academic development of Asian American children has focused on comparing Asian American children with other ethnic or cultural groups (Han, 2008; Han, Lee, & Waldfogel, 2012; Koury & Votruba-Drzal, 2014). By contrast, few

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researchers have investigated how family factors (e.g., SES, parenting styles, and parent acculturation) are associated with variations in EC and academic achievement among Asian American children.

Effortful control and children's early academic achievement

EC is broadly defined as the voluntary inhibition of a prepotent, dominant response in order to activate a subdominant response (Blair & Razza, 2007; Rothbart & Bates, 2006). As a multi-dimensional construct, EC is theorized to involve multiple interrelated components including inhibitory control, attention focusing and shifting, as well as conflict resolution or cognitive flexibility (Kochanska, Murray, & Harlan, 2000; Rothbart, Ahadi, & Evans, 2000). Although early work on EC was primarily based on a temperament perspective, recent theory and research on self-regulation skills suggests that there is much overlap in both the components and measures of EC and executive function, a self-regulation construct emerging from cognitive and neuroscience frameworks (Bridgett, Oddi, Laake, Murdock, & Bachmann, 2013; Zhou, Chen, & Main, 2012). Thus, researchers have increasingly begun to incorporate neuropsychological measures of attention, inhibition, and cognitive flexibility into assessments of EC or executive function (Bridgett et al., 2013; Neuenschwander, Röthlisberger, Cimeli, & Roebbers, 2012; Willoughby, Blair, Wirth, & Greenberg, 2012). Moreover, factor analyses of EC measures yield support for a single-factor structure in preschool and early school-age children (Allan & Lonigan, 2011; Sulik et al., 2010).

EC and other self-regulatory skills are viewed as critical components of children's school readiness and determinants of their early academic achievement (Eisenberg et al., 2010; Liew, 2012). Multiple processes are thought to be involved in the role of EC in children's academic development. For example, children with higher EC can be expected to be better at sustaining their attention in doing schoolwork, better at regulating their emotion and emotion-related impulses in peer and classroom interactions, and more motivated, engaged, and persistent in their learning (Chang & Burns, 2005; Eisenberg, Smith, Sadovsky, & Spinrad, 2004; Liew, 2012; Valiente et al., 2011). Indeed, various measures of EC (including adult report and lab-based measures) predicted early academic achievement of school-age children, and these relations were partly mediated by children's socio-emotional adjustment and learning-related behaviors (Morris et al., 2013; Neuenschwander et al., 2012; Valiente et al., 2011; Zhou et al., 2010).

The role of effortful control in the links between family factors and immigrant children's achievement

Based on the bioecological model of human development (Bronfenbrenner & Morris, 2006), academic development in children of immigrant parents can be jointly influenced by a host of person, process, and contextual characteristics. Previous research has shown that several family factors are associated with early achievement of children in immigrant families: (a) socioeconomic status (SES) (Han, 2008; Han et al., 2012), (b) parent acculturation, especially in the domain of English proficiency (Han et al., 2012), and (c) parenting practices (Koury & Votruba-Drzal, 2014). Applied to the bioecological framework, these family factors reflect both proximal processes (e.g., parent-child relationship and parenting) and aspects of the exosystems (e.g., SES, family's ethnic and cultural backgrounds) that can shape children's academic development.

The bioecological theory also emphasizes person characteristics as shapers of the child's own development. Specifically, "developmentally generative characteristics" such as "curiosity, tendency to initiate and engage in activity alone or with others, responsiveness to initiatives by others, and readiness to defer immediate gratification to pursue long-term goals" are thought

to "set proximal processes in motion and sustain their operation" (Bronfenbrenner & Morris, 2006, p. 810). Based on this view, there are at least two processes through which children's EC shapes their academic development. First, EC might mediate the impact of contextual factors (e.g., family SES or cultural orientations) or proximal processes (e.g., parenting) on children's academic achievement. Second, EC might interact with contextual factors or proximal processes in shaping children's academic development. Because previous applications of the bioecological theory have rarely integrated assessment of EC (with the exception of the work by Li-Grining, 2007, 2012), these hypotheses have not been explicitly tested in the literature. Below we provide a brief review of the literature on the specific family factors examined in the present study and their links to EC and achievement.

SES. A robust body of literature indicates that children from families lower in socioeconomic status (SES) have poorer academic outcomes and poorer self-regulatory capacities (Bradley & Corwyn, 2002; Hackman & Farah, 2009). In an ethnically diverse community sample representing a full range of income, Thompson, Lengua, Zalewski, and Moran (2013) found that disruptions in preschoolers' EC mediated the link between low income and children's adjustment and social problems. These associations between SES, EC, and academic achievement are particularly relevant to Chinese Americans, a population that is striking in its socioeconomic diversity. Chinese American adults exceed national averages in obtaining bachelors' degrees (51.1% vs. 28.2%), but also exceed national averages in failures to complete high school (18.0% vs. 14.4%). Similarly, though Chinese Americans report household annual incomes that are higher than the national median (\$65,060 vs. \$49,800), a higher percentage of Chinese Americans also fall below poverty lines (13.7% vs. 12.8%) (Pew Research Center, 2012). The within-group variation in Chinese American families' SES makes this group an ideal sample in which to study the relations of SES to children's EC. Consistent with the findings of Thompson et al. (2013), we hypothesized that low-SES (low income and low parental education) would be associated with Chinese American children's lower EC, which mediates the link between low-SES and low achievement.

Because EC is a biologically-based temperament trait shaped by environmental and genetic factors (Rothbart, Sheese, & Posner, 2007), it is also possible that EC serves as a protective factor moderating the link between adverse environmental factors (e.g., low SES) and immigrant children's adjustment (Zhou, Tao, et al., 2012). A potential process underlying this protective effect is that better self-regulatory skills enable children to cope more effectively with chronic stressors. For example, Evans and Fuller-Rowell (2013) found that children's self-regulation moderated the relation between childhood poverty and adult working memory: those with higher self-regulatory skills were less affected by the harmful effects of poverty on working memory. Based on this finding, we hypothesized that EC would interact with SES in relation to achievement such that low SES would be less strongly associated with low academic achievement for children with higher EC than those with lower EC.

Parenting styles. In a bioecological framework, parenting styles and practices may be conceptualized as a child's proximal processes – regular interactions with persons in his/her immediate environment (Bronfenbrenner & Morris, 2006). There is an extensive literature supporting the role of parenting practices in children's development of EC. Specifically, warm and supportive parenting is thought to promote EC by maintaining optimal levels of arousal and creating a positive environment for children to learn constructive ways of regulating their emotions, attention, and behaviors (Eisenberg, Cumberland, & Spinrad, 1998). Moreover, parental use of positive disciplinary strategies such as reasoning, encouraging child autonomy, and scaffolding are hypothesized to promote EC by facilitating children's internalization of parental rules and

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