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## Abstract

The present study examined the associations between parenting styles and adolescents' academic performance, with a specific focus on examining the mediating role of activation control among Chinese adolescents. A framework of Chinese parenting style, which consists of three dimensions, rejection, emotional warmth, and over-protection, was utilized to predict activation control and academic outcomes. Structural models were fitted with the data collected from a Chinese sample of adolescents aged 15 to 17 years. Parenting styles were found to be associated with children's activation control skills and academic outcomes. Activation control skills were found to be beneficial for promoting educational attainment expectation and reducing school work difficulties. The present study also indicates that in some cases activation control mediates the association between parental over-protection and experiencing school work difficulties. The findings of the present study reinforce previous research by demonstrating the importance of Chinese-specific parenting approaches and by identifying the importance of activation control in the Chinese cultural context.

*Keywords:* parenting, effortful control, academic outcomes, Chinese adolescents

Parenting Styles, Effortful Control, and Academic Outcomes among Chinese Adolescents:  
The Mediating Effect of Activation Control

by

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Thesis

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Parenting Styles, Effortful Control, and Academic Outcomes among Chinese Adolescents:  
The Mediating Effect of Activation Control

Traditional Chinese culture is usually regarded as a collectivist culture that emphasizes cohesion, dependence, and common goal and interests within the group. Eastern Asian cultural values emphasize the importance of interpersonal relationships and believe that personal goals must be in line with the interests of the organization or group he or she belongs to the larger group to which they belong (Triandis, 1995). Triandis (1995) defines individualism and collectivism as contrasting social patterns, where individualistic orientations emphasize independence from others and following personal interests and preferences while collectivistic orientations emphasize regarding themselves as part of a social network consisting of close relationships of group members. Anthropological studies demonstrate that many Eastern Asian countries that are influenced by Confucianism, including China and Japan, are high on collectivism, while most Western countries are high on individualism (Adler, Brahm, & Graham, 1992). Collectivism is thought to influence parent-child relational processes by impacting the types of parental approaches utilized and offspring reactions to those parenting practices.

China is currently experiencing rapid changes in many areas. Confucianism is gradually diminishing in its influence (Huang, Abela, & Leibovitch, 2014). With the impact of Western cultural values and the policy of China, more individualistic behaviors are observed in current the Chinese context. Although current Chinese culture is still dominated by collectivism, some subcultures have adopted more individualistic values from Western cultures, especially those subcultures among young people. Some researchers also believe that the growth of individualism is responsible for distancing between Chinese children and their parents (Huang, Yao, & Zou, 2006; Huang, et al., 2014). However, Chinese researchers have not studied the specific impact of individualism versus collectivism at culture level and

individual level. There is still much work to be done in this area, particularly in terms of directly assessing individuals' individualistic/collectivistic attitudes.

Filial piety (or the Chinese concept "Xiao"), which emphasizes obedience to parent's authority and honoring the clan, serves as the basic rule of most Chinese families (Ma, 2003). Confucius believed filial piety includes two components: ancestor worship and inheriting. Thus, besides serving parents, Chinese people also regard raising their children as natural responsibility. Scientific studies on parenting in China began in the late 1980s. Influenced by western studies, Chinese researchers, such as Yue, Li, and Jin (1993) borrowed theories and measures from previous studies conducted in Western cultural context to examine parenting in the Chinese context. These theories provide guidance to the studies of Chinese parenting styles and behaviors but may have been incomplete descriptions of the process of parenting in this context. Some researchers, including Chao (1994), Chen and Luster (2002), and Chen (2005), found that some theories do not readily translate to the Chinese context. Since the 1990s, Chinese researchers began to modify these imported theories and to develop parenting theories based on Chinese context. In the current Chinese literature, several parenting theories developed for Chinese cultural context are providing guidance for studies on parenting (Jiang, Lu, Jiang, & Xu, 2010, Liu, 2012, Wang & Zhang, 2012).

The present study will survey Chinese adolescents to determine how perceptions about parenting styles affect their effortful control skills and in turn affect academic performance. This study will also examine the influence of personal individualism-collectivism orientations. This research will ideally indicate how perceived parenting style is associated with effortful control and academic performance, with approaches to understanding the personal value tendency on individualism-collectivism might the associations between parenting styles and outcomes.

## **Baumrind's Typology of Parenting**

Baumrind (1989, 1991) categorized parenting styles into four types based on the dimensions of “demandingness” and “responsiveness.” Many researchers (Heaven, 2008; Pong et al., 2010; Liew, Kwok, Chang, & Yeh, 2014) have adopted Baumrind’s typology of parenting in their research with relatively minor modifications to the basic elements of her typologies. In this approach, the classical parenting styles described by Baumrind are presumed to be applicable to the Chinese context. Authoritative parenting involves high level of demandingness and responsiveness. Authoritative parents set strict rules and regulations for their child and expect their children to communicate with them. Authoritarian parenting involves high demandingness but low responsiveness. Authoritarian parents also set strict rules and regulations for their children, but they do not give their children the chance to negotiate with them. They expect their children to obey their orders without questioning. On the contrary, permissive parenting involves high responsiveness but low demandingness. Permissive parents are lenient. Different from authoritative and authoritarian parents, they do not set strict rules for their children. They are very accepting of their children, expecting their children to communicate with them. Neglectful parenting involves low demandingness and responsiveness. Neglectful parents neither set strict rules for their children nor provide the chance to communicate with them.

Previous research in American samples found that children brought up by authoritative parents tend to have the most positive outcomes in academic performance and school engagement rather than those brought up by authoritarian, permissive, and neglectful parents (Dornbush, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994), although there is some evidence that the strength of the associations may vary across ethnic groups. A 3-wave longitudinal study showed that parental authoritativeness at grade 7 is



indirectly associated with school performance at grade 9 and is mediated by conscientiousness (Heaven & Ciarrochi, 2008). A study of a sample of 8-year-old second-grade children suggested authoritative parenting was associated with better academic achievement and sociability, while a negative association was found between authoritarian parenting and academic performance (Chen, Dong, & Zhou, 1997). Similar results were also found among European-American children, Asian-American children, and children in Taiwan (Pong, Johnston, & Chen, 2010). Chen et al. (1997) also suggested gender difference on sociability and shyness. Maternal authoritarian was negatively associated with girls' sociability and shyness, but no significant correlation was found for boys.

However, researchers found that in some instances, authoritarian parenting could result in better developmental outcomes among Chinese children and adolescents (Wang & Fu, 2005, 2012; Su, 2014). Wang and Fu (2005) suggested children who have rejecting and controlling parents tend to have high self-esteem, better social adjustment, and to develop moral sense earlier than their peers. The researchers also found paternal authoritarian behaviors are associated with high school performance among Chinese high school students in their later study (Wang & Fu, 2012).

Chen et al. (1997) suggested that some children's emotional feelings could be regarded as reflections of parental behaviors and may therefore affect intrinsic achievement motivations. Rules and instructions from the parents cannot be always clear enough for the children. When children with authoritative parents face these situations, their parents will provide enough information for them in order to make them clear why and how to follow these rules and achieve these goals. On the contrary, children with authoritarian parents might feel confused about these rules and instructions, but they cannot get any further information from their parents. In turn, they might fail to follow the rules and achieve the goals. The experience of failure will generate the feeling of frustration and insecurity in children (Sartaj

& Aslam, 2010), which in turn may lead to negative developmental outcomes such as social maladjustment and poor effortful control skills. Furthermore, without enough understanding of rules and instructions from their authoritarian parents and experiencing failures, children are more likely to develop low intrinsic achievement motivation, which, in turn, lead to low school engagement and poor academic performance. Children's poor academic performance may in turn lead to stricter demands from their authoritarian parents. On the contrary, authoritative parenting who provide enough information for their children to understand rules and goals will prevent from their children to have the feelings of confusion, frustration, and insecurity, which is also a potential encouragement for exploration and the motivation for achieving goals.

### **Parenting Style in Chinese Cultural Context**

From the aspect of Ecological Systems Theory, individual development is nested in a series of different levels of dynamic systems (Bronfenbrenner, 1986; Bronfenbrenner, 2004). Each system in the model will impact both parenting behavior and children's development. From the Cultural Approaches to Parenting, a major issue is understanding how children become members of the culture with the acquisition of language, culturally based values, and appropriate behaviors (Bornstein, 1991). That is to say, childhood training can be regarded as a socialization process, which aimed at promoting children's social adjustment. In this view, the socialization procedure during childhood is largely determined by the values, attitudes, and behaviors of the whole communities. Baumrind (1991) suggested that children's developmental outcome could vary across culture although their parents' behaviors seem to share the same parenting style. For example, the negative effect of authoritarian parenting was absent for Hispanic males and Asians (Baumrind, 1991).

Authoritarian parenting is more likely to be viewed as positive in collectivist societies, and more likely to be viewed negatively in individualistic societies (Sorkhabi,

2005). In Chinese cultural context, setting strict rules for children and total authority of parents is regarded as fulfilling the duties of parents. Chao (1994) proposed that the culture-specific core of Chinese parenting beliefs is the concept of training, which can be defined with Chinese terms Jiao-Xun and Guan (Chao, 1994). In Chinese, the word Jiao-Xun means teaching the child a lesson regarding the improper behavior, which usually in the form of oral chiding or even physical punishment (Chao, 1994, 1996). The general meaning of Guan can be translated as taking charge of something (Chao, 1994, 1996). In this occasion, it can be interpreted as the efforts aimed at children's positive developmental outcomes. Both concepts involve parental involvement and investment. From the perspective of Chinese parents, both Jiao-Xun and Guan contain reflect love and the responsibility to their children. The concept of training is deeply rooted in the approach of Chinese parents. Parental behaviors, which involve high levels of Jiao-Xun and Guan, are highly praised and regarded as 'for the benefit of the children'. If a child revealed antisocial or not culturally encouraged behavior, he or she will be described as "not training well", which is also a criticism to the parents (Chen, 2005).

Chao (1995) suggested that the Chinese ideal of parenting and concept of training is beyond the typology of authoritarian and authoritative parenting, which was based on Western cultural value, and called for a culture-specific approach for Chinese context. Chen and Luster (2002) indicated that authoritarian and authoritative parenting should be modified regarding to the concept of training in Chinese cultural context. The Chinese term Jiao-Xun contains the idea of training children in the expected socially desirable and culturally approved behavior. In some occasions, Jiao-Xun may involve oral chiding or even physical punishment, but within the collectivistic cultures such as Chinese and Japanese culture, these behaviors are regarded as reasonable and proper. A strict hierarchy exists in these collectivistic cultures, those with lower status must obey their superiors, such as fathers, teachers, and Senpai (upperclassman or upperclasswoman, someone of a higher age, or

senior). In traditional Chinese cultural context, the severe scolding or punishment stands for the deeper love of parents. Although children do not like to be scolded or punished, they have already been educated to believe all that parents have done to them is for the benefit of their development.

Gender role expectations are deeply rooted in the cultural context. Chinese culture defines the meaning of good mother and good father different from what it is in Western cultural context (Gao, 2010). Mothers' and fathers' roles showed a great deal of diversity across cultural contexts, and in most cultural contexts men and women differ in their expectations (Dickie, 1987). Due to the cultural expectations as interpreted by the parents, parenting styles in Chinese cultural context might be reflected by different behaviors. A comparison between parents' actual behaviors and their beliefs about ideal parenting behaviors indicated that parents' sense of identity in the parental role was related to their competence and belief that strong expectations will motivate parents to engage in parent-child interaction and in turn promote their competence in their parent roles. Meanwhile, the roles of mother and father in the household are also largely determined by culture. From the traditional cultural notion, fathers should be demanding and strict while mothers should be responsive and provide emotional warmth in the parent-child interaction. This phenomenon also suggests that father and mother may have different influence on children's development.

#### Chinese Macrosystem and Chronosystem

Studies have focused on parental beliefs about parenting behaviors in the Chinese context, but little attention was focused on children's perception of parenting styles. Individualism and collectivism have been examined in the parent level as a part of microsystem and cultural level as a part of macrosystem. However, China is currently experiencing Westernization. Western culture and values are spreading quickly throughout China, especially among young people (Tang & Chen, 2007). The most pervasive form of

western media influencing personality is the Internet. Since young people usually engage more with new electronic devices and technology rather than their parents, they are more likely to be subjected to western values. Thus, a gap of individualism and collectivism might exist between parents and children. This gap also exists between young people and the mainstream culture. Children born in the new century were regarded as problematic by the mainstream media. Just as the Beat generation in America, they are described as the Chinese Beat generation (Wang, 2002). This generation rejects received standards, have strong self-concept, and is willing to engage in imported thoughts and activities, especially from developed areas such as America, England, and Japanese culture and values rather than traditional Chinese culture. Most people think children of this generation are selfish and organized loosely, which might be a reflection of the conflict of individualism among the new generation and collectivism of the mainstream culture.

The one-child policy, started from the 1980's, encouraged couples to delay their age of marriage and giving birth. Although the law and constitution did not clearly indicate that couples can only have one child, couples with more than one child experienced serious negative consequences such as suffering from substantial fines, losing social welfare, or even the risk of unemployment. Meanwhile, the local police may not give legal registration to the second child. Without a legal registration at police office, the child cannot enjoy medical insurance, education privilege, and even citizenship. Thus, most Chinese children in the urban context grow up without siblings these days (Wang, 2005). Since they are the only offspring of the family, parents tend to focus all their resource to the child. Meanwhile, along with the economic boost and industrialization in recent China, families have better living conditions now. Traditional collective families in the urban area choose to break into smaller ones, which usually include only couples and their only child. Without siblings, Chinese children do not have to share resources with anyone. On the other hand, they have to deal

with the problem of being alone. Compared to their parents growing up with their siblings together with parents in a collective family, current children tend to be more individualistic rather than collectivistic. Within the family context, the interpretation of certain parenting behaviors may differ between individualistic child and collectivistic parents. Thus, it is assumed that children's personal tendency on individualism and collectivism affects the association between perceived parenting and developmental outcomes.

China currently has a competitive college entry exam system. The National College Entrance Examination is directed by the National Ministry of Education, which is the only way for most students to enter the college. The exam is held once a year on June 7<sup>th</sup> and 8<sup>th</sup>, and consists of the exams of Chinese, Mathematics, English, and Science or Arts. The total score of the National College Entrance Examination is the only thing that matters whether a student can be admitted by the college or not. Generally, fifteen percent of the total candidates are able to pass the annual exam and be enrolled in college. Starting from middle school (grade 7 to 9), or even earlier, both school and parents train the children to learn subjects related to the college entry exam, including Chinese, mathematics, English, science (including physics, chemistry, and biology), and arts (including history, geography, and politics). Schools set up frequent tests to motivate and check children's schoolwork. Parents usually get the feedback of children's behavior and academic performance from the head teachers. Some schools also arrange regular meetings with parents in order to make sure these reports will arrive at the parents. Grade and rank of the exams are the major topics discussed by parents and teacher. Generally, academic performance is the most concern of students, parents, and teachers, and it is almost the only standard for a good student. The mean academic performance of the whole class also matters the evaluation of the teachers. For a high school teacher, the college enrollment rate of his or her students is a matter of prestige and can affect salary increases (Ke & Zeng, 2008).

## **A Framework of Parenting Style Based on Chinese Cultural Context**

Due to the cultural gap between Chinese context and Western context, some Chinese researchers have suggested a framework of parenting style should be developed based on Chinese context. They believed that the approaches of each parenting style vary across culture because Baumrind's typology of parenting is deeply rooted in Western cultural value (Chen & Luster, 2002; Chao, 1994; Liew et al., 2014, Chen, 2005, Liu, 2012; Wang & Zhang, 2012). The study on parenting styles in China began in the late 1980s. Yue et al. (1993) suggested two different models for the parenting style of mother and father. The paternal parenting style consists six dimensions, warmth, over-involvement, punishment, rejection, over-protection, and doting. Maternal parenting style consists five dimensions, warmth, over-protection and over-involvement, punishment, rejection, and doting (Yue et al., 1993). The model was widely used in the 1990s, but due to the one-child policy, the dimension of doting no longer fits for current Chinese context, because of the changing of family structure and distribution of parenting resources (Jiang et al., 2010). For example, items which is related to the distribution of parental investments on siblings is no longer suitable for current Chinese society, because many families have only one child today. Jiang et al. (2010) also indicated that the distinction of the paternal model and maternal model made it hard to compare parenting behaviors between father and mother.

With the implication of Chinese concept of training, Jiang et al. (2010) suggested Chinese parenting styles could be assessed from three dimensions, rejection, emotional warmth, and over-protection. In this model, rejection refers to frequent punishment and strict training, which is a reflection of the behavioral part of "Jiao-Xun". Emotional warmth involves parents' expression of love and care. Over-protection is a reflection of the high degree of "Guan." Study based on this model suggested mother and father have significant differences in emotional warmth and over-protection, which may result from culturally based

parental roles in the parent-child interaction (Jiang et al., 2010). Other studies identified the association between the three dimensions and children's development outcomes including self-esteem, personality, and social adjustment (Wang et al., 1999; Lu & Su, 2003; Qian, Wu, Zhu, & Zhang, 2002). Wang and Fu (2005) suggested that high rejection might lead to poor emotional adjustment; high over-protection might contribute to the development of moral sense; and emotional warmth might affect the development of attachment and interpersonal skills.

### **Individualism and Collectivism**

Individualism and collectivism are two types of social pattern that can be used to describe both culture and individuals. Triandis (1995) regard individualism and collectivism as two contrasting social pattern. People who are labeled as collectivists regard themselves as parts of some certain collectives, such as family, class, and nation, and they are willing to give priority to the interests and goals of these collectives rather than their personal benefits (Trandis, 1995). For example, most Chinese are closely attached to their families. Senior family members are in charge of the whole family, making decision for the whole family and sometimes even for another family member. When a senior family member made a decision for a younger member, the younger one can hardly refuse to follow, because it is always said that the decision for the benefit of the whole family and the rule of filial piety, which is also known as "Xiao" in Chinese, restrict them from doing anything against the authority of the family and senior member. Meanwhile, individualists are loosely connected to each other and tend to see themselves as independent of collectives (Trandis, 1995). According to Trandis (1995), individualists are primarily motivated by their own needs, interests, preferences, and goals, and will not easily give priority to any collectives.

The terms individualism and collectivism are used to describe a person's value, as well as the characteristic of a culture. Individualistic culture allows their members to remain a



loose relationship with others, while collectivistic culture emphasizes the connectedness of its member to their collectives (Trandis, 1995). From a typical view of individualism and collectivism, though in different degrees, cultures including India, Russia, Japan, and China are labeled as collectivism, while cultures of Europe and North America such as France, United States, England, and Germany are usually regarded as individualism (Trandis, 1995; Singelis et al., 1995; Wang et al., 2003). However, individualistic cultures are not absolutely free from collectivistic elements, neither are collectivistic cultures free from individualistic elements. Both collectivistic and individualistic elements can always be found in any cultures, in various combinations (Trandis, 1995). The United States is regarded as a typical individualistic country. However, the U. S. military groups and sport teams such as football teams and basketball teams show strong cohesion, which is an important element of collectives within collectivistic cultures. Similarly, one who has a collectivistic cultural background may act as an individualist in some occasion.

According to Huang et al. (2014), the early framework of individualism and collectivism regard the two social patterns as two independent and contrast constructs, those who are individualists will oppose to collectivism. However, this framework over-simplified a complicate phenomenon. Trandis (1995) suggested that the dimension of vertical and horizontal should be introduced in to this framework in order to describe individuals' personal value. Vertical emphasize on the rank of status and a hierarchical system of power in a collective, while horizontal focus on the universal equality (Trandis, 1995; Huang et al., 2014). The dimension of vertical and horizontal is orthogonal with the dimension of individualism and collectivism, thus four types are defined as horizontal individualism, vertical individualism, horizontal collectivism, and vertical collectivism (Trandis, 1995; Huang et al., 2006; Huang et al., 2014).

In contrast with Western culture emphasizing on self-reliance and independence, Chinese view the dependence of a child on others as natural and desirable (Trandis, 1995). The bond with parents and other members in the collectives is highly praised in Chinese cultural contexts. For example, the kindergarten will praise those children who have good cooperation with their parents in the game for their tight bond. Also, from primary school through high school or sometimes even college, the school board will present a prize for student who maintain a good relationship with his peers. Brought up in this circumstance, Chinese children might get used to high level of interaction with parents and accept the dependence on others, and be proud of this type of relationship. Thus, from children's aspect, they are very likely to believe that the frequent interaction is equal to parental love.

In Chinese culture, children do most activities with their parents or family members and do not live entirely separate lives even when they become adolescents. The spirit of filial piety, or "Xiao" in Chinese, expect the bond with the clan to be maintained throughout every individual's life and pass on to the next generation (Gao, 2010). With the close bond with parents and the influence of social norm, adults usually are willing to live with their old parents or visit them as often as possible. Therefore, Chinese parents believe that maintaining frequent interaction with their children is their duty as well as for the benefit of their children.

In this study, it is hypothesized that individualism and collectivism in Chinese adolescents moderate the association between perceived parenting styles and effortful control skills. It is assumed that parenting styles predict effortful control skills in adolescents. However, adolescents with different value on individualism and collectivism may be affected at different level. In detail, collectivists emphasize more on interpersonal relationship and maintain a closer relation with their parents rather than individualists. Thus, it is hypothesized that individualism and collectivism moderate the association between parenting styles and effortful control, and collectivists are more sensitive to parenting styles.

## **Effortful Control**

Effortful control involves the behaviors of the controlling and reflecting process. Effortful control refers to the ability of planning, making actions under conflicts, and detecting and correcting errors (Rothbart, 2007). According to this Rothbart's theory, key components of temperament are effortful control, negative affectivity, and extraversion or surgency (Capaldi & Rothbart, 1992; Rothbart, 2007). Ellis and Rothbart (2001) suggested the structure of effortful control consisted of three major components: activation control, attention, and inhibitory control. That is, the construct of effortful control developed from the research on temperament, which involves "constitutionally-based" individual difference in many aspects, such as emotion, motivation, and attention (Rothbart & Bates, 2006).

Because of the relation with reward, punishment, and motivation, effortful control is considered to be extremely important in understanding the effect of temperament on behavior (Rothbart & Jones, 1998). Cross cultural research on American and Chinese children showed that effortful control was only associated with low surgency, including shyness, low impulsivity, and negative anticipation, among Chinese children; while among American children, effortful control was only associated with low negative affectivity, including low levels of fear, anger, and sadness (Rothbart, 2007). Researchers have linked effortful control with many other aspects of human development. For example, Heylen and colleagues (2015) found that effortful control mediates the association between attachment and maladjustment in children aged 8 to 13. Effortful control was also found to mediate the association between parental socialization and adolescents' peer competence and internalizing problem (Hofer, Eisenberg, & Reiser, 2010). Study on Chinese adolescents suggested that the moderating effect of effortful control was not only found in the association between school climate and deviant peer affiliation, but also in the association between deviant peer affiliation and delinquency (Bao, Li, Zhang, & Wang, 2015). Willem and colleagues (2010) found that the

association between temperamental reactivity and alcohol use was moderated by adolescent's effortful control.

Inhibitory control is regarded as the core of effortful control, which allows individuals to suppress reactions that are in conflict with valued goals (Rothbart & Bates, 2006). The term of inhibitory control refers to the ability to suppress thoughts and actions that are in conflict with the long-term valued goals (Rothbart & Posner, 1985). Previous studies suggested that inhibitory control contributed to the development of various cognitive abilities (Carlson, Mandell, & Williams, 2004; Dempster, 1992; Posner & Rothbart, 2000). Inhibitory control is also associated with low antisocial behavior (Kochanska, Murry, & Coy, 1997). High inhibitory control skill also prevents both internalizing and externalizing problems (Lengua, 2003). According to these results, students with better inhibitory control skills might have better relationship with their peers and teachers at school and have better chance to receive positive feedbacks from others, which, in turn, might contribute to their school engagement and ultimately benefit their school achievements.

Focusing and shifting attention enables individuals to correct themselves from the wrong way to stay on the track for the valued goals. Individuals also have the ability to solve the conflict of contemporary impulse and long term goals, which is regarded as a part of effortful control. The ability of detect and correct errors and make responses involves a processing progress of dynamic interaction between external stimulations and reactions regarding to both the stimulation and previous reactions (Ellis, 2002).

Activation control is defined as the capacity of performing an action which there is a tendency to avoid (Ellis & Rothbart, 2001). According to Ellis (2002), activation control is the key for an individual to perform unpleasant activities which is helpful for achieving long term goals. For example, for most Chinese high school students, homework is not a pleasant task at all. However, homework is needed for the long term goal, their academic performance

and the College Entry Exam. Activation control skills facilitate students to focus on the unpleasant homework, even they have a strong tendency to avoid it. The difference between inhibitory control and activation control is that inhibitory control helps an individual to suppress the desire of performing an action, while activation control helps an individual not to avoid the action.

Most studies adopting Rothbart's theory remained on the temperament or effortful control level, few of them focused on any single component of effortful control. For example, Ladouceur and colleagues (2010) found that attentional control moderated the association between negative affect and action monitoring event related potentials in adolescents aged 9 to 17. Another study indicated that activation control, attention, and inhibitory control predicted personal wellbeing (Vinas, Gonzalez, Malo, Garcia, & Casas, 2014). The current study focuses on the effect of activation control as a specific component of effortful control on the association between parenting and academic outcomes.

Study on preschool aged children indicated that inhibitory control was associated with both math and reading ability (Blair & Razza, 2007). Well-developed cognitive skill may directly contribute to inhibitory control, which also helps students with school tasks. On the other hand, inhibitory control facilitates students to rule out distracting information and stick to the essential part of the tasks.

### **The Development of Effortful control**

As a major approach to self-regulation, effortful control reflects both nature and nurture (Sameroff, 2010). The regulation model is described as a dynamic linkage between the growth of self-regulation and the context he or she exposed to, which is defined as other-regulation (Sameroff, 2010). Other-regulation in this model can be received from many sources, including caregivers, parents, teachers, or even regulations. When children's effortful control fails, other-regulation providing social, emotional, and cognitive experiences

will facilitate children's behavior and adjustment. Sameroff (2010) described the relation of other-regulation and self-regulation using an "Ice-cream-Cone-in-a-Can" model. In this model, self-regulation grows while the function of other-regulation decreases along with child development. Meanwhile, self-regulation and other-regulation keep interacting with each other as the child experiencing his or her development and exploring the contexts he or she exposed to. Briefly, this model emphasized the dynamic interaction between internal regulation system and external regulation system, which ultimately contribute to the development of self-regulation.

The formation of concepts during childhood is largely based on the interpretations provided by others rather than directly derived from experiences with the context (Gelman, 2009). In the family context, parents provide the most important information for the development of cognition. Authoritarian parenting and authoritative parenting, which are different on the degree of responsiveness, differ on the information provided for children. Although authoritarian and authoritative parents are similar on the dimension of demandingness, which indicated that they have strict rules and instructions as other-regulation to facilitate the development of their children's effortful control, they are providing different amounts and types of information facilitating children's development. Authoritarian parents provide limited information for their children to understand their demanding. Information provided by parents might be essential for children to understand various rules and promote their ability to rule out distractions. Information received from authoritative parents might contribute to children's understanding of other-regulation and interpretation of the environments. Children with authoritarian parents are told follow specific instructions without further explanations, which may result in a confusing situation that is difficult to understand and think about the rules and the circumstance. Simply following parents' orders makes these children hardly have the chance to practice their

effortful control since external regulations work out everything for them. On the other hand, authoritative parents usually encourage communications and allow their children to think about and discuss the rules. In this case, children are able to practice their effortful control with the facilitation of external regulation. When children cannot handle a certain situation with their effortful control, their parent will help them with external regulation, which provides a good guidance for children to build their effortful control. Thus, with less chance to practice effortful control, children brought up by authoritarian parents will have poorer effortful control skills rather than those brought up by authoritative parents.

While emotion regulation is in part influenced by genetic characteristics, the strategies for controlling or regulating emotion can be learnt from interacting with various contexts (Eisenberg, Smith, & Spinrad, 2011). Through communicating with parents, children may have better chance to witness how their parents regulate their emotion and learn from the practical examples. The strategies learned from parents are not limited to emotion regulation but also available for effortful control and other aspects of self-regulation. Previous research has identified the linkage between the effortful control of parents and children (Eisenberg et al., 2011). Furthermore, the communication with parents might benefit children's language abilities, which might facilitate emotion regulation and effortful control. Comparing with children who are brought up by authoritarian parents, those with authoritative parents tend to have better language skills since their interpersonal ability can be benefit from talking and other interaction with their parents. Better language skill and interpersonal ability might be able to help students to better understand rules and more proper behavior in various contexts, including both family and school.

In Chinese cultural context, where harsh parenting behaviors are believed to be beneficial for children development and understood by both children and society, relationship between parents and children might not be the same with it is in Western cultural contexts.

For example, the collectivistic cultural may also lead to some differences in communication between parents and children rather than it is in Western cultures. Wang and Fu (2005) suggested authoritarian parenting might contribute to children's ability to resist short-term impulse and pursue long-term academic goals. However, more empirical research is needed to understand parenting and the development of effortful control in Chinese cultural context.

### **Hypotheses**

The current study has two main goals: (a) to explore the association among perceived parenting style, effortful control, and academic performance, and (b) to examine the moderating role of individualism and collectivism on the association between perceived parenting styles and effortful control.

Based upon the relevant literature, the hypotheses for the current study are:

1. It is hypothesized that rejection predicts low effortful control, which in turn predicts low school performance. It is also hypothesized that emotional warmth predicts high effortful control, which in turn predicts high school performance. Furthermore, it is hypothesized that over-control predicts low effortful control, which in turn predicts low academic performance.

2. It is hypothesized that individualism and collectivism moderate the association between perceived parenting styles and children's effortful control. Children who report themselves as collectivist tend to have stronger positive association between emotional warmth and effortful control than those who are individualist. Furthermore, children who report themselves as collectivists tend to have stronger negative association between emotional warmth and effortful control than those who are individualists.



## Methods

### Participants

The study recruited participants from a high school in Handan, China. Handan is a middle-size city in the Hebei province of mainland China with a population of 1,029,480 by the end of 2014. Some of the participants were students whose families reside in rural areas close to Handan City. These students were enrolled in the high school and living in school-provided dormitories. By the end of 2014, the average annual income for an urban resident who lives in Handan City is CNY ¥22,699 (USD \$3,570), which is similar to the average annual income for all Chinese urban residents. The average annual income for a rural resident who lives close to Handan City is CNY ¥10,343 (USD \$1,627), which is similar to the average annual income for all Chinese rural residents. In the year 2014, 9.74% out of 38,045 students passed the nation-wide College Entry Exam and enrolled in the First Class University (Handan Bureau of Statistics, 2015).

The sample includes 171 high school grade 1 students ( $M_{\text{age}} = 16.02$  years, age range: 15-17 years) who were studying in a high school in Handan City. The distributions by gender and age are shown in Table 1. Approximately 66.3% of participants came from urban area. Most of the participants' parents did not finish any kind of college. Approximately 23.4% of participants were living with their grandparents within the same household. Only about 17.6% of participants reported that they are the only child of their parents. There were a few missing values in each variable. No significant differences by age was found on any of these demographic variables.

### Materials and Procedures

Consent forms were sent to students' parents to recruit the participants. Only those students whose parents signed on the consent form were recruited in this study. In order to assess parenting styles, effortful control, and individualism vs. collectivism, participants were

asked to complete a questionnaire independently in their classroom. Participants signed assent forms at the beginning of the questionnaire. Assurance of confidentiality and voluntary participation were stated in the consent forms for students' parents and assent forms for students themselves. Both consent forms and assent forms were provided in Chinese, which were developed basing on the samples provided by IRB of Syracuse University. All the forms were checked with forward and backward translation.

### **School Performance**

*Grade Report.* Chinese high schools usually hold exams covering all subjects required in the college entrance exam. A report including test scores and ranks in the class will be distributed to every student. Some high schools even hold exams every month to provide frequent feedback to the students about their academic performance. So the high school students know their scores and ranks very well, especially the most recent exam. In this study, participants were asked to report their overall score of the most recent exam.

*Self-rated academic performance.* Self-Rated Academic Performance Measure (Heaven et al., 2002) is a three-item scale will be used to assess self-rated academic performance. Items and possible response of this scale are attached in the sample questionnaire as Appendix II. The first is asking about the overall academic rank in the class, with a higher score indicating lower rank in the class. The second question is about educational attainment expectation, with a higher score indicating higher educational attainment expected. The third item is about the frequency of facing difficulties in school work, with a higher score indicating less frequency. Forward and backward translation was used to ensure the authenticity of the Chinese version of this scale.

### **Demographic Variables.**

The first part included demographic variables such as gender, age, family location (urban area or rural area), family structure (whether the participant has siblings or not, whether they live with their grandparents), and parents' education level.

*Family structure.* The measure of family structure, which consists two items, comes from student reports of who is present in the household. The first item measures whether the participants live with their grandparents or not. And the second item focuses on whether the participants have siblings or not.

*Parental education.* The measure of parental status or social class was parental education level. Participants reported their father and mother's educational level respectively. This part consists two items. The first item focuses on whether their father has a college degree, and the second item is about whether their mother has a college degree.

### **Parenting Style.**

This scale is from Jiang et al. (2010) and includes 21 items assessing perceived paternal parenting style and the same number of items assessing perceived maternal parenting style. The scale measured parenting style in three dimensions: rejection (an example item includes: "My father often treats me in embarrassing ways"), over-protection (an example item includes: "My father demands me to report what I did when I get home"), and emotional warmth (an example item includes: "My father feels proud when I succeed"). Participants are anticipated to report their parents' parenting style according to their experience. The responses were recorded on a 5-point Likert scale. The expected responses to the items are from 1 (Never) to 5 (Always) describing the frequency of being treated by certain parental behaviors. This scale is revised from a widely used parenting scale developed by Yue et al. (1993). The original version included 115 items and some of the items do not fit the current Chinese context. Each dimension of the revised version developed by Jiang et al. (2010)

showed high correlation with the dimensions from the original version and good test-retest reliability.

### **Effortful control.**

This study took inhibitory control, activation control, and attention as the indicators of participants' effortful control. A part of the Early Adolescent Temperament Questionnaire-Revised (EATQ-R) developed by Capaldi and Rothbart (1992) was used in this study. The revised questionnaire was designed to measure self-rated temperament and effortful control (Ellis, & Rothbart, 2001). This study adopted three subscales, inhibitory control, activation control, and attention, from the Chinese version of the EATQ-R Self-Report Form. Items and possible response selected for this study are attached in the sample questionnaire as Appendix I. The validation conducted by Ellis and Rothbart (2001) indicated that the self-report scales were highly correlated with parent report form which suggested a good convergent validity. The same study also found that after controlling gender and several other factors, the four major factors measured in the EATQ-R predicted aggression and depressive mood which suggested a good discriminant validity (Ellis & Rothbart, 2001).

*Inhibitory Control.* This 5-item subscale was ranked on a 5-point Likert scale from 1 (Never) to 5 (Always). A higher score indicates high inhibitory control. The scale includes two items that will be reverse scored. A previous study on 177 school students aged 10-15 indicated that the measure was reliable (Ellis & Rothbart, 2001).

*Activation Control.* This subscale also includes 5 items. Participants responded on a 5-point Likert scale ranging from 1 (Never) to 5 (Always). A higher score indicates high activation control. The scale includes three items that will be reverse scored. A previous study on 177 school students aged 10-15 indicated the measure was reliable (Ellis & Rothbart, 2001).

*Attention.* This subscale includes 6 items to which was responded on a 5-point Likert scale from 1 (Never) to 5 (Always). A higher score indicates a good attention skill. This scale includes three items that will be reverse scored. The previous study on 177 students aged 10-15 indicated the measure was reliable (Ellis & Rothbart, 2001).

### **Individualism and Collectivism.**

The Horizontal and Vertical Individualism and Collectivism Scale was originally developed by Singelis et al. (1995). This study adopted a revised version that was translated and modified by Wang et al. (2003) in order to fit Chinese context. Items and possible response of this scale are attached in the sample questionnaire as Appendix II. The whole measure consists of four dimensions, vertical individualism, horizontal individualism, vertical collectivism, and horizontal collectivism. Participants reported their tendency on these dimensions from Strongly Disagree (coded as 1) to Strongly Agree (coded as 5) on the Likert scale. A higher score indicates the tendency toward individualism or collectivism. The exploratory and confirmatory factor analyses based on Chinese adolescents indicated that the Chinese version of Horizontal and Vertical Individualism and Collectivism Scale was a reliable and valid tool for Chinese cultural context (Wang et al., 2003).

## **Results**

Cronbach's alphas, means, standard deviations, and ranges of each variable are shown in Table 2. To test the internal consistency of the scales, Cronbach's alphas was computed for each subscale. The parenting scales and Activation Control demonstrated acceptable Cronbach's alphas, ranged from .64 to .90, which indicated that these scales have acceptable to good internal consistency. However, several of the other variables did not demonstrate sufficient internal consistency. The Cronbach's alphas for the subscales of Individualism and collectivism, attention, and inhibitory control were under .6, which means that these measures were not reliable (Carmines & Zeller, 1979). Analyses indicated that Cronbach's

alpha would not increase by the removal of any of the individual items. Consequently, these variables do not meet the psychometric standards for analyses and will not be included in subsequent analyses. It is unclear as to the reason that these previously-validated scales did not demonstrate internal consistency in this sample. The Chinese version of individualism and collectivism measure was validated more than ten years ago among a group of Chinese college students. The Chinese version of EATQ-R was translated by a group of researchers in Taiwan, and the validation was conducted in the Taiwanese context. Although the meaning remains the same, the sentence pattern and the usage of words are slightly different from the language used in mainland China. The difference of culture and social orientation due to the half century segregation between Taiwan and mainland China may also lead to the decline of reliability.

In examining the distributions of the variables, outliers were found in several of the study variables. Logarithmic transformation, of which the function between a transformed  $Y'$  and original value  $Y$  is described as  $Y' = \log_{10} Y$ , was performed on parenting variables and activation control in order to produce a distribution that would be more likely to meet the assumptions of normality (Kirk, 1995). This transformation reduces the disproportionate impact of outliers and produces a more normal distribution from the original skewed distribution. The transformation was conducted on all reliable variables, including Paternal Rejection, Paternal Emotional Warmth, Paternal Over-Protection, Maternal Rejection, Maternal Emotional Warmth, Maternal Over-Protection, and Activation Control. Transformed values were used for further analyses, including bivariate correlation, path analyses, and Sobel's test for mediation effects.

### **Bivariate Correlations**

Table 3 presents the bivariate correlations among demographic variables and all other reliable study variables. Pearson correlation coefficients are shown in the correlation matrix,

and pairwise deletion was used to handle the missing values. Paternal Rejection was negatively correlated with Experiencing Difficulties in School Work and with Activation Control. Maternal Rejection was also negatively correlated with Experiencing Difficulties in School Work and with Activation Control. Paternal Emotional Warmth was strongly correlated with Experiencing Difficulties in School Work and with Activation Control. Maternal Emotional Warmth was also correlated with Experiencing Difficulties in School Work and with Activation Control. Maternal Over-Protection was negatively correlated with Activation Control. A strong association was found between Activation Control and Experiencing Difficulties in School Work. Overall, high parental rejection level is associated with poor activation control skill and frequently experiencing difficulties in school work. However, high parental emotional warmth is associated with better activation control skill and less difficulties in school work. Only high level of maternal over-protection is associated with poor activation control skill. Meanwhile, high activation control skill is associated with low frequency of experiencing difficulties in school work.

Father's and mother's educational levels are highly correlated with each other, which indicates that Chinese couples tend to have similar educational level as their counterpart. Children from the rural area are more likely to have siblings rather than those grown up in the cities. High educated mothers tend to have only one child. The correlation analyses also suggested that comparing with students from the urban area and single child of the family, those who resident in the countryside and have siblings tend to have better performances in the most recent general exams. Parents seem to adopt similar parenting strategies for either boys or girls except for paternal over-protection. Boys seem to receive more protection from their fathers comparing with girls. Living with grandparents in the same household will encourage the adolescents to plan for higher education level. Meanwhile, adolescents having grandparents around are experiencing fewer activation control problems.

## **Model Fitting and Testing for Mediation**

Amos 21.0 (IBM, 2012) was used to develop a model to test the multivariate relationships between parenting variables, activation control, and academic outcomes. Because parenting variables are only significantly correlated with experiencing difficulties in school work, experiencing difficulties in school work is the only academic outcome variable which is directly predicted by parenting variables, including rejection, emotional warmth, and over-protection. Three separate models for rejection, emotional warmth, and over-protection were developed. In each model, the the maternal and paternal parenting variables were strongly correlated and so were represented as a single latent variable to represent global familial parenting. In each model, a path model was tested to test the proposed associations between the parenting variables and the three academic outcome variables with an intervening path through activation control.

Several goodness-of-fit indexes were used to evaluate model fit. In theory, non-significant chi-square indicates a good model fit. However, chi-square is too sensitive to sample size, so that chi-square is almost always significant when the sample size is large enough (Marsh & Hocevar, 1985; West, Taylor, & Wu, 2012). The observed chi-square is also affected by departures from multivariate normality and when there are many variables and degrees of freedoms, it will be statistically significant even the model has a good fit (Marsh & Hocevar, 1985). As West, Taylor, and Wu (2012) suggested, although it was never formally introduced as a fit index, comparing using solely chi-square, chi-square/*df* ratio is more descriptive in the evaluation of model fit. Root Mean Square Error of Approximation (RMSEA) is used as an indicator of model fit. A RMSEA no greater than .08 indicates an acceptable model fit and a value of 0.05 or less indicates a good fit to the model (Browne & Cudeck, 1992; West, Taylor, & Wu, 2012). In most instances the Tucker Lewis Index (TLI) and the Comparative Fit Index (CFI) fall in a theoretical range between 0 and 1, while a



negative TLI indicates an extremely misspecified model and TLI larger than 1 indicates extremely well-fitted model (West, Taylor, & Wu, 2012). Following the suggestion of West, Taylor, and Wu (2012), values closer to 1 on TLI and CFI indicate better model fit, and 0.95 on the TLI and CFI serves as the cutoff criterion for good model fit, while a TLI or CFI larger than 0.9 indicates an adequate model fit. For each model, Sobel's Test was conducted in order to examine the mediation effect of the parenting construct to the outcome variables via activation control. In the test of significance,  $z = ab / \text{SQRT}(a^2s_b^2 + b^2s_a^2)$ , where  $a$  and  $b$  are the unstandardized regression weights and  $s_a$  and  $s_b$  are the standard errors of  $a$  and  $b$ , a  $z$ -value larger than 1.96 and  $p$ -value less than 0.05 indicate a significant indirect, or mediating, effect (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002).

#### Model 1: Structural Model Representing the Association Between Parental Rejection, Activation Control, and Academic Outcomes

In the first model, which is illustrated in Figure 1, parental rejection predicts both activation control and experiencing difficulties in school work. High rejection level suggests poor activation control skill in adolescents and more chance to experience difficulties in school work. Standardized estimates are shown in Figure 1. Although TLI is 0.852, which is below 0.9, all other model fit indexes indicate a good model fit,  $\chi^2(8) = 11.294, p > .05$ , CFI = .944, RMSEA = .049. As can be observed in the figure, parental rejection predicts decreased activation control ( $p < .05$ ). Activation control is uniquely associated with increased educational attainment expectation ( $p < .05$ ). Activation control is also uniquely associated with increased difficulties in school work ( $p < .05$ ). Parental emotional warmth is uniquely associated with decreased experiencing school work difficulties ( $p < .05$ ). Sobel's test was conducted to test the mediating effect of activation control on the association between parental rejection and experiencing school work difficulties. According to the

Sobel's test,  $z = -1.862$ , S.E. = .365,  $p = .063$ , there is not a statistically significant mediating effect of adolescents' activation control on the association of parental rejection and adolescents' experiencing school work difficulties.

#### Model 2: Structural Model Representing the Association Between Parental Emotional Warmth, Activation Control, and Academic Outcomes

In the second model, which is illustrated in Figure 2, parental emotional warmth predicts both activation control and experiencing difficulties in the three academic outcomes. High parental emotional warmth level predicts increased activation control skill in their children and decreased frequency of getting frustrated by their school work. Standardized estimates are shown in Figure 2. The model fit indexes indicated a good fit for this model,  $\chi^2(8) = 11.573$ ,  $p > .05$ , CFI = .972, RMSEA = .051. As can be observed in the figure, parental emotional warmth predicts increased activation control ( $p < .05$ ). Activation control is uniquely associated with increased educational attainment expectation ( $p < .05$ ). Activation control is also uniquely associated with increased difficulties in school work ( $p < .01$ ). Parental emotional warmth is uniquely associated with increased experiencing school work difficulties ( $p < .01$ ). Sobel's test was conducted in order to detect the mediating effect of activation control on the association between parental emotional warmth and experiencing school work difficulties. The result of Sobel's test showed that  $z = 1.907$ , S.E. = .172,  $p = .057$ . The probability level was close to .05, but the mediating effect is not statistically significant.

#### Model 3: Structural Model Representing the Association Between Parental Over Protection, Activation Control, and Academic Outcomes

The third model, which is illustrated in Figure 3, was developed for parental over-protection. A Heywood Case, which is also known as negative variance estimate, was found on an initial model for the maternal over-protection loading onto the latent variable of parental over protection. The possible causes of Heywood Case include outliers, missing data, sampling fluctuations, nonconvergence, and underidentification (Kolenikov & Bollen, 2012). Kolenikov and Bollen (2012) suggested restricting the range of estimates to be  $[0, +\infty)$  is one possible solution. In order to handle with the Heywood Case in this model the variance of error term for maternal over-protection,  $e_2$  in the figure, was set to be equal to 0. Standardized estimates are shown in Figure 3. Although TLI is .866, which is below .9, all other model fit indexes indicate a good model fit:  $\chi^2(9) = 13.850, p > .05$ , CFI = 0.943, RMSEA = .056. As can be observed in the figure, parental over-protection predicts decreased activation control ( $p < .01$ ). Activation control is uniquely associated with increased educational attainment expectations ( $p < .05$ ). Activation control is also uniquely associated with increased difficulties in school work ( $p < .001$ ). Parental over-protection was not uniquely related to experiencing difficulties in school work ( $p > .05$ ). Sobel's test was conducted in order to detect the mediating effect of activation control on the association between parental over-protecting and experiencing school work difficulties. According to the result of Sobel's test,  $z = -2.399, S.E. = .433, p < .05$ , there is a statistically significant mediating effect of adolescents' activation control on the association of parental over-protection and adolescents' experiencing school work difficulties.

### **Discussion**

This study supported the hypotheses that some aspects of effortful control mediate the association between parenting behavior and adolescents' academic outcomes in the Chinese cultural context. Unfortunately, the low reliabilities in the subscales of individualism, collectivism, attention, and inhibitory control prevent the current study from detecting the

hypothesized moderating effect of individualism and collectivism on the association between parenting styles and effortful control. The low reliabilities also preclude including attention and inhibitory control in the models. Overall, this study supported Blair and Razza's (2007) finding that effortful control, which consists inhibitory control, attention flexibility, and activation control or behavioral regulation, contributes to academic outcomes and extended it to the Chinese high school context. Better activation control skill in Chinese high school students will encourage them to pursue higher educational level and support them to overcome difficulties in their school works. However, activation control seems to have no direct effect on students' test scores and rank in the class.

More specifically, the results of this study support the hypothesis that parental rejection is negatively associated with adolescents' effortful control skills and educational outcomes. Parental rejection is a reflect of low expressing of love and care. Parents sometimes scold or criticize their children for improper behavior, but the word used by the parents may affect the children in different ways. The words "lazy" and "useless" is far from the expression of love and care even in Chinese culture and these results do not suggest that such approaches increase academic performance. Although strict discipline is believed to be beneficial in Chinese culture, improper punishment and emotional neglect seems to be harmful to some elements of academic competence and does not increase academic performance. Frequent improper criticisms and punishment with the absence of enough expression of love may result in adolescents' problematic activation control skill. Losing one's temper without is also a reflection of parental rejection, which is associated with decreased activation control skills in children. Meanwhile, these parenting behaviors may also aggravate the hardship of adolescents academic challenges.

In addition, parental emotional warmth, as predicted, has positive effects on adolescents' activation control skill and academic outcomes. The warm emotional bond with

parents will help children to reject temporary impulse and perform proper activities. Instead of punishment, encouragement from their parents seems to have a much better effect on adolescents when they are experiencing failure in achieving their goals. Meanwhile, parental emotional warmth will help Chinese adolescents to conquer the difficulties in school work. Warm emotional bonds with both father and mother are able to facilitate adolescents to perform unpleasant activities, including sitting in the classroom and focusing on boring school works. The encouragement, praise, and expression of warmth and care will directly reduce the difficulties that adolescents meet in their school work.

As Trandis (1995) suggested, some Chinese parents' child rearing styles would be considered intrusive by Western standards. Chao (1994) also suggested that "Guan" is an important component of Chinese parenting style. Protection and control are believed to be necessary for children in Chinese culture. However, the results cast doubt on this belief. High level of protection and control have significantly negative effects on adolescents' activation control. Although the intention is to ensure the security and health of the children, setting too many restrictions and maintaining strict monitoring may impede children's development of activation control skills. However, no direct evidence was found indicating that this kind of parenting behaviors will affect children's educational performance. Unlike the strong positive effect of emotional warmth and negative effect of rejection on adolescents' experiencing school work difficulties, engaging in high level of control and protection will not increase nor decrease the opportunity for their children to face challenges in school work. That is to say, although it is generally believed by Chinese parents that highly engaging in their children's personal affairs, such as making friends, the way of dressing, and hobbies, will facilitate their children to focus on school work and promote their grade, these results do not suggest that this will bring any direct benefits to adolescents' educational outcomes. On the contrary, these parenting behaviors predicted low activation control skill in adolescents and potentially

discourage their children from pursuing higher educational level as well as increase the chance of experiencing academic hardship.

The results also supported the hypothesis that activation control mediates the association between parental over-protection and academic outcomes. Although high level of parental control and intrusion of children's personal affairs seems to have no direct relation with the hardship in academic endeavors, it will potentially raise the frequency of experiencing school work difficulties by impairing adolescents' activation control skills. Although it is hard to say whether the high level of "Guan" is as bad as parental rejection for child development, it does not appear to facilitate activation control and academic outcomes in Chinese adolescents. The high level of over-protection impedes children's development of activation control, which, in turn, raise the chances of experiencing school work hardship due to the strong association that activation control contributes to overcoming academic difficulties.

Activation control predicted neither test scores nor self-reported academic performance. The low reliability of measure is one of the possible reason. Only one item was used in order to assess participants' self-report academic performance, which is highly possible that the reliability of this measure is insufficient for detecting the potential association between activation control and academic performance. Another possible reason is that activation control is not directly associated with academic performance. Other factors may mediate the association between activation control and academic performance. It is also possible that activation control does not significantly predict academic performance, instead other untested factors are more important for contributing to adolescents' academic performance.

## **Implications of Research for Conceptualizing Parenting in the Chinese Cultural Context**

The results of the present study advance previous findings by confirming the association between perceived parenting styles, effortful control, and academic outcomes in the specific cultural context of mainland China. Previous studies based on Baumrind's Typology of Parenting suggested that authoritarian parenting seems to have better effect on child development in the Chinese cultural context (Chen, 2015; Pong et al., 2005). The present study used a framework of parenting developed based on the specific cultural context of China, which better captured the characteristics of Chinese parenting styles. Parental over-protection, which is an important dimension described in the framework, reflected Chao's (1994) idea of "Guan" through emphasizing on controlling children's behaviors and interfering children's personal affairs. Chao's (1994) idea of "Jiao-Xun" is also concretized as disciplines, criticisms, and punishments. Besides the reflection of "Guan" and "Jiao-Xun", this framework also concerned about the emotional bond between child and parents, which is usually conveyed through the parenting behaviors of "Guan" and "Jiao-Xun". According to Trandis (1995), Chinese, reflecting collectivist ideals, regards children as dependent on their parents and families but not independent individuals. The relationship between parents and children in China is different from it in Western cultures. That is, Chinese parents have different ways of expressing their emotion to their children. For example, encouraging and comforting children when they feel down is seen as an expression of love and care in both Chinese and Western cultural contexts. However, Chinese parents regard the high level of control as a way to express love and care, which is also seen as a duty in Chinese society (Gao, 2010). Just as what was expected, healthy emotional bond is beneficial for child development. Encouragement, love, and care will create a comfortable environment for the

children's development. The effect of the emotional bond in family context can also spillover to other contexts, such as school context, and bring positive developmental outcomes.

These findings extend Eisenberg and colleagues' (2009) finding that parental report of warmth and acceptance is positively related to children's effortful control by confirming the similar association of children report of parental emotional warmth with activation control. Children who reported their parents are maintaining a warm emotional bond with them are more likely to receive appropriate responses from their parents, which may directly teach the children effective effortful control strategies. Positive parental responses, such as encouragement and emotion-focus, to children's emotions were associated with high effortful control in children at age 7 to 12 (Valiente, Lemery-Chalfant, & Reiser, 2007). On the other hand, Valiente et al. (2007) also found that negative parental reactions, such as punitive and distress, were associated with low effortful control. Consistent with previous findings, parental rejection which represent negative parental responses and parental emotional warmth which represent positive parental responses have similar effects on Chinese adolescents aged 15 to 17. Current findings support the view that appropriate parental responses to children's emotions provide children with strategies for effortful control, and extend the age range from childhood to adolescence.

Although not studied intensively in this research, there was also a correlation between having grandparents in the same household and high activation control skill. Most Chinese grandparents have already retired and they have more chance to focus on the family (Gao, 2010). Also, grandparents are usually the leader of the clan and it is their duty to take care of the younger generation according to the social norm since they are the most senior family member in the family (Gao, 2010). Chinese grandparents usually maintain a close relationship with their grandchildren as well. In this case, grandparents' responses to adolescents' emotions will also teach them effortful control strategies. Moreover, for those



adolescents who live only with their parents may not receive parental responses in time when their parents are at work or not staying with them. However, if they have grandparents around, their grandparents may respond to their emotional needs immediately and effectively. Given the importance of intergenerational relationships in the Chinese context, further research that examines not only parenting styles but the independent and interdependent aspects of parenting and grandparenting system may be of benefit.

The findings of parental rejection supported Zhou and colleagues' (2004) suggestion that parental verbal hostility and corporal punishment will result in low effortful control in their children. Verbal hostility and harsh punishment may lead to a confusion of parental instructions in children, which is harmful to the development of effortful control skills. Meanwhile, this situation may damage children's cognitive development, which affects both effortful control and academic performance.

The parental dampening responses to adolescents' positive affect, such as happiness, and low parental acceptance was associated with depression symptom in adolescents aged 14 to 18 (Katz, Shortt, Allen, Davis, Hunter, Leve, & Sheeber, 2014). Children who are depressed by their parents may not seek parental support when they are facing hardships in their school work. If parents scold their children solely for not achieving their expected exam performance, the disappointment of this experience may make the student afraid of telling their parents about their school performance and seeking parental support when they are facing difficulties in their school work (Tang & Davis-Kean, 2015). On the other hand, if parents appreciated their children's progress and encouraged them pursuing higher goal, their children are more likely to consult with their parents when they are facing hardship at school. With the support of parent, they will be inspired to accept the challenges in their school works and have more chance to conquer the difficulties. The depression in the family context may also spillover to other contexts including school context. Without the support and

acceptance from the family, it is hard for the students to sit down and focus on their academic goals.

Parental rejection including verbal hostility and improper punishment is also a reflection of lacking effortful control skills. Parents' regulatory capacity have both direct and indirect impact on children's effortful control (Eisenberg, et al., 2011). Children whose mothers have high level of acceptance of cultural norms, patience, and persistence are more likely to have better effortful control skills (Kochanska et al., 2000). Thus, mothers' own ability of controlling their emotion and following rules may affect children's effortful control through parenting behaviors. Also, the effortful control skill is association with children's regulation skills via the mediating effect of parenting behaviors (Eisenberg, et al., 2011). Similarly, Valiente and colleagues (2007) found that parents who have high effortful control skills tend to adopt more positive and less negative reactions toward children's emotion. Thus, besides directly learning effortful control strategies from parents, children are potentially affected by parents' effortful control skills through the parenting behaviors they received.

The collectivistic traditional Chinese culture emphasizes on the cohesion of the family, which requires close interpersonal relationship (Trandis, 1995). Together with the concept of Chinese child-rearing belief of "Guan", Chinese parents believe that maintaining control of their children is beneficial for them as well as fulfilling a duty to them. Current Chinese families have fewer children than they were in the past. In this case, the protection and control each child received are higher than it was, because parents are able to focus their effort on fewer children or even just one child. However, the present study cast doubt on this idea. High level of control and protection will not directly serve to benefit children's educational outcomes. In fact, this study suggests that over-control raises the frequency of

facing difficulties in school work through impeding the development of activation control in their children.

Trandis (1995) suggested the high level of control and protection is a way to establish the children's dependence on the family, which is expected in collectivistic society. However, some Chinese parents sometimes may be over concerned about the factors that may do harm to their children and set too many rules or even personally interfere children's private activities, such as making friends, dressing, and hobbies. Play and social activities are believed to promote children's effortful control skills (Eisenberg, et al., 2011; Rueda, et al., 2011). However, over-protecting parent may restrict their children from befriending peers or engaging in some social and leisure activities, because it is believed to consume too much time that should be devoted to the school work. The lack of social activities and play may bring negative effects on children's development of activation control. Thus, setting too many restrictions may prevent the children from being harmed, but it is undeniable that parental over-protection also prevents their children from experience many activities that are necessary for the development of both effortful control and cognitive skills.

Previous studies suggested effortful control skills play important roles in predicting children's school readiness (Blair & Razza, 2007; McClelland & Wanless, 2012; Sektnan et al., 2010; Truligo et al., 2014). It is suggested that effortful control skills facilitate children avoiding distracting information and selecting appropriate rules when solving problems (Blair & Razza, 2007). Since effortful control is related to general intelligence and cognitive abilities, well-developed effortful control skills are able to facilitate children reducing the distracting information and selecting appropriate rules when solving problems (Blair & Razza, 2007). Most studies on effortful control have been focused on children. This study extended the age range to high school adolescents. Although effortful control development does not seem to have such large effects on students' math abilities, reasoning skills, and

language usage, which were evaluated in the exams, as what was found for young children, activation control and behavioral regulation obviously have positive impact on adolescents' educational outcomes regarding educational attainment and dealing with hardship in their school work.

Effortful control predicts many developmental outcomes in children, including internalizing symptoms, behavioral problems, and the development of resiliency, which is the ability to handle difficulties and stress (Rothbart, et al., 2011). Padilla-Walker and colleagues (2015) suggested that low activation control is associated with aggressive behaviors, which in turn may cause trouble in school contexts by damaging the relationship with peers and teachers, and lead to difficulties in the school context. Meanwhile, poor ability of resiliency along with low effortful control will directly affect students' academic activities by increasing the hardship in the school work.

Currently China is experiencing great changes in many aspects. The one-child policy lasted for more than thirty years until recently, thereby influencing Chinese family processes. China is experiencing changes in various area, including interpersonal relationships, social structure, and cultural values (Bao & Haas, 2009; Yan, Yang, Wang, Zhao, & Yu, 2014). The industrialization and urbanization process largely impact traditional agriculture-base social values as a consequence of economic development and international communication. Thus, some traditional beliefs on child rearing may not adapt to the current Chinese context as it once was. The concept of "Guan" and "training" in child rearing can be date back to the thoughts of Confucius who lived in the ancient China more than two thousand and five hundred years ago (Gao, 2010). The failure of high level of control and protection, or "Guan" in Chinese concept, is a signal of the needs of changes in parenting styles. The "training" parenting style may not necessarily be appropriate in current Chinese cultural and social

contexts. The findings of this study suggest that parents should seek for new ways to express their love and care instead of the high level of “Guan”.

Instead of the intrusive way of controlling the children, parents should perhaps focus on a wider array of developmental competencies rather than focusing solely on preparation for exams. There is no doubt that devoting more time to the school work may promote adolescents’ knowledge. However, the aim of exams is to measure not only the mastery of knowledge, but also cognitive skills, reasoning skill, and even more. That is, it might be not be optimal if the parents only focus on the children’s academic performance but ignore many other aspects, such as the development of effortful control capabilities. However, since there are no significant relationships between activation control and test score or self-report academic performance was found. It is not sure that fostering children’s effortful control skills will certainly promote academic performance. A balance of developing effortful control and academic performance should perhaps be encouraged for child-rearing in current Chinese context. Due to the existence of the college entry exams, test scores are usually over weighted in the evaluation of adolescents’ development. However, education is much more than just test scores and education is only a component of the whole individual development process. Although the topic of effortful control in adolescent development are relatively new to the Chinese context, it is necessary for Chinese parents to pay attention to other areas besides merely academic performance in rearing their children. The development of effortful control, especially activation control, in adolescents may ultimately benefit not only in conquering schoolwork difficulties or pursuing higher education attainment, but also many other aspects which are not limited to the school context. For example, the longitudinal study conducted by Belsky and colleagues (2007) found that there is a reciprocal effect of attentional control on parenting behavior over time. Furthermore, Weidner and colleagues (2016) suggested that effortful control facilitate acquisition of lifelong health habits, preventing illness, and

enhancing quality of life. Garner and Waajid (2012) suggested that different aspects of effortful control were relevant for different outcomes in preschoolers, that is, attentional control was associated with high cognitive competence whereas positive emotionality was associated with high social competence and low behavioral problems. It would be beneficial for Chinese parents to incorporate these child-rearing strategies and for research to determine how such parenting strategies can fit in the context of the Chinese social and cultural context.

Traditional Chinese culture emphasizes the different roles of father and mother in child rearing activities. It is believed that fathers should be serious and authoritative while mothers should be warm and provide emotional shelter for their children (Gao, 2010). However, the present study based on current Chinese social context did not find any sign that the differences of gender roles in family might make a difference on adolescents' development of activation control and educational outcomes. In current Chinese cultural and social context, parents should maintain a warm emotional bond with their children and the expression of their feelings should be able to be captured correctly by their children. Thus, it is suggested that current Chinese parents need to communicate with their children in a way that emphasizes warmth. In the context of rapid change, understanding and acceptance may become more important in current Chinese parenting rather than maintaining a strict authority-based relationship between parents and children.

### **Limitations and Future Directions**

Unfortunately, the low reliability of the Horizontal and Vertical Individualism and Collectivism Scale prevent analyses testing the hypothesized moderating effect of individualism and collectivism on the association of parenting and effortful control. The validation of the scale was conducted more than ten years ago based on a group of college students (Wang et al., 2003). The gap of cognitive skill between college student and high school student is one possible cause of this difference in reliability. Students have to pass the

college entry exam before enrolling in any colleges. The low enrolling rate of Chinese colleges ensures that those who are able to study in a college likely have higher proficiency in completing survey-based instruments. Thus, it is possible that the characteristics of the measures challenged the high school students. Meanwhile, there is a 13-year gap between the validation and this study. The changes of people's value may lead to the difference in the reliability of this scale. Further studies in this area require a well-developed measurement of individualism and collectivism for Chinese cultural context. Also, it is necessary to examine the current theory about individualism and collectivism. It is still uncertain whether the low Cronbach's alphas resulted from the problem of the scale or the improper implication of the current theory in Chinese cultural context. It is possible that the dimensions of vertical versus horizontal and individualism versus collectivism do not adequately represent capturing the constructs of individualism and collectivism for Chinese adolescents. It is also possible that the relationship between the two dimensions is not orthogonal as it is in Western culture.

The low reliability of the two subscales of effortful control also prohibited the present study from testing additional effortful control factors that may mediate Chinese parenting styles and adolescents' educational outcomes. The effortful control measures were developed based on American cultural context and translated by researchers in Taiwan. Due to political reasons, the communication between Taiwan and mainland China was cut off for almost fifty years. During this time, the communists tried to change the traditional Chinese culture based on Confucianism, while Chiang Kai-Shek and the government of Taiwan tried to maintain the traditional Chinese culture including traditional Chinese characters, language, and social orientation. Social and cultural differences between Taiwan and mainland China may be responsible for the insufficient reliability in the measure. In the future study, in order to better capture the effortful control skills of Chinese adolescents, the EATQ-R should be translated and examined by Chinese researcher whose mother language is simplified Chinese.

Studies on effortful control based on mainland Chinese children or adolescents are still limited. This initial research demonstrates the potential importance of this construct for understanding the outcomes of parenting in this context and the central role that effortful control plays in determining academic outcomes. Due to the importance of effortful control on the topic of human development and its effect on academic outcomes, further studies should focus more attention to this topic and introduce the concept of both effortful control and executive function to Chinese cultural context. More measurement should be translated and validated in Chinese cultural and social context. Also, the Chinese translations of the terms related to effortful control, such as effortful control, effortful control, activation control, and inhibitory control, are still confusing, some of them even cannot capture the original meaning very well. Further work should try to clarify these constructs further in the Chinese-specific context.

Adopting self-report measures may lead to biases that result from common method bias. According to Conway and Lance (2010), the method effect might impair the construct validity of self-report measurement. The current study measured all parenting style, effortful control, and academic outcomes factors with self-report measurement, which is possibly lead to inflationary common method bias. If two or more variables are self-reported, the relationship between them will be inflated (Conway & Lance, 2010). In this case, the result of the self-report measurement used in this study may be biased because each response comes from solely one student and the personal preference or attitude of the student is reflected in the correlation of each variable rather than a parametric determination. In order to reduce bias, multimethod approaches should be used in the future studies, such as combining self-report and other-report responses to the same variable together in the study.

Longitudinal research is also needed in order to understand the parenting and the development of effortful control in Chinese cultural context further. Although the presumed



path models are representing a potential causal model, the models are, of course, constrained by all of the limitations inherent in correlation research with respect to causal claims.

Assessing longitudinal change in the variables of interest from adolescents and their parents will better capture the development trend throughout lifetimes and generations and may help to clarify the presumed pathways of influence.

This study successfully extended the study of the associations of parenting, adolescents' effortful control development, and educational outcomes to Chinese cultural context. It is also promising to examine the theory and findings in other Asian contexts with similar cultural backgrounds and social orientation, such as Japan and Korea. It is still unknown whether the ideas of "Training", "Guan", and "Jiao-Xun" are able to capture the traits of Japanese or Korea parenting styles regarding to the differences in social orientation and cultural values. Current Korea also have a competitive annual college entry exam in every November (Shi & Sun, 2008). In Japan, the large population and distribution inequality of education resources contribute to the competition in school context (Hojo, 2009; Gainey & Andressen, 2002). Although Japan also have national college entry exam held by the Education Ministry, most colleges do not make their decision solely based on the single exam, instead many Japanese colleges have specific enrolling system that consists Admission Office tests held by the very college which the candidates are applying for that include broader indices such as interviews (Wang & Dong, 2009). The cross-cultural comparisons are able to distinguish the universal factors and cultural specific traits in parenting styles. Further cross cultural studies will help us to understand the parenting behavior in various cultural and social contexts, and its relationship with adolescent development in these contexts.

Appendix I:  
Table 1  
Sample Characteristics

Variables		Frequency	Percentage
Gender	Male	91	54.20%
	Female	77	45.80%
	Total	168	
Age	15	22	13.10%
	16	121	72.00%
	17	25	14.90%
	Total	168	
Home Location	Urban	112	66.30%
	Rural	57	33.70%
	Total	169	
Father College	Yes	14	8.20%
	No	157	91.80%
	Total	171	
Mother College	Yes	10	5.80%
	No	161	94.20%
	Total	171	
Living with Grandparents	Yes	40	23.40%
	No	131	76.60%
	Total	171	
Single Child	Yes	30	17.60%
	No	140	82.40%
	Total	170	

Table 2  
Cronbach's Alphas for Subscales and Descriptive Statistics

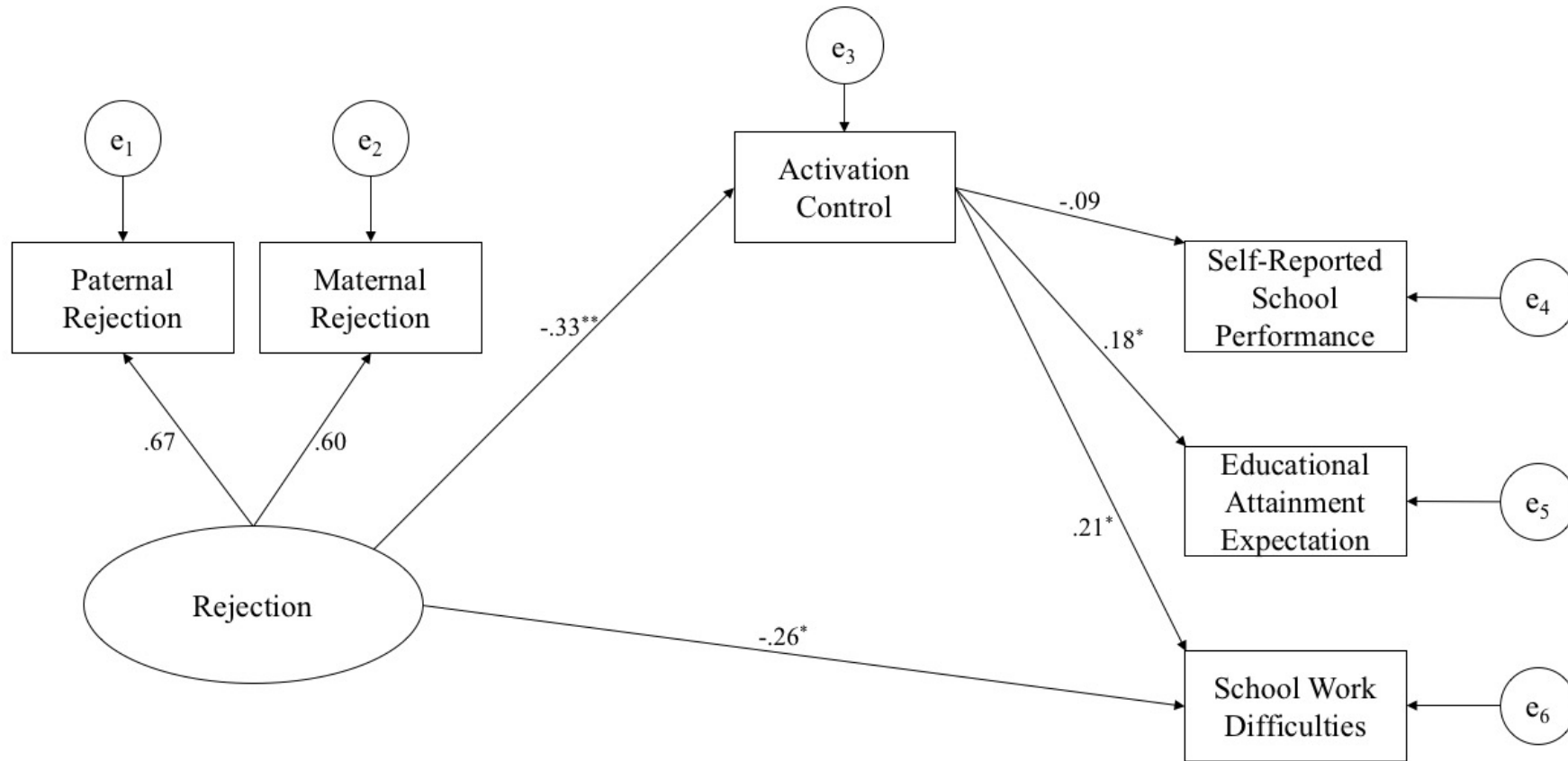
Variables	Cronbach's Alpha	M	SD	Range	
				Minimum	Maximum
Paternal Rejection	.70	1.46	.44	1.00	2.22
Paternal Emotional Warmth	.87	3.41	.89	1.00	5.00
Paternal Over-Protection	.64	2.40	.60	1.25	4.63
Maternal Rejection	.85	1.49	.63	1.00	5.00
Maternal Emotional Warmth	.90	3.87	.88	1.00	5.00
Maternal Over-Protection	.72	2.68	.67	1.13	4.50
Horizontal Collectivism	.63	3.75	.48	1.75	5.00
Vertical Collectivism	.37	3.39	.53	2.25	4.50
Horizontal Individualism	.38	3.60	.76	1.50	5.00
Vertical Individualism	.54	3.79	.58	2.33	5.00
Activation Control	.73	3.43	.77	1.00	5.00
Attention	.38	3.40	.53	2.17	5.00
Inhibitory Control	.32	3.43	.56	1.60	5.00
Test Score	--	420.77	59.26	271.50	582.50
Self-reported Academic Performance	--	3.13	1.16	1.00	5.00
Educational Attainment Expectation	--	4.14	.61	2.00	5.00
School Work Difficulties	--	2.29	.79	1.00	5.00

Table 3  
Correlation Matrix for Variables

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	
<b>Demographic Variables</b>																		
1. Gender	--	.21**	.06	-.02	.01	.03	.00	-.01	.11	-.06	-.09	-.09	-.21**	.13	-.03	-.01	.00	
2. Home Location		--	.17*	.13	-.09	.29**	.22**	-.03	.16*	-.09	-.06	.09	-.06	-.06	.06	-.01	.13	
3. Father College			--	.56**	-.06	.09	.14	-.04	-.09	-.09	-.03	-.08	-.03	.10	-.05	.08	.05	
4. Mother College				--	-.02	.21**	-.05	.03	-.07	-.01	-.05	-.03	-.09	.07	-.09	.12	.01	
5. Living with Grandparents					--	-.04	-.07	-.04	-.20**	.00	.07	-.12	.05	.07	-.15	.13	-.16*	
6. Single Child						--	.18*	-.03	.06	-.15	.11	-.08	-.08	-.02	-.05	-.01	.04	
<b>Academic Outcomes</b>																		
7. Test Score							--	-.55**	.14	.07	-.02	-.09	.00	.06	.03	.17*	-.06	
8. Self-reported Academic Performance								--	-.11	-.18*	-.02	-.05	.11	.07	-.11	-.04	-.09	
9. Educational Attainment Expectation									--	-.05	-.04	.07	-.01	.02	.05	-.05	.18*	
10. School Work Difficulties										--	-.22**	.31**	.03	-.18*	.21**	.08	.29**	
<b>Parenting</b>																		
11. Paternal Rejection											--	-.34**	.33**	.40**	-.18*	.23**	-.21**	
12. Paternal Emotional Warmth												--	.13	-.30**	.66**	.07	.20**	
13. Paternal Over-Protection													--	.16*	.08	.54**	-.08	
14. Maternal Rejection														--	-.45**	.26**	-.20**	
15. Maternal Emotional Warmth															--	.12	.18*	
16. Maternal Over-Protection																--	-.23**	
<b>Self-Regulation</b>																		
17. Activation Control																		--

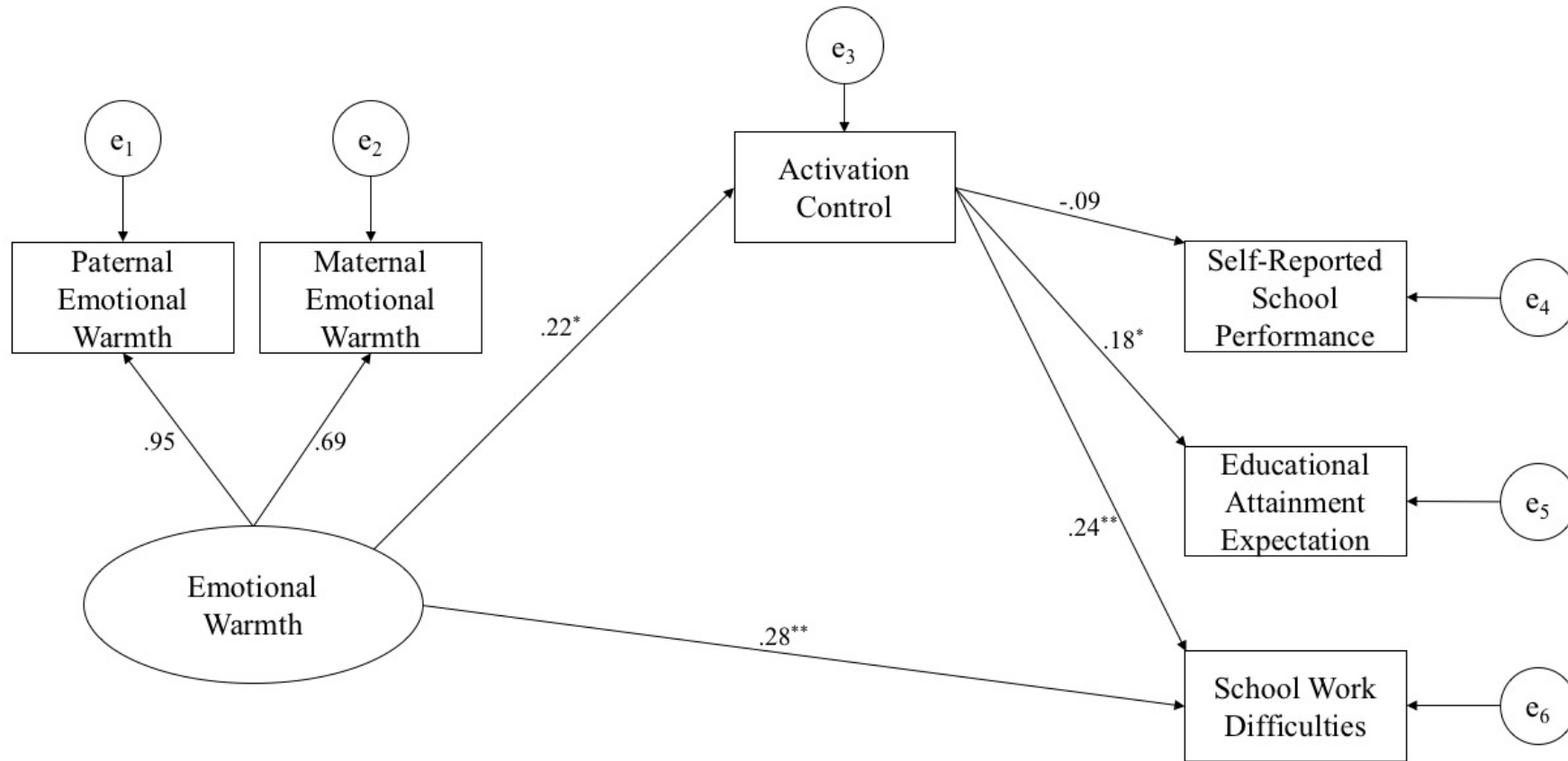
Note. Logarithmic transformed values in parenting variables and activation control were used for computing bivariate correlations; \*\*p < .01, \*p < .05

Figure 1. Structural Model Representing the Association Between Parental Rejection, Activation Control, and Academic Outcomes



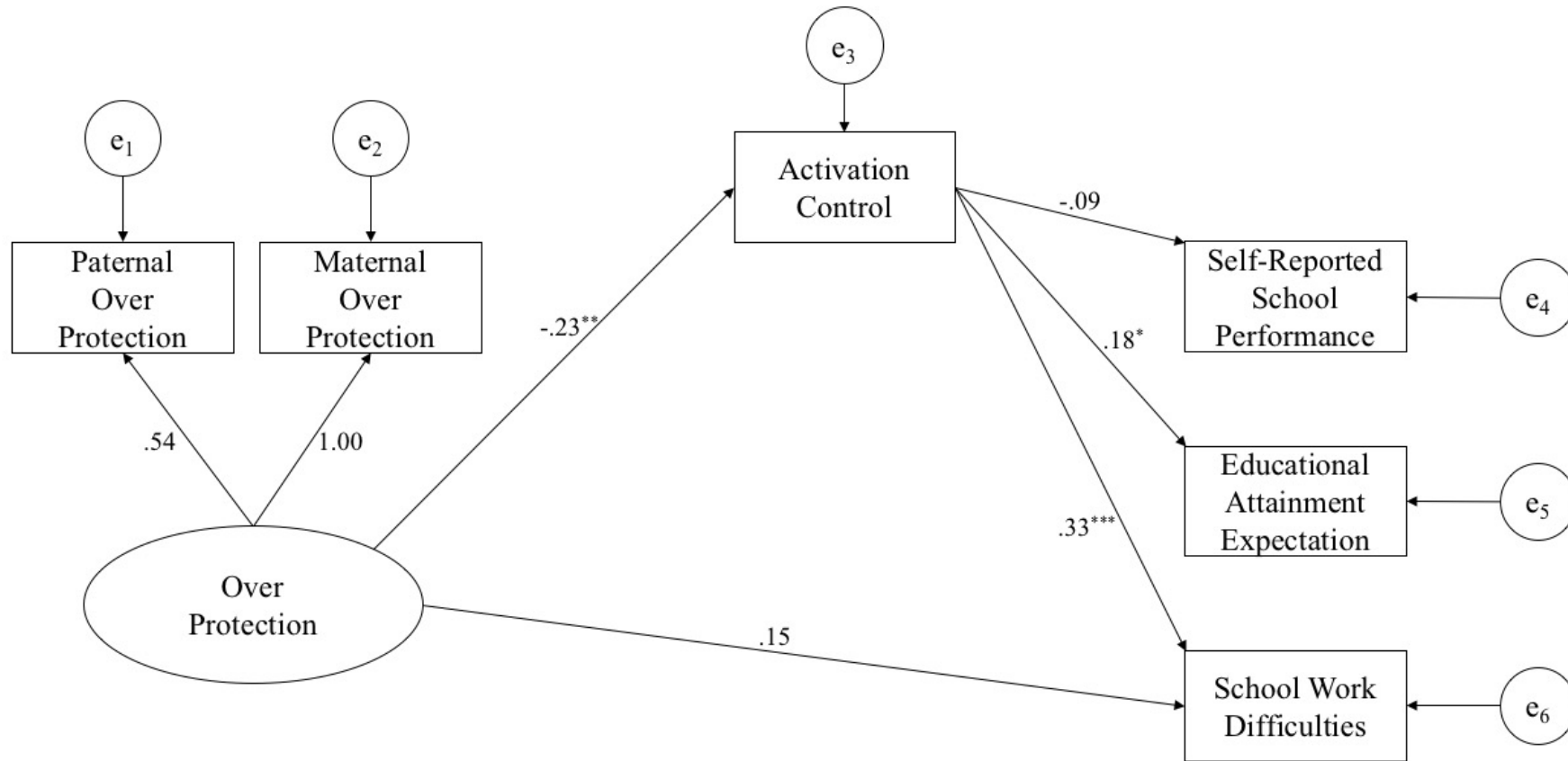
Note. \*\*\*p < .001, \*\*p < .01, \*p < .05

Figure 2. Structural Model Representing the Association Between Parental Emotional Warmth, Activation Control, and Academic Outcomes



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

Figure 3. Structural Model Representing the Association Between Parental Over Protection, Activation Control, and Academic Outcomes



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

Appendix II:

Questionnaire for this study:

Gender:

Age:

Does your family live in the urban area? Yes No

Does your father have a college degree? Yes No

Does your mother have a college degree? Yes No

Do you live with your grandparents? Yes No

Are you the only child of your parents? Yes No

The overall score of the most recent exam:

The following items measures your parent's parenting behaviors, please response to each question according to your own experience.

My father often treats me in embarrassing ways.

1. Never 2. Rarely 3. Sometimes 4. Very often 5. Always

My father often describes me as lazy and useless when talking with others.

1. Never 2. Rarely 3. Sometimes 4. Very often 5. Always

My father punishes me even it was a small mistake.

1. Never 2. Rarely 3. Sometimes 4. Very often 5. Always

The punishment from my father often exceeds what I deserve.

1. Never 2. Rarely 3. Sometimes 4. Very often 5. Always

My father often gets angry with me, but I do not know the reason.

1. Never 2. Rarely 3. Sometimes 4. Very often 5. Always

My father often treats me as a "scapegoat" or "black sheep".

1. Never 2. Rarely 3. Sometimes 4. Very often 5. Always

I think my father tries to make my life meaningful.

1. Never 2. Rarely 3. Sometimes 4. Very often 5. Always

I can feel that my father is doing his best to comfort me when I feel down.

1. Never 2. Rarely 3. Sometimes 4. Very often 5. Always

My father always encourages me.

1. Never 2. Rarely 3. Sometimes 4. Very often 5. Always

My father praises me.



1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

I feel that there is a feeling of warm, caring and affectionate between father and me.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My father feels proud when I succeed.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

I can feel that my father likes me very much through his verbal and facial expression

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My father does not allow me to do things that my peers often do, because he is afraid that I might involve in an accident.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My father demands me to report what I did when I get home.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My father always decides my appearance for me.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

I think my father worries too much about the things I could get involved in.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My father has strict rules for what I should do, and there is no concession.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

I think my father interferences everything I am about to do.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My father often allows me to go to some places that I like without worrying too much.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

I hope my father do not worries about what I am doing that much.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My mother often treats me in embarrassing ways.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My mother often describes me as lazy and useless when talking with others.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My mother punishes me even it was a small mistake.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

The punishment from my mother often exceeds what I deserve.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My mother often gets angry with me, but I do not know the reason.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My mother often treats me as a "scapegoat" or "black sheep".

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

I think my mother tries to make my life meaningful.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

I can feel that my mother is doing her best to comfort me when I feel down.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My mother always encourages me.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

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1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My mother demands me to report what I did when I get home.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My mother always decides my appearance for me.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

I think my mother worries too much about the things I could get involved in.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My mother has strict rules for what I should do, and there is no concession.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

I think my mother interferences everything I am about to do.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

My mother often allows me to go to some places that I like without worrying too much.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

I hope my mother do not worries about what I am doing that much.

1. Never            2. Rarely            3. Sometimes       4. Very often       5. Always

The following items measure your tendency on individualism or collectivism, please response according to your own feeling.

My happiness depends very much on the happiness of those around me.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

The well-being of my classmates is important to me.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

If a classmate gets a prize, I would feel proud.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

I feel good when I cooperate with others.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

I would do what would please my family, even if I detested that activity.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

I usually sacrifice my self-interest for the benefit of my group.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

Children should feel honored if their parents receive a distinguished award.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

I would sacrifice an activity that I enjoy very much if my family did not approve of it

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

I enjoy being unique and different from others in many ways.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

I am a unique person.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

I enjoy studying in situations involving competition with others.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

Competition is the law of nature.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

Without competition it is not possible to have a good society.

1. Strongly Disagree      2. Disagree      3. Neither agree or disagree      4. Agree      5. Strongly Agree

The following items measure your ability of self-regulation. Please response according to your own experience.

I have a hard time finishing things on time.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

I do something fun for a while before starting my homework, even when I'm not supposed to.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

If I have a hard assignment to do, I get started right away.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

I finish my homework before the due date.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

I put off working on projects until right before they're due.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

It is easy for me to really concentrate on homework problems.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

I find it hard to shift gears when I go from one class to another at school.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

When trying to study, I have difficulty tuning out background noise and concentrating.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

I am good at keeping track of several different things that are happening around me.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

I pay close attention when someone tells me how to do something.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

I tend to get in the middle of one thing, then go off and do something else.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

It's hard for me not to open presents before I'm supposed to.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

When someone tells me to stop doing something, it is easy for me to stop.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

The more I try to stop myself from doing something I shouldn't, the more likely I am to do it.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

It's easy for me to keep a secret.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

I can stick with my plans and goals.

1. Never            2. Rarely            3. Sometimes            4. Very often            5. Always

Following items measure your academic performance; please response according to your feelings about the schoolwork.

How would you rate yourself in terms of general academic performance? Where would you usually come in assessment at school?

1. Top 10%            2. Top 30%            3. Above average            4. About Average            5. Below Average

What level of education would you expect to attain eventually?

1. Middle school            2. High school            3. Technical college            4. College            5. Graduate program

Generally speaking, how often do you experience difficulty with schoolwork?

1. Always            2. Very often            3. Sometimes            4. Seldom            5. Hardly ever

性别:

年龄:

你的家是否在邯郸市内? 是 否

你的父亲是否完成了大学学业? 是 否

你的母亲是否完成了大学学业? 是 否

你是否和你的祖父和(或)母住在一起? 是 否

你是否是独生子女? 是 否

最近一次考试的总分:

下面的问题将测量你父母的教养方式,请按照你的个人情况回答,所有的答案均没有对错好坏之分。请将你的答案的序号写在每道题的前面。

父亲常以一种是我难堪的方式对待我

1. 从来没有 2. 偶尔如此 3. 有时如此 4. 经常如此 5. 总是如此

父亲经常当着别人的面批评我既懒惰又无用

1. 从来没有 2. 偶尔如此 3. 有时如此 4. 经常如此 5. 总是如此

即使是很小的过错,父亲也会惩罚我

1. 从来没有 2. 偶尔如此 3. 有时如此 4. 经常如此 5. 总是如此

父亲对我的惩罚往往超过我应受的程度

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父亲常常在我不知道原因的情况下对我大发脾气

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我常常被父亲当作“替罪羊”或“害群之马”

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我觉得父亲尽量是我的青少年时期生活的更有意义和丰富多彩

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当遇到不顺心的事时,我能感受到父亲在尽量鼓励我,使我得到安慰

1. 从来没有 2. 偶尔如此 3. 有时如此 4. 经常如此 5. 总是如此

父亲总是试图鼓励我,使我成为佼佼者

1. 从来没有 2. 偶尔如此 3. 有时如此 4. 经常如此 5. 总是如此

父亲赞美我

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我觉得我与父亲之间存在一种温暖、体贴和亲热的感觉

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

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父亲要求我回到家里必须向他说明我在外面做了什么事

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

父亲总是左右我该穿什么衣服或者该打扮成什么样子

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

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父亲对我该做什么，不该做什么都有严格的限制，而且决不让步

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

我觉得父亲干涉我做的任何一件事

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

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我希望父亲对我正在做的事不要过分担心

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下面的问题将测量你在个人主义和集体主义上的倾向，答案没有对错好坏之分，请根据你的个人判断作答。请将你的答案的序号写在每道题的前面。

我的快乐很大程度上来自于我身边的人的快乐。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

同学的健康和快乐对我很重要。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

如果我的同学得了奖，我会感到自豪。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

与别人合作使我感到快乐。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

我会做是我家人高兴的事，尽管对那件事很反感。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

我会为了我所在的组织牺牲个人利益。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

子女们应该为父母所获得的荣誉感到骄傲。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

我回因为我的家人的反对而放弃我非常喜欢的一件事。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

我喜欢在某些方面与别人不同。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

我是一个独一无二的人。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

我喜欢在一个存在与别人竞争的环境中学习。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

竞争是自然的法则。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

一个好的社会中，竞争是不可或缺的。

1. 强烈反对    2. 反对            3. 不反对也不赞同    4. 赞同            5. 强烈赞同

下面问题将测量你的自我调节能力，答案没有对错好坏之分，请根据你的个人情况作答。请将你的答案的序号写在每道题的前面。

要准时完成作业，这对我来说很困难。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

即使不应该，我还是会在写作业前玩一下。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

如果有困难的作业需要完成，我会马上开始做。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

我能在期限内完成我的作业。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

我会等到交作业期限马上要到了，才开始着手工作。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

我很容易就能专心地作家庭作业。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

当上一堂课与接着的下一堂课的科目不同时，我发现自己在转换上不是那么容易。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

我很难忽略其他的声响而将注意力集中在读书上。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

我善于能同时关注到好几件发生在自己身边的不同事情的变化。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

当别人告诉我该如何做某件事时，我会很注意地聆听。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

我往往会在一件事进行到一半还没完成，便停下来转而去另外一件事。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

“在可以拆开礼物之前忍住不拆”对我来说是件困难的事

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

当别人叫我不要做某件事时，我很容易就能停下来。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

我越想阻止自己去做某件不该做的事，就越可能去做。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

我很能够保守秘密。

1. 从来没有    2. 偶尔如此    3. 有时如此    4. 经常如此    5. 总是如此

我能坚持我的计划跟目标。

1. 从来没有    2. 偶尔如此    3. 有时如此                      4. 经常如此    5. 总是如此

下列问题将测量你对你的学术表现的主观评价，答案没有对错好坏之分，请根据你的个人情况作答。请将你的答案的序号写在每道题的前面。

你如何评价你的成绩在班上的总体排名？

1. 前 10%            2. 前 30%            3. 高于平均                      4. 平均左右    5. 低于平均

你希望你能达到什么学历？

1. 初中毕业    2. 高中毕业    3. 大学专科                      4. 大学本科    5. 研究生

总体来说，你是否经常遇到学习上的困难？

1. 总是            2. 经常            3. 有时                      4. 偶尔            5. 几乎没有

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