

A CLOSER EXAMINATION OF THE RELATION BETWEEN
CHILD SHYNESS AND ACADEMIC PERFORMANCE IN CHINA

by

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Abstract

The purpose of the current study was to explore the relations between child shyness and indices of academic achievement in China. Participants were 597 elementary school children (319 boys, 270 girls) aged 8 to 11 years who attended 5 randomly selected public elementary schools in Shanghai, People's Republic of China. Shyness was assessed by peer nomination and a newly translated self-report measure. Children also self-reported indices of their socio-emotional functioning (depression and peer rejection). Academic achievement was assessed across academic domains (Chinese, English and mathematics) and via multiple informants (subject-specific exams and teacher-rated academic performance across domains). Results revealed a number of significant associations between self-reported child shyness, socio-emotional functioning, and indices of academic achievement. The newly-developed self-report measure of shyness demonstrated good psychometric properties. Self-reported shyness was significantly negatively associated with all academic outcome variables. Further, academic achievement was found to significantly moderate the relation between shyness and peer rejection such that the relation between these two variables increased at lower levels of academic achievement and decreased at higher levels of academic achievement. Results are discussed in terms of the role of shyness in children's academic achievement and socio-emotional functioning in China.

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A Closer Examination of the Relation between Child
Shyness and Academic Performance in China

The experience of shyness in Western societies poses a number of challenges for children and impacts their functioning in the social and academic domains. Given that children spend a great deal of their time at school, it is important to acknowledge that this inherently social environment, with its evaluative components, can prove particularly problematic and stressful for the shy child. Previously considered to be one of the more harmless and least disruptive forms of behaviour in the classroom, shyness has often gone undetected or unaddressed. However, shyness is deserving of significant attention given its potential negative implications for children's social, emotional, and academic functioning. This temperamental trait not only affects a student's ability to communicate effectively and in a confident manner, but may also negatively alter perceptions that teachers and educational staff hold regarding the academic potential of the child. More generally, shyness affects the relationships that children are able to maintain with peers, teachers and other educational staff within the classroom and larger school environment. In Western cultures, shyness is typically regarded as a maladaptive trait associated with significant difficulties. However, it is important to note that *culture* dictates the functional meaning and significance of shyness, and thus the interpretations and implications thereof may vary quite drastically from one culture to the next. To date, few studies have directly examined factors that may impact upon shy children's academic success at school and even fewer have examined these questions in non-Western cultures. Accordingly, the primary goal of the present study was to examine links between child shyness and academic performance among elementary school students in China. More

specifically, the mitigating influence of academic content area (e.g., English, Chinese and mathematics) and method of academic assessment (e.g., classroom tests vs. teacher ratings) was examined in the relation between child shyness and academic performance. As well, given the high importance placed on academic achievement in China (and other Asian cultures), the potential moderating role of achievement was also examined in the links between shyness and indices of socio-emotional functioning.

Overview of Shyness in Childhood

Shyness is a temperamental trait characterized by the experience of wariness and anxiety in novel social situations and those perceived to be socially evaluative in nature (Rubin, Coplan & Bowker, 2009). Further, the social encounters of shy individuals are characterized by an approach-avoidance conflict: Where shy children may long for social interaction, this approach motivation is inhibited by social fear and anxiety (Coplan, Prakash, O'Neil & Armer, 2004). The expression of shyness has been shown to differ across developmental stages. Younger children tend to display nervousness and fear when confronted with new people and situations. In contrast, older children may become more embarrassed and self-conscious in situations where they feel that they are the center of attention (Crozier, 2001).

It is important to make a meaningful distinction between shyness and other related terms. For example, *social withdrawal* is an 'umbrella term' referring to the consistent and frequent display of solitary behaviours in the presence of peers (Rubin et al., 2009). In this regard, shyness represents only one reason (i.e., social fear, as opposed to a preference for solitude) why a child might decide to withdraw him or herself from interactions with peers. Further, not all children characterized as being shy will remain

socially withdrawn following a ‘warming up’ period (Coplan & Armer, 2007; Rubin et al., 2009). Moreover, it is important to distinguish between shyness and *hypersensitivity*, a term which refers to a state of being unusually or excessively sensitive either psychologically or in physical response. Further, Coplan and Rubin (2010) asserted that there is a considerable amount of conceptual overlap between shyness and related terms such as behavioural inhibition, anxious-solitude and social reticence which are frequently used to characterize children who tend to withdraw from social interactions due to fear or anxiety. For the purpose of this thesis, these terms will be used interchangeably in reference to children who fit the above-mentioned profile.

Origins. Research suggests that there may be an underlying *biological* element to shyness (Kagan, 1997; Marshall & Stevenson-Hinde, 2001). Extremely shy children demonstrate increased heart rate, higher early morning levels of salivary cortisol as well as patterns of EEG responses marked by greater right frontal activation (Fox, Henderson, Rubin, Calkins & Schmidt, 2001; Henderson, Marshall, Fox & Rubin, 2004; Kagan, Reznick & Snidman, 1988; Schmidt & Tasker, 2000). It has been argued that the combination of these biological characteristics leads extremely shy children to be highly reactive in stressful circumstances.

In addition to its biological origins, shyness is also rooted in *familial* and *environmental* factors, including parenting style. For example, overprotective parents may discourage their children from exploring novel situations and may exercise significant control over their activities and behaviours (Rubin et al., 2002). Although parents may be seeking what they feel is best for their child, they may also be inadvertently fostering their child’s dependency and lowering their sense of self-efficacy

(Rubin, Stewart & Coplan, 1995). Overprotective parenting practices may exacerbate the links between shyness and negative outcomes, whereas warm and supportive parenting styles may serve a protective role in the lives of shy children (e.g., Coplan et al., 2008; Degnan, Henderson, Fox & Rubin, 2008; Hane, Cheah, Rubin & Fox, 2008).

Correlates and outcomes. Results from a growing number of research studies have suggested that shy children face a number of difficulties in various aspects of functioning, both in the short- and long-term (e.g., Caspi, Elder & Bem, 1988; Gest, 1997; Prior et al., 2000).

Of particular concern in childhood are the poor peer relations exhibited by shy children, who are less likely to initiate social contact and more likely to withdraw from peer interactions (Coplan & Arbeau, 2008; Coplan & Armer, 2007). Deficiencies in social competence (Bohlin, Hagekull & Andersson, 2005) may also make shy children unattractive playmates in the eyes of their peers (Coplan, Girardi, Findlay & Frohlick, 2007). In the literature, shyness has been linked to peer rejection, exclusion, loneliness and victimization (e.g., Coplan et al., 2004; Hart et al., 2000; Perren & Alsaker, 2006). Further, when amongst peers, shy children tend to exhibit signs of social anxiety (e.g., Coplan, Arbeau & Armer, 2008). The difficulties that shy children appear to experience in interacting with their peers likely serve to exacerbate their propensity towards negative moods, worries and fears (Stevenson-Hinde & Glover, 1996). In this regard, high-quality friendships appear to be of particular benefit to the shy child (Rubin, Wojslawowicz, Rose-Krasnor, Booth-LaForce & Burgess, 2006).

Considering the needs of the ‘whole child’ (which encompasses not only the physical but also the mental health and well-being of the child), it is necessary to address

research which has found that shyness puts children at increased risk for a range of adjustment difficulties including issues with internalization (Coplan & Armer, 2007; Crozier, 2001; Rubin & Coplan, 2004). For example, shyness in childhood has been associated with the display of anxious behaviours during play as well as parent/teacher ratings of anxiety (e.g., Coplan, 2000; Coplan & Armer, 2005). Further, extreme shyness in early childhood may be linked to the later development of anxiety disorders (e.g., Kagan, Snidman, Zentner & Peterson, 1999; Rapee, Kennedy, Ingram, Edwards & Sweeney, 2005; Van Ameringen, Mancini & Oakman, 1998). Research has also suggested that childhood shyness predicts symptoms of depression in young adolescents (Bohlin & Hagekull, 2009; Gazelle & Rudolph, 2004; Karevold, Ystrom, Coplan, Sanson & Mathiesen, 2012). Finally, further contributing to a more fragile mental state, shyness experienced from early childhood through to adolescence has also been linked to feelings of loneliness, lower self-esteem and symptoms of depression (e.g., Coplan, Closson & Arbeau, 2007; Coplan et al., 2004, 2008; Crozier, 1995; Gazelle & Ladd, 2003; Prior, Smart, Sanson & Oberklaid, 2000; Rubin, Chen, McDougall, Bowker & McKinnon, 1995).

Gender and age differences. Studies have not typically demonstrated significant gender differences in *overall* shyness (e.g., Bishop et al., 2003; Coplan et al., 2009). Further, there is no evidence of gender differences in the *stability* of shyness (Rubin et al., 2009). However, growing empirical evidence suggests that being shy is more problematic for boys than for girls (Rubin & Coplan, 2004). For example, mothers tend to respond in a more negative manner towards shy boys as compared to shy girls (Radke-Yarrow, Richters & Wilson, 1988; Simpson & Stevenson-Hinde, 1985). Furthermore,

throughout childhood and into adolescence, shy boys have been shown to be at greater risk for experiencing negative outcomes including behaviour problems, loneliness and peer exclusion as compared to their similarly shy female counterparts (Coplan et al., 2007, 2004; Morison & Masten, 1991; Stevenson-Hinde & Glover, 1996). Coplan and Weeks (2009) found that shy boys reported being more socially anxious than shy girls. Results from studies conducted with older children have suggested that shy boys are at increased risk of having poorer social skills and coping strategies in addition to lower self-esteem (Eisenberg, Shepard, Fabes, Murphy & Guthrie, 1998; Morison & Masten, 1991; Rubin, Chen & Hymel, 1993). It has been argued that the discrepancy in terms of responses to and outcomes of shyness for boys as compared to girls arises from the fact that shyness is viewed as being less socially acceptable for boys than for girls (Sadker & Sadker, 1994).

In terms of the expression of shyness across various age groups, shyness has been found to be overall quite stable across time from early childhood through adolescence (Rubin et al., 2009). Notwithstanding this finding, there is some variance in the stability of shyness as children age. During infancy/toddlerhood for example, shyness appears to demonstrate less stability as compared to that during early and middle childhood (e.g., Degnan et al., 2008). For example, Karevold, Ystrom, Coplan, Sanson and Mathiesen (2012) found that the increase in shyness was found to be larger in toddlerhood than in childhood for both boys and girls. Researchers have hypothesized that this shift may occur as a result of the shy child's entry into more formal childcare and educational settings whereby exposure to a larger group of peers and adults takes place. Children in

these settings develop reaction “blueprints” to novel social situations and their behavioural patterns stabilize across various contexts and people (Rubin et al., 2006).

Although a significant body of research has focused on the nature and outcomes of shyness in early childhood, less is known about the experience of shyness in late childhood (i.e., ages 9 to 13 years). From this limited research, however, it is apparent that the implications of shyness are more severe in late as compared to early childhood. For example, whereas it is not considered unusual in early childhood for children to be and play alone (Rubin, 1982), with increasing age, solitary behaviours are more easily noticed and deemed to be less acceptable to the peer group (e.g., Younger & Boyko, 1987; Younger, Schwartzman & Ledingham, 1985). Consistent with this age-related change in the nature and frequency of social interaction, research has shown that shyness will become increasingly associated with negative outcomes in later childhood and adolescence (Rubin & Asendorpf, 1993).

During a developmental period in which social interaction increases dramatically and plays a more central role in a child’s everyday life, Karevold et al.’s (2012) study (which provided further support for the notion that an increase in shyness during middle/late childhood is predictive of lower levels of social skills) is of particular relevance. In isolation, poor social skills are associated with numerous social, emotional and academic difficulties (Rubin et al., 2006). Further, in considering the etiology of internalizing problems such as anxiety and depression, research has shown that social skills, or lack thereof, are an important developmental factor (Rubin et al., 2009). According to researchers including Coplan and Weeks (2009), social and social-communicative skills act as moderators with respect to the link between shyness and

socio-emotional functioning. In addition, the lower levels of social skills found in shy children in late childhood which may contribute to peer relation difficulties may heighten the association between shyness and internalizing problems (Gazelle & Ladd, 2003).

Given the importance of peer relations in children's development (Rubin, Bukowski & Parker, 2006), it is important to continue to address the gap in the literature that exists with respect to shyness in late childhood. As children approach adolescence, there is a growing focus placed upon interactions with peers and sociability, therefore, it is important to understand how shyness will impact a child's ability to succeed and cope in this inherently social period of development.

Shy Children at School

Whereas previous research has focused on socio-emotional outcomes, shyness may also have implications for children's academic functioning.

Coplan and Arbeau (2008) suggest that for the shy child, the school environment may be a source of considerable stress because of factors such as the presence of a large peer group and academic demands for verbal participation. Feelings of social fear and self-consciousness may be exacerbated in these children leading to their withdrawal from verbal engagement with peers and teachers alike. With time, classroom verbal demands may become associated with feelings of anxiety thereby interfering with the shy child's ability to concentrate on schoolwork and achieve academic success (Crozier & Hostettler, 2003; Henderson & Fox, 1998).

In early education settings including preschool and kindergarten classrooms, not only are shy children quiet, but they are also more likely to withdraw from and less likely

to initiate social interactions with their peers (e.g., Coplan et al., 2004; Ladd & Profilet, 1996).

Shy children and teachers. Shy children tend to form more dependent and less close relationships with teachers as compared to their less shy peers (Arbeau, Coplan & Weeks, 2010; Rudasill & Rimm-Kaufmann, 2009). Research has indicated that this dependent teacher-child relationship is associated with a host of negative outcomes including academic difficulties, loneliness, less favourable views of school, difficulties with self-direction in class and increased likelihood of additional behaviour problems (e.g., conduct problems, poor attention span) at school as compared to their classmates who have a lower level of dependency (Birch & Ladd, 1997; Pianta & Nimetz, 1991). Gazelle (2006) found that shy children are at increased risk for adjustment difficulties when placed in classrooms with negative emotional climates which may include classrooms dominated by disruptive student behaviours and those in which there are many conflicts between students and the classroom teacher. The formation of a close and supportive teacher-child relationship appears to offer unique protective benefits for shy children (Arbeau et al., 2010).

In addition to the maladaptive relationship that is often formed and maintained between the shy child and their teacher thus leading to negative outcomes for the shy child, skewed teacher perceptions may also put the shy child at a disadvantage. Teachers' perceptions of a shy student's verbal and social behaviours may lead them to make inferences with respect to the student's academic abilities (Bell, 1995; Buss, Gingles & Price, 1993; Keogh, 2003; Lerner et al., 1985). Research has suggested that children's verbal participation or lack thereof is a significant factor in teacher perceptions of child

intelligence (Gordon & Thomas, 1967). The shy child's quiet nature may be incorrectly perceived by educators as a lack of interest in or understanding of the topic under discussion (Crozier & Perkins, 2002).

Coplan, Hughes, Bosacki and Rose-Krasnor (2011) reported that hypothetical shy children were judged to be most likely to experience negative social and academic outcomes as a result of their behavioural characteristics in comparison to average/typical and exuberant/talkative peers. However, shy children were also perceived by teachers as being the least *intelligent*. In contrast, shy teachers did not perceive significant differences in intelligences of the three groups of hypothetical children. Perhaps the teachers' lived experience of shyness provided some insight into the true potential and 'actual' academic ability of the hypothetical shy child. Further, Hughes and Coplan (2010) found that shyness was negatively related to teacher-rated math and reading skills but was not significantly related to standardized tests of reading comprehension or math skills. These findings highlight the fact that shyness is particularly associated with poorer teacher-rated academic performance (Evans, 1996). Teacher perceptions can lead to significant vulnerability on the part of the shy child as these perceptions regarding children's intelligence and academic skills may lead to a self-fulfilling prophecy (Hauck et al., 1986) whereby shy students who are not expected to perform academically come to internalize these expectations. Further, if teachers are perceiving shy students to be less intelligent, this incorrect assumption is likely to translate to and be reflected in formal evaluations of academic performance.

Some researchers have suggested that shy children may go unnoticed by teachers (Evans, 2001; Keogh, 2003; Rimm-Kaufman et al., 2002; Rimm-Kaufman & Kagan,

2005; Rudasill & Rimm-Kaufman, 2009). These children may be of lesser concern and notice given that they are less disruptive in the classroom as compared to their more active or aggressive peers. Teachers may even encourage shy behaviours in their students as these behaviours help to maintain order within the classroom (Evans, 2001; Rubin, 1982).

In contrast, other researchers have reported that teachers do identify shyness as being problematic and will therefore intervene to help shy students (Arbeau & Coplan, 2007; Coplan & Prakash, 2003; Thijs, Koomen & Van der Leij, 2006). With respect to teacher-child relationships, teachers have reported that they would use supportive strategies and praise in addition to other reinforcements in order to help increase the comfort and ease of shy children within the classroom environment (Bosacki, Coplan & Rose-Krasnor, 2009; Brophy & McCaslin, 1992; Evans, 2001). Further, through the use of hypothetical vignettes, Arbeau and Coplan (2007) found that kindergarten teachers were more likely to encourage social skills among shy students as compared to their non-shy peers. Finally, Thijs et al. (2006) found that kindergarten teachers were more likely to encourage shy children to play with others. The aforementioned strategies employed by teachers to engage shy children seem to corroborate findings from behavioural observation studies showing that shy children generally require more teacher attention (e.g., Coplan & Prakash, 2003). Researchers have speculated that the increased research and media exposure dedicated to helping shy children to excel has led teachers to be increasingly aware of the specific needs of these learners (Arbeau & Coplan, 2007).

Shyness and Academic Achievement

Academic achievement (or academic performance) can be conceptualized as the “outcome” of education, that is, the extent to which a student has been able to achieve his or her academic goals or those goals set out for them based on grade level expectations. Academic achievement can be assessed in a variety of ways. For the purposes of the present study, both teacher ratings and child test performance were included. In the literature, these techniques are frequently used as a means of assessing academic achievement (e.g., Chen, Cen, Li & He, 2005; Chen, Wang & Cao, 2011). It should be noted that the terms academic performance and academic achievement will be used interchangeably throughout this thesis to refer to the same construct.

Conceptual mechanisms. Coplan and Evans (2009) outlined several conceptual mechanisms thought to account for the link between shyness and language development. However, many of these processes can be applied more generally to academic achievement. For example, due to their lack of classroom participation, shy children may be perceived as having weak academic skills (Asendorpf & Meier, 1993; Evans, 1987). Teachers may also interpret the shy child’s lack of participation as being indicative of a failure to grasp course material or not knowing the correct answers (Gordon & Thomas, 1967; Lerner, Lerner & Zabski, 1985).

Research also suggests that the communicative style adopted by shy children may make them appear less knowledgeable than their non-shy peers. Difficulties with self-expression may be linked to a deficit in language ability in these children (Coplan & Weeks, 2009; Evans, 1996; Spere, Schmidt, Theall-Honey & Martin-Chang, 2004).

Of note, there is continued debate as to whether shy children's language difficulties are a result of "competence" versus "performance" deficits (Coplan & Evans, 2009). For example, shy individuals engage less frequently in verbal exchanges with peers as well as adults. When shy children do initiate or maintain interactions, the quality of these interactions is low given the propensity of the shy child to speak less in the presence of others (Asendorpf & Meier, 1993). This lack of verbal interaction has been shown to span across numerous settings including novel, social and classroom situations (e.g., Coplan, 2000) as well as the familiar home environment when the child is in the presence of parents (e.g., Spere, Evans, Hendry & Mansell, 2008). The '*lack of practice makes lack of perfect*' explanation proposed by Evans (1993, 1996), is therefore one possible explanation suggesting why shy children may indeed be less linguistically competent. According to this model, the restricted verbal participation of the shy child, as a result of social anxiety and socio-evaluative concerns, affects the child's opportunities to practice and develop their language skills.

In contrast to this competence deficit, as previously mentioned, teachers may form unjustified negative views of the academic ability of their shy students. In the Coplan et al. (2011) study for example, hypothetical shy children were perceived by teachers as being the least intelligent of three groups of children. This perceived lack of intelligence and academic ability would likely span various academic domains including language, leading to a 'perceived' deficit in this area. Related to this notion, shy children are more likely to experience performance anxiety during formal testing. Regardless of appropriate competency, methods of evaluating shy children may create anxiety which subsequently serves to inhibit performance (Crozier, 1995). In examining the influence of

conditions of test administration, Crozier and Hostettler (2003) administered vocabulary and mental arithmetic tests to 240 primary school-aged children in one of three conditions. In the first condition, the tests were administered individually, face-to-face, in a quiet room. The tests were presented orally and children were able to respond in a similar oral fashion. In the second condition, the tests were once again administered on an individual basis in the quiet location, however, while the tests were administered orally, children were asked to provide their responses in writing. Finally, in the last condition, children were able to respond to questions on the vocabulary and arithmetic scales in a group setting with their peers. With respect to the children's performance on the vocabulary scale, the researchers found that, while shy children had lower scores as compared to their less shy peers, this difference was minimized on group administered tests and exacerbated in cases where the test was administered on an individual basis. Further, with respect to oral versus written administration, the individual written testing condition proved to be the most problematic for shy children. It may be that the lasting nature and potential for repeated evaluation afforded by a written response is particularly anxiety provoking for shy children. The performance of shy children may thus be reduced in instances where the testing environment is more demanding such as when production of language as opposed to comprehension of language is required (Evans, 2001). Performance may also suffer when shy children feel as though they are the center of attention (Crozier & Hostettler, 2003). In a classroom setting, the academic performance of shy children may suffer given that the anxiety that they experience in school may interfere with their ability to pay attention and participate in academic tasks (Hughes & Coplan, 2010).

Another conceptual mechanism underlying the link between shyness and academic performance suggests that shy children are less “academically engaged” in the classroom thereby causing their academic performance to suffer as a result. Connell, Spencer and Aber (1994) found that measures of academic engagement positively predicted academic achievement. Fredrick and colleagues (2004) described three components of academic engagement as being emotional engagement, cognitive engagement and behavioural engagement. Hughes and Coplan (2010) reported that shyness was negatively related to behavioural engagement, which in turn was positively correlated with indices of academic achievement. The perceived academic ability of shy students may be affected in cases where teachers perceive shy children as having poor behavioural engagement. Research has indeed supported the notion that teachers may perceive shy students as less knowledgeable if they are less engaged (Gordon & Thomas, 1967; Lerner et al., 1985).

A final conceptual mechanism to consider in analyzing the link between shyness and academic achievement comes from the language debate in which a ‘*bold is better*’ model has been proposed. In many studies, shy children have been compared to their extremely non-shy peers, rather than to peers falling in the average range in terms of shyness scores. Coplan and Evans (2009) suggest that, given this comparison between groups with very different characteristics, it may not be the case that shy children lag behind in their language development, but rather that being very bold and outgoing presents an advantage.

Empirical links. Research has linked poorer academic achievement to temperamental characteristics such as low approach, low sociability, and high

emotionality (e.g., Chen, Chang & He, 2003; Coplan, Barber & Lagacé-Séguin, 1999; Schoen & Nagle, 1994), as well as personality traits such as introversion and neuroticism (Chamorro-Premuzic & Furnham, 2003; Laidra, Pullmann & Allik, 2007). Further, Masten and colleagues (2005) have proposed a link between internalizing behaviours and academic achievement.

Empirical evidence has indeed established a link between shyness and a lack of displayed academic competence both in early childhood (e.g., Lloyd & Howe, 2003) and later childhood (e.g., Rubin, Chen & Hymel, 1993). Coplan, Gavinski-Molina, Lagace-Séguin and Wichmann (2001) examined the relations between various forms of children's nonsocial play behaviours and adjustment in kindergarten. Among the results, children who displayed more frequent reticent behaviour (a behavioural marker of shyness) also had lower scores on a global rating of early academic achievement. This global measure of achievement consisted of teacher ratings as well as standardized test scores collected by means of child interview. Further, Masten, Morison and Pellegrini (1985), used the *Revised Class Play* (RCP) (a measure of peer reputation) in a sample of students in Grades 3 through 6. The authors found that the dimension of Sensitive-Isolated, which closely parallels shyness, was associated with poor achievement, classroom problems, and teacher ratings of poor comprehension and inattention. The authors concluded that children high on this dimension may have particular difficulty managing the academic, behavioural and social demands of the school environment.

Shyness and language skills. Linguistic ability is perhaps the most important skill to master within the formal education system, as language is a vital component of all subject matter. In this regard, language deficits are likely to influence a child's overall

academic experience and performance quite significantly. In the research, a link between language impairment in early childhood and the development of anxiety disorders in adolescence has been established (Voci, Beitchman, Brownlie & Wilson, 2006).

Language difficulties are thus of particular concern when considering this special population who is already at risk for experiencing social anxiety.

Research has shown that shy children are more prone to experience difficulties with respect to verbal communication (Buss, 1984, 1997). Speech reticence (i.e., not talking), longer latencies to offer spontaneous comments, and reluctance to contribute to conversations are all characteristic of the communication style of shy children (Crozier, 2001). In early infancy, restraint of speech is often evident and characteristic of the early language of shy children (Rezendes, Snidman, Kagan & Gibbons, 1993). Further, shy children engage infrequently in interactions with their peers, with the quality of these infrequent interactions being low given that shy children speak less in the presence of others, both peers and teachers alike (Asendorpf & Meier, 1993). These socio-communicative behaviours will undoubtedly pose problems for the shy child in terms of academic outcomes given that verbal participation and social interaction are viewed as key components of classroom learning (e.g., Butler, 1999; Williams, 2006).

In terms of evaluation, the performance of shy children on a variety of tests of language abilities has been shown to be worse than that of non-shy children particularly where aspects of expressive language are concerned (e.g., Broberg, Hwang, Lamb & Bookstein, 1990; Crozier & Perkins, 2002; Evans, 1996). Coplan and Armer (2005) found that the relation between shyness and adjustment difficulties in preschool was reduced at higher levels of expressive language thereby indicating the protective role that

the ability to communicate effectively with peers may play in the lives of shy children. In a follow-up study, Coplan and Weeks (2009) highlighted the aforementioned buffering effect of appropriate language usage by shy children, reporting that with increasing levels of pragmatic language, shyness was no longer associated with negative socio-emotional outcomes in the school environment. Findings pertaining to the receptive language skills of shy children have been less consistent, with some research finding poorer performance among shy children in this domain (e.g., Crozier & Perkins, 2002; Rubin, 1982; Spere et al., 2004), whereas other researchers have failed to identify any such difficulties (e.g., Coplan, Wichmann & Lagacé-Séguin, 2001; Evans, 1996; Rubin & Krasnor, 1986).

Shyness and math. Unlike language which can vary significantly according to geographic location and which is inherently social thus proving more difficult for the shy child, math may be regarded as a more universal subject which adopts common symbols and equations regardless of the characteristics and location of the learner. This universality and lack of social context may prove beneficial for the shy child.

In one of the few studies examining the link between shyness and math performance, Hughes and Coplan (2010) found that shyness was negatively related to teacher-rated math skills, however, it failed to be significantly related to standardized tests of skills in this academic domain.

Although direct links between child shyness and achievement in mathematics have yet to be explored in great detail in the literature, achievement in this domain has been associated with shyness when included as part of a composite measure of academic achievement (e.g., Chen, Wang & Cao, 2011).

Shyness in China

Most of what we know about the nature and implications of childhood shyness is based on research conducted in Western cultures (Rubin et al., 2009). Given this cultural bias, it may often prove unethical and ineffective to attempt to generalize results from these studies to samples obtained from non-Western cultures. The characteristics valued in these nations, namely an individualistic striving for achievement, are often quite different from those expressed in other cultures around the world. Cross-cultural differences in the meaning and value of shyness are apparent. For example, in cultures that place significant value on autonomy and competition, shyness is often seen as a maladaptive trait, a sign of weakness and low intelligence. In contrast however, in cultures that are more collectivistic in nature and thus favour group membership, collaboration, and modesty, shyness may be viewed more favourably and associated with more positive outcomes.

In examining research conducted with shy children, it should be noted that there are cross-cultural differences with respect not only to the meanings but the outcomes of shyness as well. In the current study, the implications of shyness for children's academic functioning will be explored in the cultural context of China.

Cultural philosophy. With respect to social functioning, cultural context plays an important role in dictating which behaviours are perceived to be adaptive or maladaptive in nature (Bornstein, 1995; Chen, 2000). For example, shyness in collectivistic or group-oriented societies such as China has traditionally been more positively accepted and associated with indices of positive adjustment (e.g., Chen, Cen, Li & He, 2005). In collectivistic nations, interdependence and group affiliation is of paramount importance

(Chen, 2010; Oyserman, Coon & Kimmelmeier, 2002). The expression of individual desires is often viewed as selfish and socially unacceptable (Ho, 1986). Shy, sensitive and restrained behaviours are considered indicative of social accomplishment and maturity in traditional Chinese culture. Shy children in this cultural context are often seen as well behaved and understanding (King & Bond, 1985; Yang, 1986). The cultural endorsement of shyness lends itself to increased social support in peer interactions and enables shy children to display confidence in social and school performance. Given the challenges that shy children face, the stable social environment and extensive peer contacts that Chinese children have in school and throughout the community may be of particular benefit (Chen, 2000).

In contrast to research with children from Western cultures (e.g., Rubin et al., 2009), shy, anxious, and sensitive behaviour in China has historically been found to be adaptive and associated with positive outcomes including positive peer relationships, school competence and psychological well-being (e.g., Chen, Dong & Zhou, 1997; Chen et al., 1995; Chen et al., 1992). In stark contrast, due to Western cultural expectations which place value on the traits of assertiveness, expressiveness and competitiveness (Larson, 1999), shy children in these societies may be perceived as being socially incompetent and immature (Rubin & Asendorpf, 1993). Indicative of its maladaptive nature, empirical evidence suggests that shyness reflects internal anxiety and fearfulness in addition to a lack of self-confidence in social situations and those perceived to be evaluative in nature (Asendorpf, 1990; Stevenson-Hinde & Shouldice, 1993). Peers and adults in this cultural context often respond to shy behaviour with negative emotions and action such as rejection (e.g., Chen, DeSouza, Chen & Wang, 2006; Coplan et al., 2004).

As described earlier, in North America and Western Europe, shyness has been associated with socio-emotional and school difficulties (e.g., Asendorpf, 1991; Asendorpf, Denissen & van Aken, 2008; Coplan, Prakash, O'Neil & Armer, 2004). Shy children functioning within this context therefore tend to develop negative self-perceptions and feelings of depression (e.g., Boivin, Hymel & Bukowski, 1995).

Shyness and academics in China. Less is known about the links between shyness and academic performance in China. However, results from some previous studies have indicated positive links between shyness and indices of academic and school functioning. For example, Chen, Chen, Li and Wang (2009) followed a sample of urban Chinese children starting at age 2 years. At age 7 years, teachers rated children's school-related competency and learning problems. "Distinguished studentship" was also used as an indicator of school competence (students perceived by peers and teachers as intellectually competent and well-behaved may be nominated for this award each year). Results indicated that shyness at two years of age predicted positive attitudes toward school, teacher-rated competence, and distinguished studentship at age seven years. Shyness was also negatively associated with teacher-rated learning problems. Thus, overall, shyness in early childhood was found to be an adaptive characteristic contributing to later school achievement in Chinese children.

Chen, Rubin and Li (1995) conducted a 2-year longitudinal study with an initial sample of 8 to 10 year old children from Shanghai. Teachers rated students' school competence, and academic achievement was also assessed using school records (i.e., grades obtained in Chinese language studies and mathematics). As scores in language studies and mathematics were significantly correlated, a single index of academic

achievement was created. Among the findings, shyness at age 8 years was positively correlated with academic achievement at age 10 years, and shyness at age 10 years was positively correlated with teacher-rated competence at age 12 years. Thus, once again, the aforementioned researchers found that shyness was positively related to academic outcomes for Chinese children. With respect to data collection, it is important to note that the first wave of data was collected in 1990 with follow-up data collection being carried out in 1992. As noted in the section that follows, the effects of the large-scale reform in China had not yet been felt at this time and therefore caution should be exercised in generalizing these findings to the present.

“The Shift”: Social and cultural changes in China. First and foremost, it is important to acknowledge the fact that social and cultural conditions are not static but rather are constantly changing (Silbereisen, 2000). This realization applies to Chinese society which has undergone many changes since the early 1980s. During this time, a full-scale reform was initiated in China with the goal of transitioning society towards a market economy which incorporates numerous aspects of capitalism characteristic of Western nations. Given this radical shift, major changes in economic and social structures in China have ensued (Chen et al., 2005). In addition to a massive movement of the population, Chinese citizens have experienced a rapid rise in the unemployment rate and subsequent competition (e.g., Zhang, 2000). The abundant social and economic changes in China have given rise to widespread interest in individualistic values and ideologies including liberty, individual freedom and independence, especially among those forming the younger generation (e.g., Cai & Wu, 1999; Huang, 1999). Along with the reform have come changes in educational policies and practices in Chinese schools.

In order to account for the new market-oriented economy, modifications have been made with respect to educational goals, models and methods (Yu, 2002). To better prepare students to enter this more competitive society, many schools in China have taken on the responsibility of helping children to develop adaptive social and behavioural qualities conducive to success in the new environment. Although academic achievement remains a priority, students are now encouraged to develop social skills which have traditionally been of little importance in Chinese culture including the expression of personal opinions, self-direction and self-confidence (Xu & Peng, 2001; Yu, 2002).

In a unique study that directly examined this transition within Chinese society, Chen and colleagues (2005) explored relations between social functioning and adjustment in three cohorts of urban elementary school students at various time points representative of different phases of social and economic reform (1990, 1998, and 2002). Among the results, whereas shyness was positively associated with peer acceptance, teacher-rated competence, leadership and academic achievement in the 1990 cohort, these associations weakened or became nonsignificant in the intermediate cohort of 1998. Moreover, shyness was found to be positively associated with peer rejection and self-reported depression as well as negatively associated with teacher-rated school competence in the final 2002 cohort. The authors suggested that the functional meaning of shyness in Chinese society had changed across the three cohorts examined. That is, as the new social and cultural structure came into effect, shy behaviour had become more unsuitable/less adaptive within Chinese society thereby closely paralleling the longstanding view of shyness and associated negative outcomes present in Western society.

Of note, within China, regional differences with respect to the pace and magnitude of the social and economic reform exist. Social and economic changes have largely been constrained to urban centers and cities. The effects of the transformation have thus not been felt to the same extent by families and their children living in rural China where agricultural living is dominant (Huang & Du, 2007; Li, 2006). In these relatively unaffected areas, behaviours of traditional importance including social responsibility and self-constraint are still highly valued and adaptive in nature (e.g., Fuligni & Zhang, 2004; Ming, 2008; Ying & Zhang, 1995).

To explore potential regional differences, Chen, Wang and Wang (2009) examined relations between shyness and numerous variables including social competence, school performance and psychological well-being in a sample of Chinese children. Participants included third to sixth grade students attending rural migrant schools as well as city schools in China. It is important to note that, although rural migrant families often stay in the city for years, strong links to their rural villages of origin are maintained (e.g., Shen, 2006; Wang, 2004). In the case of rural children, numerous challenges including additional fees often prevent them from attending public city schools. In light of this fact, in major cities including Beijing, the municipal government and the migrant community have partnered to establish schools for migrant children. Overall, shyness was generally associated with social and school difficulties in the urban group, such that shy urban children were more likely to be perceived by their teachers to be incompetent and to perform poorly in the academic areas of Chinese, mathematics and English. In contrast, in rural migrant students, shyness was associated with social and school achievement including teacher-rated competence and academic

achievement in the three academic domains being explored. In this study, shy rural migrant students were found to be more likely than their similarly shy urban counterparts to adjust well in the school.

Chen, Wang and Cao (2011) studied a group of third to fifth grade students attending schools in two rural regions of Northern China. Teachers rated children's school competence and learning problems (e.g., "underachieving", "poorly motivated to achieve", "having difficulties in learning academic subjects"). In addition, an index of social standing was created (e.g., student awards for leadership, being a distinguished student). Indicators of achievement in Chinese, mathematics and English were obtained through analysis of school records. Objective examinations carried out by participating schools formed the basis of ratings of academic achievement. Among the results, in the rural sample, shyness was positively related to social standing, teacher-rated school competence and academic achievement and negatively associated with learning problems.

Given their lack of exposure, the outcomes for this group of shy children living in rural China were similar to those experienced by their urban counterparts in the early 1990s when the effects of the reform had not yet been felt. These shy children living in rural China were found to be well-adjusted socially and more importantly in this case academically. Given these findings, we must consider that behaviours that are now thought to be important and adaptive in the competitive urban environment in China including social initiative and self-expression may not necessarily be promoted in social interactions among rural children (e.g., Fang, 2000; Guo et al., 2005). In keeping with the idea of dynamic change, it is important to consider that many rural areas of China are

undergoing changes toward modernization. However, a lifestyle rooted in tradition has been thought to allow these citizens to maintain their core values (e.g., Luo, 1996; Yang, 1996).

In discussing the cultural and economic changes which have taken place in China over the past couple of decades, it is important to be reminded of the fact that this is a complex and ongoing process and that change has occurred gradually over time and will continue as such.

Importance of achievement for shy children. Despite the ongoing cultural changes, academic achievement remains extremely highly valued in Chinese society (Li, 2011). With this in mind, Chen, Yang, and Wang (2013) recently examined the possible *moderating* effects of academic achievement in the relations between shyness and internalizing problems in Chinese children. That is, these researchers sought to uncover whether academic achievement might be a buffering factor that protects shy children from developing later problems. Participants were $n = 1171$ children aged approximately 9 years from the urban centre of Beijing, People's Republic of China. Among the findings, shyness was positively associated with later internalizing problems including depression for low-achieving children, whereas associations were not statistically significant among high-achieving children. In other words, for those children who struggled academically, shyness contributed to the development of problems related to psychological adjustment, whereas for academically strong children, shyness was not associated with these problems.

Among many other beneficial outcomes, high academic achievement may afford shy children the opportunity to engage with their peers in supportive relationships as well

as with teachers and parents whose evaluations of the child tend to be disproportionately centered on academics (e.g., Yang, 2007). In addition, high-achieving children may be more likely to learn and implement effective coping strategies as compared to their less academically competent peers thus allowing them to better manage the stress associated with adjustment (e.g., Wentzel, 2005). Chen et al. (2013) speculated that although the moderating effect of academic achievement may become increasingly important in the later high school years where academics are of even greater concern, it is unclear whether achievement would play the same role in the lives of children in lower elementary grades.

The Current Study

The overall aim of this thesis research was to explore the relations between child shyness and indices of academic achievement among elementary school children in China. Previous studies of shyness in China have relied upon peer nominations to assess children's shyness (e.g., Chen et al., 2005). The use of peer nominations of shy behaviour can be advantageous, particularly with respect to the heightened reliability that results from the use of multiple reporters (i.e., classmates) of child behaviours. However, given that shyness reflects internal motivations and emotional states, it may be best assessed using self-report techniques among older children. Whether it be a peer-report or self-report measure, there are several drawbacks associated with the use of Western measures of shyness in China. These areas of potential concern may be related to language and/or cultural differences and may affect the accuracy of reported findings.

Accordingly, the first specific goal of this study was to validate the newly developed Chinese version of the *Children's Shyness Questionnaire* (CSQ, Crozier, 1995), a self-report measure of child shyness used for the first time in China in this study.

The factor structure, psychometric properties, and validity of the Chinese-CSQ were examined.

The second goal was to examine possible differences in the links between shyness and academic performance in China as a function of both academic domain and source of assessment. To address this goal, academic performance was measured across three academic domains (English, Chinese, mathematics), and two methods of assessment (teacher ratings, classroom tests). In these analyses, it was also of interest to determine whether shyness would remain related to academic achievement while controlling for socio-demographic variables (i.e., age, sex) as well as socio-emotional difficulties (i.e., depression, peer rejection), since these variables may also directly contribute towards children's academic performance.

The final goal was to examine the potential moderating role of academic achievement in the link between shyness and indices of socio-emotional functioning.

Drawing upon the extant literature, it was hypothesized that exploratory factor analyses (principal components) of the Chinese version of the *CSQ* (Crozier, 1995) would reveal a single factor with acceptable psychometric properties. The validity of this new measure would be tested via associations with peer assessments of shyness (RCP) as well as measures of depression and peer rejection. It was further hypothesized that child shyness would be negatively related to overall academic performance. However, the academic performance of extremely shy students was expected to vary as a function of both academic domain (i.e., poorer academic outcomes in English, followed by Chinese, and then mathematics) and method of assessment (i.e., poorer academic outcomes when assessed through teacher ratings as compared to assessments made on the basis of

curriculum-based tests). As well, given previous research that suggests that being shy is particularly problematic for boys as compared to girls, especially with regards to social and emotional outcomes (Coplan et al., 2007; Morison & Masten, 1991), it was speculated that these links might be the same for academic achievement (i.e., poorer academic outcomes for shy boys as compared to shy girls in China). Finally, shyness was expected to be more strongly associated with depression and peer rejection among children with lower academic achievement, but among those children with higher achievement, these associations were thought to become attenuated (Chen et al., 2013).

Method

Participants

Participants were $N = 597$ children (319 boys, 270 girls, 8 not identified) ranging in age from 8 to 11 years. Children were recruited from 5 randomly selected public elementary schools in Shanghai, People's Republic of China. The sample was approximately evenly divided into children in grade 4 ($n = 193$), grade 5 ($n = 194$), and grade 6 ($n = 205$). The children were from 18 classes, with 30-40 students in each class. Almost all children were of Han nationality, a predominant ethnic group (over 90% of the population) in China. The demographic data for the sample were similar to those reported by China State Statistics Bureau concerning the urban population in China (e.g., National Bureau of Statistics of China, 2008).

In Chinese schools, one *head teacher* is designated as being in charge of a class. This teacher usually instructs the same group of students over several years and thus, is very familiar with the students.

Measures

Measures used in this study were collected from students and teachers in the school environment.

Child shyness. In order to assess shyness, children completed the newly developed Chinese version of the *Children's Shyness Questionnaire* (CSQ, Crozier, 1995). The original 24-item self-report measure focuses on the emotional (e.g., "I feel nervous when I am with important people") and behavioural (e.g., "I am usually quiet when I am with others") aspects of shyness. Developed for use with children aged 9 to 12 years, the CSQ has been shown to demonstrate good psychometric properties (e.g., Crozier, 1995; Findlay, Coplan & Bowker, 2009; Spooner, Evans & Santos, 2005). Original items were translated to Chinese and back-translated to English. The factor structure, psychometric properties, and validity of the Chinese version of the CSQ were examined as part of this thesis research.

Shyness was also assessed using a peer assessment measure adapted from the *Revised Class Play* (RCP, Chen et al., 1992; Masten, Morison & Pellegrini, 1985). Administrators read each behavioural descriptor and children nominated up to three classmates who could best play the role if they were to direct a class play. Children were instructed to only select one classmate per role, however, the same classmate could be selected for more than one role. Further, self-selections within this measure were not permissible. Subsequently, nominations received from all classmates were used to compute each item score for each child. Both same-sex and cross-sex nominations were allowed (as suggested by Terry & Coie, 1991). Item scores were standardized within the class to adjust for differences in the number of nominators. The measure has proved to be

reliable and valid in Chinese children (e.g., Chen, 2008; Chen et al., 1992). Of particular interest for the present study was the subscale of *shyness*, consisting of 3 items assessing anxious reactivity and wariness (e.g., “Very Shy”, “Feelings get hurt easily”).

Sociometric nominations. Children were also asked to nominate up to three classmates with whom they most liked to be with (positive nominations) and three classmates with whom they least liked to be with (negative nominations). Nominations received from all classmates were totaled and standardized within each class. As suggested by other researchers (e.g., Coie, Terry, Lenox, Lochman & Hyman, 1995), cross-gender nominations were allowed. The positive and negative playmate nominations received from peers provided indexes of peer acceptance and peer rejection respectively. Following Coie, Dodge and Coppotelli’s (1982) procedure, an index of peer preference, which indicates how well an adolescent is liked by peers in the classroom, was formed by subtracting negative nomination scores from the positive nomination scores. The procedure has been used and proved valid with Chinese children (e.g., Chen et al., 1995).

Child depression. Children’s depression was measured using a Chinese version of the *Childhood Depression Inventory* (CDI, Kovacs, 1992). For each item of the self-report measure, children were asked to select which of three alternative responses best described him or her in the past two weeks. Items targeted thoughts, feelings or behaviors associated with depression and were scored 0, 1 or 2 with higher scores indicative of greater depressive symptomatology. This version of the CDI has proven to be reliable and valid for use with Chinese children (e.g., Chen & Li, 2000; Dong, Yang & Ollendick, 1994).

Academic achievement. Indices of academic achievement were collected via student's school records. Grades on curriculum-based tests in the three subject areas of interest (Chinese, English and mathematics) that were administered as part of the normal classroom instruction were analyzed. Grades in these subject areas, reported in the form of a percentage, have been found to be a valid measure of school academic achievement in Chinese children (e.g., Chen et al., 1995).

The head teacher in each participating classroom also rated students on three items pertaining to current academic achievement in Chinese, English and mathematics (1 item per subject area). Items were rated on a 5-point Likert scale from 1= very poor to 5= very good. These items have been used previously to assess academic achievement in Chinese children (e.g., Liu, Bullock & Coplan, 2013).

Procedure

The design of this study was reviewed and approved by the Institutional Review Board at Shanghai Normal University. School approval and parental written informed consents for their children to participate were obtained prior to data collection.

Results

Preliminary Analyses

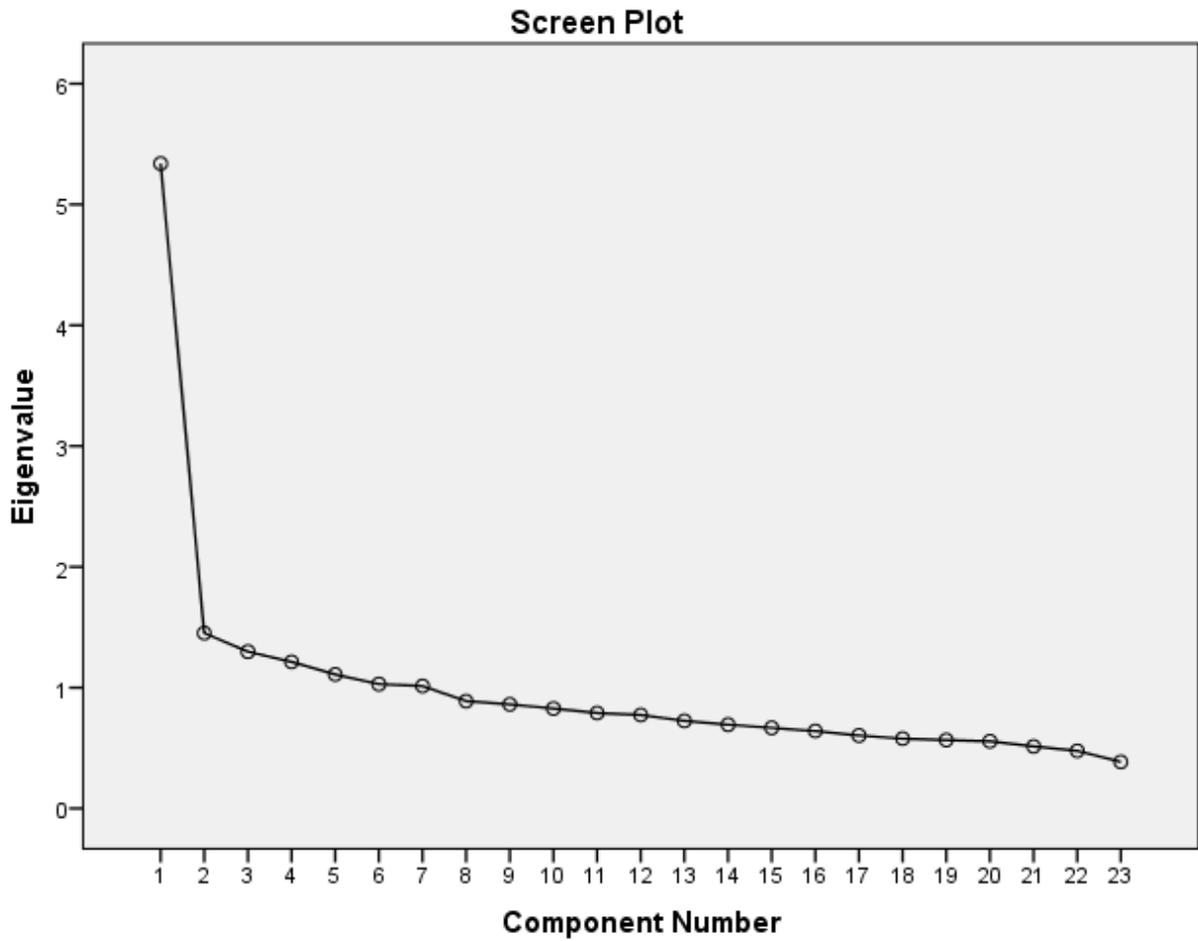
Prior to conducting the main analyses, screening for the presence of missing data and outliers took place. A total of 34 outliers (i.e., values greater than 3.29 SD from the mean) were detected in the dataset among several variables (with most occurring in the peer nominations). In order to adjust the aforementioned outliers, extreme values were brought within 3.29 standard deviations of the mean (Tabachnick & Fidell, 2012).

The assumptions of normality and homoscedasticity for each of the measures included in this study were examined. In order to detect normality issues related to skewness and kurtosis, histograms for each of the variables were first examined visually. Visual inspection of these histograms suggested that some distributions were leptokurtic. In order to quantify these observations, the skew and kurtosis values for each variable were divided by its standard error. Given that the resulting values were greater than 3.29 across the majority of variables (with the exception of self-reported shyness, and teacher-rated performance in English and Chinese), it was necessary to attempt transformations (e.g., logarithm, square root, inverse). In all cases, transformations did not significantly change the results obtained from subsequent analyses. Therefore, in order to ease interpretation of the results, the non-transformed raw data was used. In order to examine the assumption of homoscedasticity for each of the variables, the standardized residuals were plotted against the predicted values. Examination of the scatter plots created for each measure indicated that the assumption of homoscedasticity was met in all cases. In other words, the residuals demonstrated a constant variance for all measures.

Factor Structure of the Chinese Version of the *CSQ*

In order to validate the newly-developed Chinese version of the *Children's Shyness Questionnaire*, exploratory factor analyses (principal components) was used. The initial factor analysis identified one comparatively large factor (Eigenvalue = 5.34, accounting for approximately 23% of the variance) and six smaller factors (all with Eigenvalues just above 1). An examination of the screen plot indicated that a one-factor solution was most appropriate for this data (see Figure 1).

Figure 1. Screen plot depicting factor Eigenvalues for the items from the Chinese CSQ.



Accordingly, the factor analysis was recomputed forcing a one-factor solution. In examining the component matrix, two scale items (with content related to “being quiet with others” and “being quiet in the presence of strangers”) did not load above the critical cutoff of .30, and were dropped from the subsequent analyses. The final scale included 21 items loading on a single factor accounting for approximately 25% of variance, with factor loadings ranging from .31 to .61 (see Table 1), and satisfactory internal reliability ($\alpha = .84$).

Gender and Grade Analyses

In order to examine differences in self-reported shyness across genders and grade levels, a 2 (gender) x 3 (grade level) ANOVA was computed. Results indicated a significant main effect of grade, ($F(2,571) = 4.59, p = .01$), but no significant effect of gender, ($F(1,571) = .11, p = .75$), or a gender x grade interaction, ($F(2,571) = 2.26, p = .11$). For the effect of grade, results from follow-up post-hoc analyses (LSD) indicated that children in grade 4 reported being significantly less shy ($M = 1.73, SD = .39$) than children in grade 5 ($M = 1.85, SD = .32$), but children in grade 6 did not differ significantly in shyness from the other two grades ($M = 1.78, SD = .40$). Child grade was controlled for in all subsequent analyses.

Correlations between Study Variables

Correlations among study variables are displayed in Table 2. To begin with, the newly developed child self-report measure of shyness was significantly and positively (albeit modestly) correlated with the peer-report measure of shyness (providing some evidence of construct validity).

Table 1. Factor loadings for the final 21 items of the Chinese version of the *CSQ*.

Measure Item	Factor Loading
Hard to talk to someone I don't know	.31
Easily embarrassed	.40
Blush during Happy Birthday	.42
Nervous with important people	.41
Shy reading aloud in front of class	.61
Nervous joining a new class	.52
Go red when teased	.41
Shy in a group	.60
Shy when center of attention	.59
Blush a lot	.51
Shy when teacher speaks to me	.60
Embarrassed in front row	.55
Don't know what to say about myself when grown-ups ask	.30
Go red when teacher praises work	.47
Shy going into a room full of people	.59
Embarrassed having friends look at photos of you when younger	.45
Too shy to ask to be sponsored	.50
Usually talk to one or two close friends	.37
Usually shy when meeting girls (boys)	.58
Go red when speaking to same-age girl (boy)	.55
Very shy meeting new person	.58

Table 2. Correlations between study variables.

	1	2	3	4	5	6	7	8	9	10
1. Self-Reported Shyness	-	.08*	.36**	.08+	-.18**	-.16**	-.19**	-.17**	-.17**	-.20**
2. Peer-Reported Shyness	-	-	.10*	.14**	.06	.12**	-.10*	.04	.10*	-.07
3. Child Depression	-	-	-	.15**	-.27**	-.30**	-.25**	-.28**	-.25**	-.22**
4. Peer Rejection	-	-	-	-	-.33**	-.33**	-.34**	-.26**	-.25**	-.25**
5. Chinese Test	-	-	-	-	-	.74**	.65**	.78**	.64**	.61**
6. English Test	-	-	-	-	-	-	.67**	.66**	.84**	.63**
7. Math Test	-	-	-	-	-	-	-	.55**	.60**	.80**
8. Teacher-Rated Chinese	-	-	-	-	-	-	-	-	.71**	.68**
9. Teacher-Rated English	-	-	-	-	-	-	-	-	-	.70**
10. Teacher-Rated Math	-	-	-	-	-	-	-	-	-	-

** Correlation is significant at the .01 level

* Correlation is significant at the .05 level

+ Correlation is significant at the .06 level

Note: Inspection of the values of the correlations across academic domains and raters suggested that they did not differ significantly from one another. Confirmation was attained using Fisher's (1921) test.

Self-reported shyness was also significantly and positively correlated with child-reported depression and the association with peer rejection approached significance (providing some evidence of convergent validity). Self-reported shyness was also significantly and negatively associated with academic achievement across all three subject areas (i.e., Chinese, English, math) and as assessed by both examination and by teacher ratings.

Peer-rated shyness was significantly and positively associated with child depression, peer rejection, performance on English exams and teacher-rated performance in English. However, shyness as rated by peers was significantly negatively associated with performance on math exams. In support of the use of the self-report measure of shyness, it should be noted that the self-report measure of shyness was more strongly associated with the study variables as compared to the peer-report measure of the same construct. Accordingly, subsequent regression analyses were computed using the self-report measure only.

Associations were also found between measures of socio-emotional functioning (i.e., depression, peer rejection) and indices of academic achievement. Both self-reported depression and peer-rated rejection were significantly and negatively correlated with all measures of academic achievement (across subject domain and method of assessment).

Finally, all measures of academic achievement, (i.e., classroom tests and teacher ratings across three academic domains), were significantly inter-correlated.

Shyness and Academic Achievement: Associations Across Domains and Assessments

To explore the relations between child shyness and academic achievement across a variety of domains and methods of assessment, a series of regressions was performed.

Results from correlational analyses indicated common associations among shyness, indices of socio-emotional functioning (i.e., depression, peer rejection), and indices of academic achievement. Accordingly, depression and peer rejection were controlled for in the regression analyses. As well, effects of child gender and the interaction between shyness and child gender were also explored.

For each equation, the control variables of child grade and gender were entered at Step 1, peer rejection and child depression were entered at Step 2, at Step 3 the main effect variable of child self-reported shyness was entered, and finally at Step 4 the interaction term (i.e., shyness x gender) was entered. Separate equations were computed to predict each of the academic outcome variables (i.e., Chinese exam, English exam, Math exam, Chinese teacher rating, English teacher rating, Math teacher rating).

Chinese exam. Results for the prediction of academic performance on a test of Chinese language skills are displayed in Table 3. At Step 1, results indicated a significant positive association for child gender (indicating that girls performed better than boys on the Chinese exam). At Step 2, peer rejection and childhood depression were negatively associated with performance on the Chinese test (even after controlling for the child's grade and gender). At Step 3, self-reported child shyness was negatively associated with test performance in the aforementioned academic domain. Finally, at Step 4, no significant shyness x gender interaction effect was uncovered.

English exam. Results for the prediction of academic performance on a test of English language skills are displayed in Table 3. At Step 1, results indicated a significant positive association for child gender (indicating that girls performed better than boys on the English exam).

Table 3. Summary of hierarchical regression analyses predicting performance on tests across three academic domains.

<u>Predictor</u>	<u>Dependent Variable</u>								
	Chinese Test			English Test			Math Test		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
<u>Step 1</u>									
Grade	.004	.05	.004	.02	.05	.01	.01	.05	.01
Gender	.16	.04	.17***	.23	.04	.24***	-.01	.04	-.01
<u>Step 2</u>									
Rejection	-.30	.04	-.29***	-.29	.04	-.28***	-.32	.04	-.31***
Depression	-.20	.04	-.21***	-.22	.04	-.23***	-.19	.04	-.21***
<u>Step 3</u>									
Shyness	-.09	.04	-.09*	-.06	.04	-.07	-.09	.04	-.10*
<u>Step 4</u>									
Shy x Gender	-.05	.04	-.06	-.05	.04	-.05	-.10	.04	-.11*

Note: For Chinese Test: $R^2 = .03^{***}$ for Step 1; $\Delta R^2 = .15^{***}$ for Step 2; $\Delta R^2 = .01^*$ for Step 3; and $\Delta R^2 = .003$ for Step 4.

For English Test: $R^2 = .06^{***}$ for Step 1; $\Delta R^2 = .15^{***}$ for Step 2; $\Delta R^2 = .004$ for Step 3; and $\Delta R^2 = .002$ for Step 4.

For Math Test: $R^2 = .00$ for Step 1; $\Delta R^2 = .16^{***}$ for Step 2; $\Delta R^2 = .01^*$ for Step 3; and $\Delta R^2 = .01^*$ for Step 4.

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

At Step 2, peer rejection and childhood depression were negatively associated with performance on the English test (even after controlling for the child's grade and gender). At Step 3, self-reported child shyness was not found to be significantly associated with test performance in the aforementioned academic domain. Finally, at Step 4, no significant shyness x gender interaction effect was noted.

Math exam. Results for the prediction of academic performance on a math test are displayed in Table 3. At Step 1, no significant effect of grade or child gender was detected. At Step 2, peer rejection and childhood depression were negatively associated with performance on the math test (even after controlling for the child's grade and gender). At Step 3, self-reported child shyness was negatively associated with test performance in the aforementioned academic domain. Finally, at Step 4, a significant shyness x gender interaction effect was uncovered. Results from follow up simple effects analyses indicated that shyness was significantly and negatively associated with math test performance for girls ($\beta = -.21, p < .01$), but not for boys ($\beta = -.01, ns$).

Chinese teacher rating. Results for the prediction of academic performance in Chinese as assessed by the classroom teacher are displayed in Table 4. At Step 1, results indicated a significant positive association for child gender (indicating that girls received better teacher-rated performance in Chinese than boys). At Step 2, peer rejection and childhood depression were negatively associated with the teacher's rating of performance in Chinese (even after controlling for the child's grade and gender). At Step 3, self-reported child shyness was not significantly associated with teacher-rated performance in the aforementioned academic domain. Finally, at Step 4, no significant shyness x gender interaction effect was uncovered.

Table 4. Summary of hierarchical regression analyses predicting teacher-rated performance across three academic domains.

<u>Predictor</u>	<u>Dependent Variable</u>								
	Chinese Teacher Rating			English Teacher Rating			Math Teacher Rating		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
<u>Step 1</u>									
Grade	.02	.05	.01	.01	.05	.01	.003	.05	.002
Gender	.16	.04	.16***	.21	.04	.21***	-.01	.04	-.01
<u>Step 2</u>									
Rejection	-.23	.04	-.22***	-.22	.04	-.20***	-.23	.04	-.22***
Depression	-.23	.04	-.23***	-.20	.04	-.20***	-.19	.04	-.20***
<u>Step 3</u>									
Shyness	-.08	.04	-.08	-.10	.04	-.10*	-.12	.04	-.12*
<u>Step 4</u>									
Shy x Gender	-.04	.04	-.04	-.04	.04	-.04	-.08	.04	-.08*

Note: For Chinese Teacher Rating: $R^2 = .03^{**}$ for Step 1; $\Delta R^2 = .11^{***}$ for Step 2; $\Delta R^2 = .01$ for Step 3; and $\Delta R^2 = .002$ for Step 4.

For English Teacher Rating: $R^2 = .05^{***}$ for Step 1; $\Delta R^2 = .09^{***}$ for Step 2; $\Delta R^2 = .01^*$ for Step 3; and $\Delta R^2 = .001$ for Step 4.

For Math Teacher Rating: $R^2 = .00$ for Step 1; $\Delta R^2 = .10^{***}$ for Step 2; $\Delta R^2 = .01^*$ for Step 3; and $\Delta R^2 = .01^*$ for Step 4.

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

English teacher rating. Results for the prediction of academic performance in English as assessed by the classroom teacher are displayed in Table 4. At Step 1, results failed to uncover a significant effect of grade while a significant positive association for child gender was detected (indicating that girls received better teacher-rated performance in English than boys). At Step 2, peer rejection and childhood depression were negatively associated with the teacher's rating of performance in English (even after controlling for the child's grade and gender). At Step 3, self-reported child shyness was significantly negatively associated with teacher-rated performance in the aforementioned academic domain. Finally, at Step 4, no significant shyness x gender interaction effect was uncovered.

Math teacher rating. Results for the prediction of academic performance in math as assessed by the classroom teacher are displayed in Table 4. At Step 1, results failed to uncover a significant effect of grade or child gender. At Step 2, peer rejection and childhood depression were negatively associated with the teacher's rating of performance in math (even after controlling for the child's grade and gender). At Step 3, self-reported child shyness was significantly negatively associated with teacher-rated performance in the aforementioned academic domain. Finally, at Step 4, a significant shyness x gender interaction effect was found. Results from follow up simple effects analyses again indicated that shyness was significantly and negatively associated with teacher ratings of math for girls ($\beta = -.20, p < .01$), but not for boys ($\beta = -.07, ns$).

Shyness and Socio-Emotional Functioning: Moderating Role of Academic Achievement

The final set of analyses examined the potential moderating effect of academic achievement in the relation between shyness and indices of socio-emotional functioning (i.e., depression, peer rejection). An aggregate variable of academic achievement was first computed to represent a broader assessment of performance across subject domains and method of assessment (as displayed in Table 1, all 6 measures of achievement were significantly inter-correlated). Two hierarchical regressions were then computed to predict depression and peer rejection. At Step 1, the demographic variables of child gender and grade were entered. At Step 2, the standardized “main effect” variables were entered (i.e., self-reported shyness, academic achievement (aggregate)). Finally, at Step 3, the Shyness x Achievement interaction term was entered. Results are displayed in Table 5.

In the prediction of depression, results indicated a significant negative association for gender (indicating that boys reported more depression than girls), but no significant effect of grade at Step 1. At Step 2, shyness was significantly positively associated with depression, and academic achievement was significantly and negatively associated with depression. Finally, at Step 3, the interaction between shyness and achievement was not significant.

For peer rejection, neither gender nor grade displayed significant effects at Step 1. At Step 2, shyness did not significantly predict peer rejection, but academic achievement was significantly and negatively associated with peer rejection. Finally, at Step 3, the interaction between shyness and academic achievement was significant.

Table 5. Summary of hierarchical regression analyses predicting depression and peer rejection.

<u>Predictor</u>	<u>Dependent Variable</u>					
	Depression			Peer Rejection		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
<u>Step 1</u>						
Gender	-.11	.04	-.11**	-.06	.04	-.06
Grade	.002	.05	.002	.01	.05	.01
<u>Step 2</u>						
Shyness	.33	.04	.33***	.01	.04	.01
Achievement	-.22	.04	-.22***	-.31	.04	-.34***
<u>Step 3</u>						
Shy x Achievement	-.02	.04	-.02	-.10	.04	-.12**

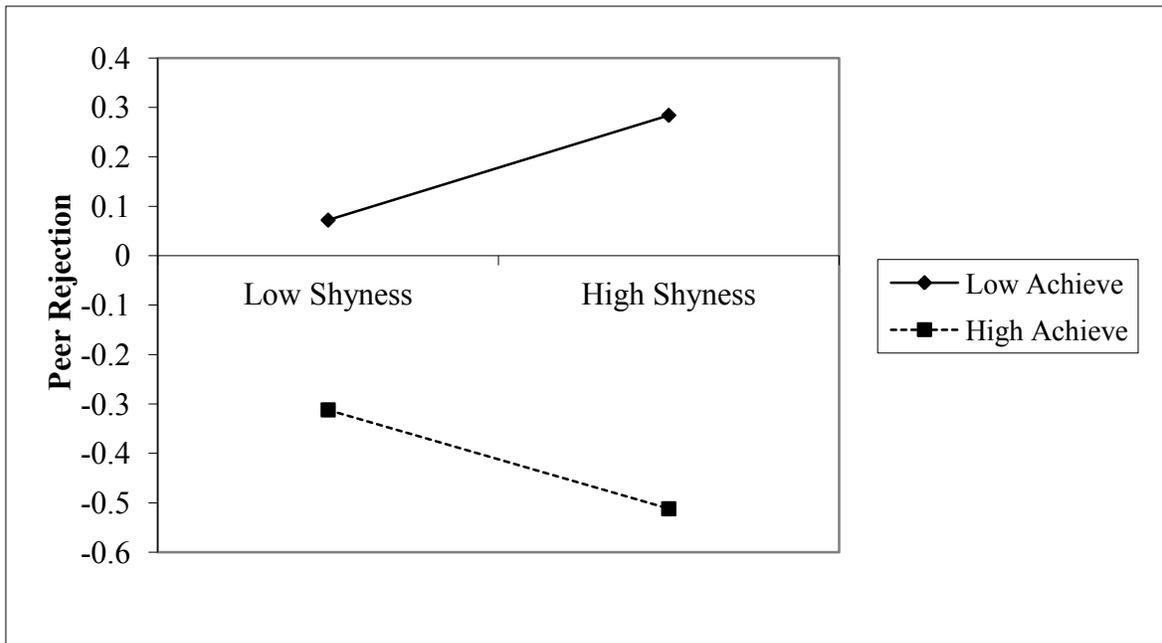
Note: For Depression: $R^2 = .01^*$ for Step 1; $\Delta R^2 = .19^{***}$ for Step 2; and $\Delta R^2 = .001$ for Step 3.

For Peer Rejection: $R^2 = .004$ for Step 1; $\Delta R^2 = .11^{***}$ for Step 2; and $\Delta R^2 = .01^{**}$ for Step 3.

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

Results from follow up simple slopes analyses are displayed in Figure 2. The relation between shyness and peer rejection is observed to increase at lower levels of academic achievement (i.e., -1 SD), $B = .11$, $SE = .27$, $t(546) = .39$, $p = .70$, and decrease with higher levels of academic achievement (i.e., +1 SD), $B = -.10$, $SE = .27$, $t(546) = -.37$, $p = .71$. Although these two slope values do not significantly differ from 0, the previously reported significant interaction effect indicates that they are *significantly different from each other*.

Figure 2. Academic achievement as a moderator of the relation between shyness and peer rejection.



Discussion

The main goal of the present study was to explore relations between self-reported child shyness and indices of academic performance in China. More specifically, the study sought to examine the implications of child shyness for academic achievement across three different subject domains (i.e., Chinese, English, mathematics) as well as two different methods of assessment (i.e., objective examinations, subjective teacher ratings of academic performance). In addition, given the high value placed on academic achievement in China (e.g., Li, 2011), the role of achievement as a potential moderating variable in the relations between shyness and socio-emotional difficulties (i.e., child depression, peer rejection) was also examined. Finally, a foundation for the methodological course of the study, a supplementary goal of the present study was to validate a newly-developed *self-report* measure of shyness for use with children in China, the Chinese version of the *Children's Shyness Questionnaire* (CSQ, Crozier, 1995). Previous research pertaining to child shyness in China has relied exclusively upon peer assessment of the construct (e.g., Chen et al., 2005). An analysis of the factor structure and psychometric properties of this new measure sought to provide evidence that internal states such as shyness in children who are cognitively mature might be best measured through self-report.

A number of hypotheses were formulated as a basis for further investigation. With regard to the validation of the Chinese version of the *CSQ*, it was hypothesized that exploratory factor analyses (principal components) would reveal a single factor solution with acceptable internal reliability. It was also expected that self-reported shyness would

be associated with a more commonly used peer assessment measure of shyness, as well as measures of internalizing problems and peer rejection.

Of central importance, it was hypothesized that child shyness would be negatively related to overall academic performance. Notwithstanding, the links between shyness and academic performance were also expected to vary as a function of academic domain, with shy children obtaining poorer academic outcomes in English, followed by Chinese, and then mathematics. Similarly, the links between shyness and academic performance were also predicted to vary as a function of the method of assessment, with shy children obtaining poorer academic outcomes when assessed through teacher ratings as compared to assessments made on the basis of curriculum-based tests. Given previous research that has suggested that being shy is particularly problematic for boys as compared to girls, especially with regards to social and emotional outcomes (Coplan et al., 2007; Morison & Masten, 1991), it was also speculated that shyness would be more strongly associated with poorer academic outcomes among boys as compared to girls in China (although this hypothesis was purely exploratory in nature). Lastly, given the extreme importance placed upon academic achievement in Chinese society (e.g., Li, 2011), it was hypothesized that high academic achievement would play a protective role in the relation between child shyness and internalizing difficulties.

Prior to a detailed discussion of the results, it should be noted that the effect sizes across a number of analyses were small yet statistically significant. In this regard, caution should be exercised in interpreting the findings.

Among the results, supporting evidence was found for the psychometric properties and validity of the newly-developed Chinese version of the *CSQ* as a self-

report measure of child shyness. Further, with respect to differences in self-reported shyness, a significant effect of grade was found. Overall, shyness was related to both indices of socio-emotional functioning (i.e., depression, peer rejection) and indices of academic achievement. However, in the prediction of academic performance across subject domains and methods of assessment, the pattern of results did not appear to indicate differential associations. Finally, a significant interaction between shyness and academic achievement was found in the prediction of peer rejection. Each of these results is discussed in turn.

The Chinese Version of the CSQ

Results from the current study provided consistent initial support for the validation of the newly-developed self-report measure of shyness for use with children in China. As predicted, a one-factor solution was found to be most appropriate for the data. Notwithstanding, two original English scale items (pertaining to being quiet with others and in the presence of strangers) were removed as they did not load above the critical cutoff value. It can be speculated that these aforementioned items might not have loaded on the single “shyness” factor because they represent aspects of a *different type* of shyness that some researchers have speculated exists in China. For example, Xu et al. (2009) suggested separate forms of shyness related to *strangers*, *social-evaluative* concerns, and *regulated* shyness. Regulated shyness refers to the process whereby some children behave in a more “low key” and nonassertive manner in order to make their social encounters more manageable and less threatening. In this regard, their social initiations are not likely to be viewed negatively by peers. This form of shyness allows the child to reduce the risk of social disapproval and conveys to peers that the child

wishes to fit in with the group (Leary & Buckley, 2001; Xu et al., 2007). Based on this research, both of the discarded CSQ items related to “being quiet”, and might thus refer to regulated shyness. Future research is required to investigate whether this “alternative” form of shyness can be reliably and validly assessed via self-report in Chinese children.

Although all previous research pertaining to shyness in Chinese children has favoured the use of peer assessments of shyness (e.g., Chen et al., 2005), it was proposed that a self-report measure would represent a better indicator of internal states such as shyness in children in the current study aged 8 to 11 years. Children in this age range are presumed to be cognitively mature enough to reflect upon their internal processes and feelings and should thus be able to most accurately judge their own experience of shyness. In support of this notion, the pattern of results indicated that self-reported shyness was more strongly associated with study variables as compared to peer-reported shyness.

Further, a significant main effect of grade was found for shyness in the present study. More specifically, follow-up analyses appeared to indicate that children in grade 4 reported being less shy than children in grade 5. As children progress from one grade to another, the context in which they learn and develop changes. It is possible that children in grade 5 reported being significantly more shy than their peers in grade 4, due to increased feelings of self-consciousness and awareness of social evaluation among peers.

Self-reported and peer-reported shyness were significantly and positively (although modestly) associated, demonstrating some evidence of construct validity of the Chinese CSQ. The modest size of the association between these two measures of shyness is not inconsistent with previous studies assessing shyness across informants

(e.g., Spangler & Gazelle, 2009). However, it is also possible that self-reported and peer-reported measures of shyness are assessing different aspects of this construct. The self-report measure of shyness is an entirely *subjective* appraisal of the child's own feelings and states, whereas the peer assessment of shyness is a more *objective* and reliable means by which to assess how the child *appears*. Irrespective of the benefits of having multiple sources of assessment, it is important to consider that the peer assessment technique constitutes the assessor's opinion of the external behaviours of another child. It can be difficult for the child attempting to assess shy behaviours in their peers to distinguish between shyness and unsociability, which are considered to be very different constructs in China (Liu et al., in press). Given that the focus of the current study was on shyness as an internal state, in addition to the fact that participating children were aged 8 to 11 years and thus presumed to be sufficiently cognitively mature, self-reported shyness was deemed a more appropriate method of assessment.

Self-reported shyness was significantly and positively correlated with child-reported depression, whereas the association with peer rejection approached significance. This is perhaps not surprising considering the shift that Chinese society has undergone in the past couple of decades, a shift which has reduced the value and adaptive nature of shyness within society (Chen et al., 2005). Prior to and in the very early stages of the shift, a shy child living in China would have been highly regarded and respected by adults and peers alike (e.g., Chen, Rubin & Li, 1995). Given numerous changes in the structure and values of Chinese society, that same child may now be considered to be deviating from socially and culturally accepted norms. It would seem reasonable to assume that the child who is *different* from and perhaps judged by his or her peers may

feel isolated and experience symptoms of depression. With respect to the association with peer rejection that approached significance, once again, it seems reasonable to assume that children who deviate from the relatively newly-established norm by being shy and failing to adapt to new expectations may be negatively perceived by their peers and subsequently excluded from the peer network. In support of these findings, a multi-cohort study (1990, 1998, and 2002) exploring relations between social functioning and adjustment in a group of urban elementary school students in China at three different phases of the reform uncovered similar results (Chen et al., 2005). Whereas shyness was positively associated with peer acceptance in the 1990 cohort, the associations weakened in the intermediate cohort of 1998. Moreover, and in line with the findings of the current study, shyness in the final cohort was found to be positively associated with peer rejection and self-reported depression in the Chinese children.

The fact that shy children in China are now more likely to struggle with depression and may be excluded from the peer group has implications for social and academic functioning. In the event that the shy child is excluded by his or her peers, feelings of isolation and depression are possible outcomes. For the shy child who may be feeling depressed as a result of being excluded by peers, classroom focus may be greatly reduced. In this case, the child is at a greater disadvantage given that their shy behaviour which can pose problems in terms of academic success is now coupled with internalizing difficulties which in and of themselves can make everyday tasks including school attendance and participation seem quite difficult. Further, given that the classroom and larger school setting is an inherently social environment and given that academic

curriculums often emphasize collaboration among peers, being rejected by one's peers can have serious implications across a number of realms.

Shyness and Academic Achievement

Consistent with expectations, self-reported shyness was significantly and negatively associated with academic achievement. This finding replicates those of previous studies in China which have established a link between shyness and academic difficulty. For example, Chen and colleagues (2005) found that shyness in children was negatively associated with teacher-rated school competence. Further, Chen, Wang and Wang (2009) found that shy urban children in China were more likely to be perceived by their teachers to be incompetent and performed poorly in the academic areas of Chinese, English and mathematics. However, the finding that shyness was negatively associated with academic achievement differed from the findings of previous studies conducted with children attending schools in *rural* areas of China. In rural migrant students, shyness has been associated with school achievement including teacher-rated competence and academic achievement in Chinese, English and mathematics (e.g., Chen et al., 2009).

There are several conceptual mechanisms that may underlie this association between shyness and achievement. As previously stated, shy children tend to form more dependent and less close relationships with teachers as compared to their less shy peers (Arbeau, Coplan & Weeks, 2010; Rudasill & Rimm-Kaufmann, 2009). Especially in the elementary school years when children are acquiring and further developing foundational skills, it is important that a close relationship is maintained with the classroom teacher. Presumably, if the shy child has established a less close relationship with their teacher, he or she may be less likely to approach the teacher with important questions or concerns

aimed at clarifying elements of the learning process. Failure to do so may result in gaps in learning which are likely to be reflected in assessments and evaluations aimed at providing an index of academic achievement.

Further, research regarding the language of shy children has found that they are more likely to experience difficulties with verbal communication (Buss, 1984, 1997). Speech reticence (i.e., not talking), longer latencies to offer spontaneous comments, and reluctance to contribute to conversations are all characteristic of the communication style of shy children (Crozier, 2001). The formal education system at present relies heavily on a student's ability to interact effectively with peers as well as the classroom teacher. Group projects, oral presentations and classroom discussions may prove difficult for the shy child who struggles with the expressive aspects of language, yet these activities are heavily relied upon in the classroom curriculum as a means to assess academic achievement. For these reasons and more, the challenges that shy children face with respect to academic achievement are apparent.

Given that extreme importance is placed upon academic achievement in Chinese society (Li, 2011), there are definite implications for shy children in China who may struggle in their academic lives. Socially, these shy children are unlikely to find favour among their peers should they be experiencing academic difficulty. In addition to the anxiety and worry associated with being evaluated by one's peers, the shy child who may be experiencing difficulty at school must also contend with the negative perceptions that their teacher or other important adults may form about them. Shy children experiencing academic difficulty in China may also miss out on certain opportunities, academic or

otherwise, as others may view them as being less competent or intellectually able to contribute within an increasingly competitive market-oriented economy.

With respect to academic achievement across subject domains, it was hypothesized that the performance of shy children would be best in mathematics, followed by performance in Chinese and in English. Further, with respect to the two methods of assessment, objective exams and teacher ratings of academic performance across subject domains, more favourable academic outcomes were expected from the objective exams given the tendency for teachers to misinterpret shyness in the classroom as a lack of mastery of the subject matter.

Achievement across domains. Contrary to predictions, shyness appeared to be comparatively associated with *negative achievement* across domains (i.e., in mathematics, English and Chinese). One explanation for this finding might be that shy students in China are less academically engaged with classroom proceedings including lessons, discussions and activities. Hughes and Coplan (2010) reported that shyness was negatively related to behavioural engagement, which in turn was positively correlated with indices of academic achievement. Where mathematics is concerned, often one topic or strand of learning builds sequentially on another. In this regard, for the shy child who may be less academically engaged and thus may miss important concepts or clarifying questions presented in class, decreased performance may be the result of a lack of knowledge or confusion. Shyness might be expected to be associated with achievement in English and Chinese given that both are language-based subject domains and thereby require production in addition to comprehension of language. Given that shy children are known to struggle more with the expressive aspects of language (Evans, 2001),

performance in both of the aforementioned academic domains would likely be affected in the case of the shy child. As an extension of the notion of difficulty with expressive language, shyness might be expected to be associated with achievement particularly in English due largely to feelings of self-consciousness, uncertainty and the worry of negative evaluation which would serve to inhibit performance. These feelings may be heightened in English as this would likely be the second language acquired by the majority of these students. The somewhat surprising finding that shyness was associated with academic difficulty across *all* subject domains has important implications for shy children in China. Given that these results may suggest a universal negative impact rather than difficulty in one area in particular, it would be much more difficult for the shy child to maintain an acceptable academic record and to recover from poor performance as there do not appear to be subject areas capable of balancing out this decline.

Achievement across assessments. Further, also in contrast with hypotheses, shyness was negatively related to achievement for both tests and for teacher ratings of academic performance. Shyness might be expected to be associated with achievement as assessed through test performance given the notion of demands of the testing environment and their potential impact on the shy child. The anxiety of the testing situation itself may interfere with the shy child's ability to pay attention and participate in the academic task of test writing (Hughes & Coplan, 2010), thereby leading test performance to suffer as a result. Although both shy and non-shy children may have written the same test within the school setting, the shy children who are already predisposed to experience anxiety and worry related to instances of perceived evaluation may be at a greater disadvantage. Further, shyness might be associated with achievement

as rated by the classroom teacher given the notions of engagement and classroom participation. Hughes and Coplan (2010) reported that shyness was negatively related to behavioural engagement. In the event that the classroom teacher feels as though the shy student is not engaged, academic performance is likely to suffer. Further, with regard to classroom participation, for the shy child who is more likely to exhibit speech reticence, longer latencies to offer spontaneous comments, and reluctance to contribute to conversations (Crozier, 2001), participation in fundamental activities may be greatly reduced or nonexistent. This reluctance to make a significant contribution may therefore be misinterpreted by the classroom teacher as a lack of domain-specific understanding. Further, the shy child may answer incorrectly when called upon in class as a result of feelings of intense pressure in addition to a fear of negative evaluation by peers as well as the classroom teacher. An overall lack of active participation as well as the provision of incorrect answers may lead the classroom teacher to judge shy children as being less academically capable when, in fact, deficits may likely be associated with contextual factors rather than competence-related factors. Once again, the unexpected finding that shy children appear to perform poorly regardless of the method of assessment is not a good sign for the shy child in that performance deficits in one area cannot be recovered in another.

Shyness, achievement, and gender. No significant main effect of gender was found for shyness in the present study which replicates previous findings in Western cultures (e.g., Bishop et al., 2003; Coplan et al., 2009). However, a significant shyness by gender interaction effect was uncovered for the prediction of performance on a math exam indicating that shyness was significantly and negatively associated with math test

performance for *girls* but not for boys. In many societies, girls are often *expected* to experience difficulty in math, irrespective of attaining comparable test scores with their male counterparts, thereby, for the shy child who already fears negative evaluation, this preconceived notion of difficulty may lead to a self-fulfilling prophecy whereby performance on the math test suffers. Moreover, a significant shyness by gender interaction effect was also found for the prediction of teacher-rated performance in math such that shyness was significantly and negatively associated with teacher ratings of math for *girls* but not for boys.

Given the *perceived* gender inequality in terms of academic strength in math that has often been speculated but not substantiated, girls in China and elsewhere throughout the world may be at a disadvantage in terms of teacher perceptions of academic ability in this domain. Irrespective of this fact, test scores in this academic domain are generally found to be equivalent among boys and girls. In addition to this preconceived notion of inferiority, the fact that the shy girl may speak less in class and be reluctant to contribute to conversations may serve to perpetuate the stereotype leading the teacher to believe that the child is indeed experiencing content-related difficulty. This negative association is perhaps not present in boys, given that the classroom teacher, regardless of whether the boy displays shy tendencies or not, may already expect him to outperform his female counterparts and thus he may be at an advantage at least in terms of more favourable teacher perceptions of academic ability in math. Whereas it was speculated that shy boys may have faced particular difficulty in the academic realm in China, it appears that the implications of shyness for girls in terms of academic performance in math should be addressed.

As discussed and in contrast to hypothesized findings, self-reported shyness was significantly and *negatively* associated with academic achievement across each of the three subject areas (i.e., Chinese, English, math) as well as both methods of assessment (i.e., subject-specific exams, teacher-rated performance). In other words, the relation between shyness and academic achievement did not appear to differ across these three subject domains nor did it appear to differ across assessment types. Regardless of how academic achievement was assessed or in what subject area, in the current study, shyness did not appear to be beneficial for the academic performance of participating Chinese children. Perhaps this has to do with the nature of the Chinese educational system and the immense pressure that Chinese children face as a result. It may be that the stresses inherent in such a demanding environment weigh too heavily on the shy child who is more reactive to stress. A prime example of this stress is the very public display of academic achievement throughout schools in China and resulting competition to outperform one's peers.

Further, in the current study, shyness remained predictive of academic achievement while controlling for age, gender, peer rejection and depression. Moreover, academic achievement was found to be significantly and negatively associated with depression. In other words, as academic achievement increased, depression decreased. In a society such as China where academic achievement is so highly valued, it seems quite logical to assume that children who are performing up to standard or excelling in the classroom may experience more positive social and emotional outcomes. In the prediction of peer rejection, once again, the protective role of academic achievement in Chinese culture was evidenced. More specifically, academic achievement was

significantly and negatively associated with peer rejection such that as academic achievement increased, peer rejection decreased. Once again, this is a highly plausible situation given the value placed upon academic achievement in Chinese culture. Those children who are high achievers in China are likely to garner the respect and admiration of their peers and thus gain acceptance into the peer group. Alternatively, for those children who deviate from societal expectations and who fail to achieve excellence in the academic realm, rejection from the peer group may be a much more likely result given that children and their families do not want to be associated with those who do not fit the norm. Given the aforementioned associations, the potential moderating role of academic achievement in the relation between shyness and socio-emotional outcomes was tested.

Shyness and Socio-Emotional Functioning: Moderating Role of Academic

Achievement

Chen, Yang, and Wang (2013) examined the possible moderating effects of academic achievement on the relation between shyness and internalizing problems in Chinese children. Shyness in this study was found to be positively associated with later internalizing difficulties including depression for low-achieving children only. For those high-achieving children however, the associations between shyness and negative socio-emotional functioning were not significant.

In the current study, academic achievement was found to significantly moderate the relation between shyness and peer exclusion. Results from follow up simple slopes analyses indicated that the relation between shyness and peer rejection was observed to *increase* at lower levels of academic achievement and to *decrease* at higher levels of academic achievement (note: the significant interaction effect indicated that these two

slope values were significantly different from one another). In other words, at low levels of academic achievement, the relation between shyness and a negative socio-emotional outcome, in this case peer rejection, appeared to be strengthened, whereas high academic achievement appeared to decrease the strength of the association between shyness and this variable. As predicted given the characteristics of Chinese society, with its emphasis on achieving academic excellence, academic achievement was found to act as a moderator variable and appeared to serve a protective role in the relation between shyness and peer rejection. One might speculate that a shy child living in China who does not meet high academic expectations (i.e., low academic achievement) is at a disadvantage in two different ways. Not only is the child displaying shy behaviour which has reduced value in urban China and therefore is discouraged (Chen et al., 2005), but the child is also failing to meet society's benchmark for academic excellence (Li, 2011). The combination of these two deficits may be likely to lead to particularly negative outcomes for the child, in this case, rejection by his or her peers.

On the other hand, for the shy child in China who strives to and attains academic excellence (i.e., high academic achievement), it seems reasonable that the implications in terms of socio-emotional functioning would be less severe. Although the shy child continues to display behaviours and characteristics which have reduced value in urban China, he or she continues to adhere to society's high standards for academic achievement and thus is less likely to be rejected by his or her peers solely on the basis of shyness.

Although peer rejection elevates the risk of negative consequences for all children, shy children have been found to be particularly vulnerable to the effects of

negative peer experiences (e.g., Gazelle & Ladd, 2004). Given the results of the current study which found that the relation between shyness and peer rejection appeared to be strengthened at *low* levels of academic achievement, the implications for shy children who struggle academically in China are significant. Not only are these children violating social norms as a result of their shy behaviour and academic norms as a result of their low academic achievement, norms which are of significant value within Chinese society as previously stated, but they will be more likely to be rejected by their peers as a result (i.e., the relationship between shyness and peer rejection is strengthened at low academic achievement). The experience of peer rejection will then have a particularly negative effect on these children given that they are shy and more vulnerable to the effects of negative peer experiences.

Limitations and Directions for Future Research

The results from the current study provided empirical evidence of the relation between child shyness and academic achievement across a variety of domains as well as methods of assessment in a Chinese sample. Further, academic achievement was identified as a moderator variable in the relation between child shyness and peer rejection. Notwithstanding, there are some caveats that must also be considered.

To begin with, although results in China were compared with previous findings in Western cultures, it would be of great interest in future research examining child shyness and academic achievement to strive for a true cross-cultural design. That is, the inclusion of a meaningful comparison group in a different culture (e.g., Canada) would allow researchers to directly examine how shyness might differentially affect academic performance across cultures. In particular, within the Canadian educational system, it

would be interesting to explore whether shy children experience academic difficulty in the context of the French Immersion program.

Moreover, it would be of further interest in future research to compare China with other Asian countries (e.g., Korea, Japan) in order to determine whether differences exist between these countries with respect to the meaning and implications of shyness.

Also, in terms of sample characteristics, the present sample was composed exclusively of children residing in the urban centre of Shanghai, People's Republic of China. Future studies may seek to draw participants both from urban as well as rural areas. Research has indicated that the effects of the transformation have not been felt to the same extent by families and their children living in rural China where agricultural living is dominant (Huang & Du, 2007; Li, 2006). In this regard, shyness may still be regarded as an adaptive characteristic of the individual, therefore, associations with academic achievement and socio-emotional functioning are likely quite different and warrant further exploration. In support of this notion, Chen, Wang and Cao (2011) found that shyness was positively related to social standing, teacher-rated school competence and academic achievement and negatively associated with learning problems in a sample of rural Chinese children.

Moreover, the current study explored academic achievement across a relatively restricted number of subject domains (i.e., Chinese, English and mathematics). Future research may seek to incorporate a greater diversity of subject matter in order to examine associations with child shyness. For example, it may be of particular interest to examine the academic performance of shy students in the Arts. Given that shy children do not like

to be the center of attention and fear negative evaluation, the analysis of this subject domain may prove particularly interesting.

With respect to demographic variables, future research may also seek to broaden the age range and therefore grade levels of children eligible to participate in the study. Slight differences in overall shyness at various grade levels found in the current study provide some support for the inclusion of a broader sample.

In addition, one of the substantive goals of the current study was to validate the newly-developed Chinese version of the *Children's Shyness Questionnaire*. Results provided initial support for the use of this new self-report measure of shyness. Future research should continue to explore the utility of this measure, with an eye towards using this measure exclusively to measure child shyness.

As previously mentioned, there are however some disadvantages or limitations associated with the use of Western measures of shyness in China. In the current study, both the peer-report and self-report measures of shyness used to collect data were Western measures skillfully translated into Chinese. Difficulties pertaining to the use of appropriate terminology (e.g., distinction between highly related terms) as well as cultural sensitivity including the relevance of certain social situations (e.g., children's birthday party) may arise in such situations and therefore caution should be exercised.

Moreover, with respect to academic achievement as a moderator in the relation between child shyness and peer rejection, future research should explore the role that individual child personality, goals and initiative play in the moderation. For example, it may be of interest to examine whether the moderation model used in the current study would hold true for a child who intrinsically places less importance on academic

achievement. This may be of particular concern in North America, where there is much less social/cultural pressure to achieve academic excellence.

Overall, as a final note, results of the current study should be interpreted with caution given that the study was a single time-point, cross-sectional and correlational study. In this regard, there are alternative explanations for many of the findings. For example, perhaps it is not child shyness that leads to academic difficulty but rather that performing more poorly academically causes Chinese children to become more shy given that they are embarrassed about their academic performance. Methodological refinements including the use of a longitudinal design are needed in future research to solidify the findings and relations among study variables.

Conclusions and Implications

Results from the present study have highlighted a number of potentially important implications. Contrary to expected findings, child shyness was negatively related to all subject domains as well as both methods of assessment. Whereas shyness in North America may be differentially related to subject areas, in China, this construct appeared to predict negative academic outcomes regardless of subject matter or method of assessment. Given the high value placed on academic achievement in China, it could be that shyness is now considered universally 'bad' for achievement and therefore does not discriminate.

Further, through the moderation analyses, academic achievement was identified as a buffer or protective factor in the relation between child shyness and peer rejection. With respect to potential implications of this finding, it may be possible to dedicate more resources to those children who are perhaps less resilient. Especially for shy children,

given that we now know that academic achievement has the potential to act as a buffer to at least one of the negative outcomes associated with child shyness, it may be that additional support and emphasis could be placed on the development of academic skills thus providing children who are at-risk with the support needed to excel academically.

In a society which has undergone rapid change and continues to evolve as such, it is becoming increasingly clear that shy children in China are no longer valued in the way that they once were. Instead, these shy children now appear to be at significant risk for a wide range of socio-emotional and academic difficulties. It is through a better understanding of the relations between relevant variables including child shyness, internalizing difficulties and academic outcomes that we may begin to provide children with the support that they need in order to excel in all realms of their lives including the social and academic domains.

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Appendix A

Chinese Translation of the *Children's Shyness Questionnaire*

社会情绪倾向(一)

接下来一些问题是询问当你与其他人在一起时的自我感觉。请圈出最符合你自己情况的描述。

- | | | | |
|--------------------------------|---|-----|---|
| 1) 我觉得和我不认识的人说话很难 | 是 | 有时候 | 否 |
| 2) 我很容易感到尴尬(难为情) | 是 | 有时候 | 否 |
| 3) 当我和别人在一起的时候, 我很安静 | 是 | 有时候 | 否 |
| 4) 当别人给你唱生日快乐歌的时候, 你脸红吗 | 是 | 有时候 | 否 |
| 5) 当我和重要的人待在一起的时候, 我感到紧张 | 是 | 有时候 | 否 |
| 6) 当我要当着全班面朗读时, 我感到害羞 | 是 | 有时候 | 否 |
| 7) 当我加入一个新的小组(团体)时, 我感到紧张 | 是 | 有时候 | 否 |
| 8) 当别人开我玩笑时, 我会脸红 | 是 | 有时候 | 否 |
| 9) 你会和第一次见面的人说很多话吗? | 是 | 有时候 | 否 |
| 10) 当我和一群人在一起时, 我总是害羞 | 是 | 有时候 | 否 |
| 11) 当我是大家注意的焦点时, 我感到害羞 | 是 | 有时候 | 否 |
| 12) 你常常脸红吗 | 是 | 有时候 | 否 |
| 13) 当老师跟我说话时, 我感到害羞 | 是 | 有时候 | 否 |
| 14) 老师要请一个人表演时, 你会举手吗? | 是 | 有时候 | 否 |
| 15) 我很容易交到朋友 | 是 | 有时候 | 否 |
| 16) 当老师把我放到舞台上第一排时, 我感到(难为情) | 是 | 有时候 | 否 |
| 17) 当大人问和你有关的问题时, 你常常不知道怎么回答吗 | 是 | 有时候 | 否 |
| 18) 当老师表扬我时, 我会脸红 | 是 | 有时候 | 否 |
| 19) 当我要进入一个房间看到很多人的时候, 我感到害羞 | 是 | 有时候 | 否 |
| 20) 当朋友看你小时候的照片时, 你感到尴尬(难为情)吗? | 是 | 有时候 | 否 |
| 21) 当你需要别人帮助时, 你会因为太害羞而不能启齿吗 | 是 | 有时候 | 否 |
| 22) 我喜欢拍照 | 是 | 有时候 | 否 |
| 23) 我平常只和一两个好朋友说话 | 是 | 有时候 | 否 |
| 24) 当我遇到女孩(男孩)时, 我总是很害羞 | 是 | 有时候 | 否 |
| 25) 当我需要和同龄的女孩(男孩)说话时, 我会脸红 | 是 | 有时候 | 否 |
| 26) 当我和不熟的人待在一起时, 我会很安静 | 是 | 有时候 | 否 |
| 27) 当我遇到新的人时, 我会很害羞 | 是 | 有时候 | 否 |