

DIRECT AND INDIRECT EFFECTS OF PARENTING STYLE WITH CHILD
TEMPERAMENT, PARENT-CHILD RELATIONSHIP, AND FAMILY
FUNCTIONING ON CHILD SOCIAL COMPETENCE IN THE
CHINESE CULTURE: TESTING THE LATENT MODELS

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Interactional and contextual models have been conceptually proposed in understanding parental influences on children. Yet, empirical model testing has been limited. The purpose of this exploratory study was to investigate the direct and indirect effects of parenting style on child social competence using structural equation modeling in a sample of 544 Chinese families with 6-9 years old children, mainly singleton, residing in Nanjing, China. Five latent models were tested: (a) the direct model between parenting style and child social competence, (b) child temperament as a moderator, (c) parent-child relationship as a mediator, (d) the interaction model between parenting style and family functioning, and (e) bidirectional models of parenting style concurrently with parent-child relationship, and family functioning predicting child social competence.

Findings showed: (a) The direct relationship between parenting style and child social competence was significant in both parents with authoritative parenting style on the positive direction, whereas authoritarian and permissive parenting styles on the negative direction; (b) child temperament did not moderate parenting style on child social competence; (c) father-child relationship mediated paternal parenting style on child social competence, whereas maternal parenting style did not; (d) family functioning neither moderated nor mediated the relationship between parenting style and child social competence for both parents; and (e) The four-factor prediction models on child social competence turned out to be unidirectional. For the mothers, the best model was from family functioning to mother-child relationship, to maternal parenting

style, and finally to child social competence. Maternal parenting style was the significant proximal factor. For the fathers, it was from family functioning to paternal parenting style, to father-child relationship, and then to child social competence. Father-child relationship had the direct impact, whereas the influence of paternal parenting style was distal through father-child relationship.

Findings from this study suggest that the Chinese parents should use more authoritative and less authoritarian and permissive parenting, and develop good parent-child relationships in the daily interactions with their children. Future studies need to use larger and better data to validate these models, or to extend the findings with other important child variables to explore the child's active agency.

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DEDICATION AND ACKNOWLEDGEMENTS

Dedication

This dissertation is dedicated to my daughter, Kathleen. She has been the inspiration for both my graduate studies and this project. Kathleen, thank you!

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LIST OF ACRONYMS AND TERMS

Acronyms/terms	Definitions
AA	the Aggressive/Antisocial subscale for child social competence on the Home and Community Social Behavior Scales (HCSBS)
AMOS	Analysis of MOment Structures – a software package for structural equation modeling
CMR	Child-Mother Relationship or child’s view of mother-child relationship
CFR	Child-Father Relationship or child’s view of father-child relationship
CPC	Communist Party of China: the ruling political party in China since 1949
CSC	Child Social Competence
DD	the Disruptive/Defiant subscale for child social competence on the Home and Community Social Behavior Scales (HCSBS)
DOTS-R	the Dimensions of Temperament Survey-Revised to measure child temperament
DTI	Difficult Temperament Index, derived from the subscales on DOTS-R
DW	the Disciplinary Warmth subscale on the Parent-Child Relationship Questionnaire (PCRQ)
EQS	A structural equation modeling program by Multivariate Software, Inc.
FACES IV	the Family Adaptability and Cohesion Evaluation Scales IV to measure family functioning
Factor loading (λ)	the correlation coefficient between an observed variable and its latent variable
FCR	Father-Child Relationship or father’s view of parent-child relationship
HCSBS	the Home and Community Social Behavior Scales to measure child social competence in the home and community environment

LISREL	Linear Structural RELations – a software package for structural equation modeling
LM	Lagrange multiplier (LM) – A significance test of parameter estimates in structural equation modeling
MCR	Mother-Child Relationship or mother’s view of parent-child relationship
Mediator	a third variable that represents the generative mechanism through which the independent variable influences the dependent variable (Baron & Kenny, 1986)
Moderator	a variable that affects the direction/strength between an independent variable and a dependent variable (Baron & Kenny, 1986).
PCR	the Personal Relations subscale on the Parent-Child Relationship Questionnaire (PCRQ)
PA	the Power Assertion subscale on the Parent-Child Relationship Questionnaire (PCRQ)
PCRQ	the Parent-Child Relationship Questionnaire to measure parent-child relationship
PO	the Possessiveness subscale on the Parent-Child Relationship Questionnaire (PCRQ)
PR	the Peer Relationship subscale on the Home and Community Social Behavior Scales (HCSBS)
PSDQ	Parenting Styles and Dimensions Questionnaire to measure parenting styles
SEM	Structural Equation Modeling
SMC	the Self-Management/Compliance subscale on the Home and Community Social Behavior Scales (HCSBS)
Structural coefficient (γ)	the correlation coefficient between two latent variables
WI	the Warmth Involvement subscale on the PCRQ

CHAPTER I

INTRODUCTION

Background

Since the establishment of the People's Republic of China in 1949, China has undergone many political, economic, social, and cultural changes in its three major periods. Between 1949 and 1966, China was eager to recover from the Sino-Japanese War and the civil war, to strengthen the ruling power of the Communist Party of China (CPC), to ensure people's basic needs were being met, and to practice the experimentation on modernization in order to catch up with and surpass the powerful countries in the world (Spence, 1990). During this period, the orthodox ideological doctrine was Marxism-Leninism. Interestingly, much of the Marxist-Leninist theory has been compatible with the longstanding Confucian cultural values of collectivism, obedience, order, selflessness, and altruism (Kam, 1984; Szalay, Strohl, Fu, & Lao, 1994; Wu, 1996). In the Great Proletarian Cultural Revolution epoch between 1966 and 1976, the Mao-led CPC began a sweeping standardization movement to create a new unified Chinese communist culture by opposing the Chinese cultural traditions, the Western culture, and the influences of the Soviet's model (Dreyer, 1999).

With the paramount CPC leader Mao's death in 1976 and Deng's control of China in 1978, China entered the economic development-oriented post-Mao era which has lasted until today. The nation has de-emphasized the ideological rigidity and has stressed the value of education, the importance of the "open-door" policy to the outside world, and the significance of domestic economic growth (Dreyer; Jin & Dan, 2004). Under the economic reform movement, China has decentralized the planning economic system and instead has turned to a so-called

socialist market economy with “Chinese Characteristics” (Chow, 2002; Wang, Rees, & Andreosso-O’Callaghan, 2004).

The economic reform for the past twenty-eight years has appeared to be fruitful as reflected in (a) the claimed sustainability of the high economic growth rate, (b) the increased gross domestic product (GDP) and per capita GDP, (c) the growing average income of the urban and rural households, (d) the rising urbanization and modernization, and (e) other various economic indicators (Brown & MacBean, 2005; National Bureau of Statistics of China, 2006). Along with economic development, China has undergone other dramatic changes as well: (a) increasing integration with the international community, (b) emerging stratifications of social classes, (c) robust development of private entrepreneurship, and (d) decentralization of policy-making from the central government to the provincial and local governments (Wang et al., 2004). The nation’s focus on economic development has had direct influences on people’s lifestyles. The Chinese public has been much more interested in pragmatic material gains than in political issues. The consumer-driven market system has made the Chinese people more active, independent agents in seeking after their economic interest and other tangible welfares as opposed to how they operated during the planned economic era before 1978.

From a political standpoint, although the CPC government has relaxed the rigid ideological infusion to its people with its shift to economic development from the “struggle of classes” in Mao’s era, it continues its efforts to propagate the socialism political ideology as reflected in its leaders’ political slogans in various periods such as Deng’s (1979) “Four Cardinal Principles¹,” Jiang’s (2001) “The Three Represents²,” and Hu’s (2006) “The Eight Honors and Eight Disgraces³” (see chapter notes in Appendix A). The government’s intention for its people to have a common political understanding and to refrain from getting off-track in their political

thinking is also evident in its strong indoctrination of the CPC political, ideological, and moral values on students at various levels from kindergarten to graduate school (Li, Zhong, Lin, & Zhang, 2004).

From a cultural perspective, although the Chinese government did not officially recover the reputation for the denounced Confucius in the period of Cultural Revolution (1966-1976), Confucianism and other traditional Chinese cultural values have come back to the public's mind since 1978, along with the nation's emphasis on restoration of social order and social stability. The opening up to the outside world has also brought in other cultures to China (Li et al., 2004; Wang et al., 2004). In many aspects, the modern Western culture characterized by capitalism, positivism, democracy, individualism, and independence contrasts vastly with the contemporary Chinese culture of socialism, metaphysicism, dictatorship, collectivism, and interdependence. Nevertheless, the Western culture is not totally new to the modern Chinese people. As early as in 1919, young Chinese intellectuals initiated an attack on the feudal Confucianism for being irrelevant to the modern world and preached democracy and science as the basis for renewing China's national strength in the May Fourth Movement (Gary, 2002). Since then, generations of Chinese have been familiar with this anti-feudalism and anti-capitalism enlightenment movement due to government's propagations. However, the exchange during the past three decades between China and the Western countries has been the largest in scale for the history of China.

The influence of the Western culture has reached the masses, not exclusive to the elite as in the earlier periods. It seems the Chinese public has progressively adapted to certain Western cultural values (Shek, 2006). For instance, Wang et al. (2004) reported the Chinese people had become more liberal and pro-democratic in 2000 than they were in 1990. In general, the value system of the Chinese people after 1978 could be roughly characterized as a combination of

three distinctive components: (a) the traditional Chinese cultural values (mainly Confucianism, Buddhism, and Daoism), (b) the CPC's socialism ideological values, and (c) the Western cultural values.

The above economic, sociopolitical, and cultural changes since 1949 have placed the Chinese family in a dynamic, transitional process. Among these changes, the one-child family policy beginning in 1979 may have had the greatest impact on Chinese families and their child-rearing practices (Strom, Xie, & Strom, 1995; Wu, 1996). Since the initiation of the family-planning regulations, the Chinese government has taken serious measures to implement the one-child policy for the past twenty-seven years. It seems China has effectively restrained its population growth. Based on its fifth national census data in 2000, China had an average size of 3.44 (and only 3.01 in urban areas⁴) persons per household declining from 3.96 in 1990 and 4.41 in 1982 (National Population and Family Planning Commission of China, 2001; Yuan, 2004). The fertility rate based on the mean number of children born per woman had declined from 5.9 in 1970 and 2.9 in 1979 to 1.7 in 2004 with 1.3 in urban cities and 2.0 in rural areas, which implies that urban families were predominantly having one child and the rural families were primarily having two children (Hesketh, Lu, & Xing, 2005).

The small family size has dramatically impacted the familial structure. The traditionally large family, with three or even more generations living in the same household, has significantly declined, especially in urban areas. The nuclear family comprised of the father, the mother, and the only child has become the predominant family type, followed by the trunk family type composed of the couple, the child, and one pair of grandparents (Yuan, 2004). In 2000, China as a whole had almost 50% nuclear families. Furthermore, urban nuclear families had over two-thirds which increased from less than half in 1990. In the 1990s, 30% of urban married couples

lived in trunk families, as compared to 20% of urban married couples in the 1980s (National Population and Family Planning Commission of China, 2001; Yuan, 2004).

In addition to the impact on the demographics of family size and family structure, the one-child policy has also affected the traditional patriarchal family culture. Historically, men had been chiefly responsible for activities outside of the home, whereas women were primarily responsible for the home activities. Although this long-established idea still persists and is perceived fair by many couples in modern China (Shwalb, Nakazawa, Yamamoto, & Hyun, 2004; Zuo & Bian, 2001), the egalitarian gender attitude, especially from wives, has grown in contemporary Chinese families (Pimentel, 2006; Shu, 2004). For instance, the Chinese Women's Association and Chinese National Bureau of Statistics (2000) reported 77% men and 88% women agreed that "Men should perform half of the domestic work" in a stratified random sampling survey of 19,449 Chinese between 18 and 64 years of age. The empowerment of women has also been reflected in their more active role in the decision-making process on major familial affairs such as financial investments and loans, building or buying a house, and choices of occupations or productions in 2000 than in 1990 (Chinese National Bureau of Statistics, 2001).

The increased egalitarian attitude toward family responsibilities may also make the father more involved in child education than ever before, which traditionally had primarily been the mother's role. The growing family income, the singleton of the child, and the fierce competition for entering limited key schools all contribute toward Chinese parents' increased investment in their children. The influences of the one-child policy on child-rearing practices are evident. The singleton status of only child in a family makes great parental involvement possible (Short, Zhai, Xu, & Yang, 2001). The only children have enjoyed unprecedented parental support because they do not have to compete with siblings for parental investment (Fong, 2002). Due to one child

in most families, contemporary Chinese parents may tend to be less strict or authoritarian (Stevenson, Chen, & Lee, 1992; Xie & Hultgren, 1994) and become more lenient, overprotective, and child-centered than parents of earlier generations (Shek, 2006).

Nevertheless, the enormous support from six adults (i.e., two parents and four grandparents) on one child may increase the risk of spoiling, resulting in selfish personalities and adverse behavior patterns for the only child in the family (Falbo & Poston, 1993; Wu, 1996). The little emperor phenomenon in describing the egocentric and maladjusted only children has raised wide concerns in parents and researchers (Falbo & Poston; Jing & Wan, 1997; Jing, Wan, Lin, Ji, Jiao, & Fan, 2003; Strom et al., 1995). Although the review of the empirical studies on only children concluded that there was no causal link between the status of singleton children and the maladjustment problems (Jing et al.), the mechanism of how parenting relates to only children's various aspects of social development in China has been really unknown.

To successfully raise socially and academically competent only children, contemporary Chinese parents many face several unique challenges. China has been undergoing dynamic socio-economic changes. Chinese parents have had to balance the often conflicting cultural influences to form an integrated personal value system in socializing their only child. As many adult family members take care of one child, Chinese parents may need to creatively manage the inter-spousal and inter-generational co-parenting conflicts. Many parents over the age 36 years old grew up with siblings, and lacked personal experiences of being the only child. This unfamiliarity may bring additional challenges to their effective parent-child interactions.

Many forces could shape parenting (Bornstein & Cheah, 2006). Holden (1997) once identified over thirty empirical variables influencing parenting. From an ecological perspective, Bornstein (2002) categorized various factors related to parenting into three categories: (a) forces

within parents such as biological and psychological processes and attributes in parents, (b) the perceived or actual child characteristics, and (c) contextual influences including socio-contextual factors, family environment, and culture. In the West, the modern research on parenting gained a momentum from Baumrind's (1966) hallmark topology of three parental control models (i.e., authoritarian, authoritative, and permissive) and Maccoby and Martin's (1983) refinement of the topology into four parenting styles (i.e., authoritarian, authoritative, permissive, and neglectful).

The aforementioned theoretical frameworks have been applied to the Chinese culture in the last 25 years (e.g., Chan, 1981; Chen, Dong, & Zhou, 1997; Lin & Fu, 1990; Xu, Farver, Zhang, Zeng, Yu, & Cai, 2005). The renewed research interest in parenting in the Chinese culture has stemmed from the accumulative criticism of the ethnocentricity in Baumrind's models (e.g., Park & Bauer, 2003; Pittman & Chase-Lansdale, 2001). Chao's (1994) concept of *guan* (governing or training) as an indigenous Chinese parenting dimension has inspired a search of the cultural differences of parenting and the possible different links to child functioning in Chinese families (Chao, 1994; 2000; 2001; Lim & Lim, 2004; Pearson & Rao, 2003; Wu et al., 2002). Research on Chinese parenting has steadily grown in the past two decades, especially in recent years. A PsychInfo search using the keywords "Chinese" and "parenting" yielded 4 records in the 1980s and 44 records in the 1990s, but the number jumped to 133 between years 2000 and 2006.

Although the existing works have explored various aspects of parenting styles and their links to child developmental outcomes in the Chinese culture, many important issues remain unaddressed or under-examined in great detail. First, many studies have described the authoritarian style as characteristic of Chinese parenting (Chao, 1994; Leung, Lau, & Lam, 1998; Lim & Lim, 2003; Lin & Fu, 1990). While this stereotype may be true for the past traditional

Chinese society, modern Chinese parents may have become more authoritative or indulgent and less authoritarian than parents of the earlier generations. It is necessary not to take authoritarian parenting as a default for Chinese parents, but instead to examine the current status of parenting styles in contemporary China.

Second, studies of the relationship between parenting styles and child functioning in the Chinese culture have often focused on academic achievement (e.g., Chao, 1994, 2000; Chen, Liu, et al., 1997; Chen, Liu, & Li, 2000; Chen, Rubin, & Li, 1997b) or on specific aspects of child social adjustments such as peer relationships (e.g., Chen, Chang, He, & Liu, 2005; Chen, Dong, et al., 1997; Chen, Zeppulla, et al., 2004; Ekblad, 1986; Pearson & Rao, 2003). Research regarding the relationship between parenting styles and child overall social competence has been rare (Zhou, Eisenberg, Wang, & Reiser, 2004).

Third, latent-model-based multivariate studies of parenting styles on child social competence in the presence of other personal, interpersonal, and contextual factors have been limited. For instance, although child temperament has been found influencing parenting in the Chinese culture as in other societies (Chen & Luster, 2002; Porter et al., 2005; Zeng, 1999) and relating to child social behaviors (Fang, 2005; Liu & Liu, 2000; Yang, Hart, & Nelson, 2004), its interaction with parenting styles influencing child social competence has seldom been explored in structural equation modeling studies. Parent-child relationship, as the interpersonal context for parent-child interactions (Kuzynski, 2003), has been investigated empirically in the Western literature (Rubin & Chung, 2006). Yet, the parent-child relationship is typically at the conceptual level rather than at the operationally-defined level for Chinese families (e.g., Sun, 2006). Family as a pervasive and highly influential context for child socialization has been long recognized (Parke & Buriel, 1998). Various aspects of the family such as family structure, family interaction

patterns, and family cohesion have been found relating to child social competence in Western samples (e.g., Dekovic, Janssens, & van As, 2003; Dumas, Nissley, Nordstrom, Smith, Prinz, & Levine, 2005; Smith, Prinz, Dumas, & Laughlin, 2001). Yet, research considering the joint influence of family functioning and parenting styles on Chinese children's social competence has been minimal. In light of the recent rapid changes in Chinese families, it is critical to examine how the family environmental factors interact with parenting style influencing child social competence.

Fourth, measurements of parenting styles, parent-child relationships, and family environments have traditionally relied heavily on one family member, typically the mother (Marcos & Draper, 1990). Studies involving the Chinese samples have tended to mirror the popular practice of one-party's view (e.g., Chen & Rubin, 1994; Chen, Rubin, & Li, 1995; Leung et al., 1998; Lin & Fu, 1990; Shek, 1998, 1999, 2000, 2002, 2005a). Excluding the fathers and children could pose some potential theoretical and measurement challenges because different informants could validly contribute distinctive but overlapping information (Deutsch, Lozy, & Saxon, 1993). Hence, it is important to include various relevant informants in research studies.

Last but not the least, the existing studies on parenting and child social development were primarily based on the traditional unidirectional framework, treating parental variables as antecedents and child variables as outcomes (Kuczynski, 2003). They seldom explored the child's active role in the socialization process. Possibly due to the theoretical and statistical complexity and the requirement of a large sample size with quality data, latent models of parenting style, child temperament, parent-child relationship, and family environment on child social competence have not been found with both the Chinese and Western samples.

In summary, the Chinese society has undergone dramatic changes since 1949. The ongoing changes, in particular the national implementation of the one-child policy, have brought about a dynamic adaptation process for Chinese families. Although the research interest has grown in the area of parenting and its influences on child social competence for the contemporary Chinese family, its scope and size are limited. New studies utilizing state-of-art theoretical frameworks and techniques may deepen and broaden the understanding of the relationship between parenting and child social development in modern China in concurrent consideration of other important factors. Such an effort may eventually provide suggestions for the child-rearing practices for Chinese parents. Furthermore, because cultural, societal, and familial differences may exist in these variables, the relation models among the studies variables may contribute to the general understanding of the cross-cultural differences in parenting and its diverse impact patterns on child social competence.

Statement of the Problem

China has been widely considered as a Confucianism-oriented country. And Chinese parents have been often described as more authoritarian in rearing their children than Western parents. However, China has undergone many dramatic social, political, economic, and cultural changes during the past three decades. The one-child family policy initiated in 1979 has had the most influential impact on Chinese families, parenting practices, and subsequently on child social competence. The general public and professionals have expressed concerned with the egocentricity and poor social functioning of these “only” children. The existing research on parenting style and its influences on the only child has been limited and inconclusive. Moreover, no studies have examined the joint influence of parenting style, child temperament, parent-child

relationship, and family functioning on child social competence. There is a pressing need to formulate models among these variables and to test them with contemporary Chinese families.

The presentation of this study is organized into five chapters. Chapter I introduces the background information and the statement of the problem as stated above. Chapter II reviews relevant literature and is divided into four parts. Part one provides an overview of the traditional models on parenting style and of the criticism on the unilateral parenting framework. The second part presents the bilateral framework of parent-child interaction and reviews relevant empirical studies in the Western culture. Part three focuses on the studies of parenting and its impact on child social development in the Chinese culture. The last part presents research questions, hypothesized models with rationales, research hypotheses, and assumptions. Chapter III describes the participants, data collection and analysis procedures, variables and the measurement instruments, and the statistical analysis techniques. Chapter IV presents the results of data analyses. Chapter V summarizes and discusses the findings, makes recommendations for future research, outlines the contributions and limitations, and highlights practical implications.

CHAPTER II

LITERATURE REVIEW

Parent-Child Interactions and Parenting Styles

The Unilateral Framework

Psychologists and educators have been interested in parental influences on children's development and behaviors at least since Dewey's work in the 1910s, the psychoanalytic movement in the 1920s, and behaviorists' work in child socialization research in the 1950s (Baumrind, 1966; Darling, 1999; Teti & Candelaria, 2002). However, the early efforts did not make clear-cut contributions to an understanding of parenting (Teti & Candelaria). It was Diana Baumrind's paper "Effects of Authoritative Parental Control on Child Behavior" in 1966 that set a milestone for the contemporary studies on parenting styles. By extending the work of the earlier researchers such as Baldwin (1948) and Sears, Maccoby, and Levin (1957) in identifying the key dimensions of parenting, Baumrind conceptualized three models of parental control: authoritative, authoritarian, and permissive. Baumrind argued that children raised by authoritative parents are more likely to be better socialized than those with authoritarian or permissive parents.

Later, Baumrind revised the unidimensional parenting control into two stylistic dimensions of parenting: responsiveness and demandingness (Baumrind, 1971, 1991b). Parental responsiveness was described as "the extent to which parents intentionally foster individuality, self-regulation, and self-assertion by being attuned, supportive, and acquiescent to children's special needs and demands" (Baumrind, 1991b, p. 62). Parental demandingness referred to "the claims parents make on children to become integrated into the family whole, by their maturity demands, supervision, disciplinary efforts, and willingness to confront the child who disobeys"

(Baumrind, 1991b, pp. 61-62). Under this conceptualization, authoritative parents are not only warm and responsive to their children, but they set explicit expectations and standards for children's socially competent and age-appropriate behaviors as well. Permissive parents are also warm and responsive, but exert little control and demand few maturity behaviors. Authoritarian parents interact with their children in cold and unresponsive ways. Baumrind (1971, 1991a) asserted that by and large, children with authoritative parents show higher levels of social competence than those raised by parents exhibiting the other two styles.

Maccoby and Martin (1983) employed Schaefer's (1959) and Becker's (1964) strategy of two *orthogonal* (italic added) dimensions in classifying parenting patterns with responsiveness and demandingness, and extended Baumrind's topology of three parental models to four types of parenting patterns in a fourfold scheme: (a) authoritative, (b) authoritarian, (c) indulgent, and (d) neglectful. The neglectful parents are low in both responsiveness and demanding or control (Maccoby & Martin; Teti & Canderaria, 2002). These earlier frameworks and the associated parenting styles have become the theoretical foundation for many contemporary studies on parenting (Cowan, Powell, & Cowan, 1998).

One central motivation in identifying important parenting dimensions is that researchers have believed different parenting styles or patterns are directly associated with various child outcomes (Baumrind, 1971; Darling & Sternberg, 1993; Maccoby & Martin, 1983). The cumulative studies for the past three decades on the impacts of different parenting styles on children across most measures of parenting and across most outcome measures seem to suggest the following general conclusions: (a) Children with authoritative parents are more socially competent than those with nonauthoritative parents (e.g., Baumrind, 1967, 1971, 1989, 1991b, 1991c, 1991a; Darling, 1999; Maccoby & Martin, 1983; Miller, Cowan, Cowan, & Hetherington

1993; Weiss & Schwarz, 1996); (b) children from authoritarian families tend to “perform moderately well in school and are uninvolved in problem behavior, but they have poorer social skills, lower self-esteem, and higher levels of depression” (Darling, 1999, p.4) than their counterparts raised by authoritative parents; (c) children in indulgent homes are “more likely to be involved in problem behavior and perform less well in school, but they have higher self-esteem, better social skills, and lower levels of depression” (Darling, p.4); and (d) children with neglectful parents perform most poorly in social competency and school work and have more behavioral problems than those from families with the other three parenting styles (Baumrind, 1989, 1991c; Darling, 1999; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Patterson, Reid, & Dishion, 1992; Pittman & Chase-Lansdale, 2001). In reality, neglectful parents are usually rare in most cultures (Holden, 1997). Consequently, neglectful parenting has often been excluded in many parenting style measures.

Studies on parent-child interactions before the 1960s were mostly concerned with the identification of parenting dimensions, strategies, patterns, or styles, along with the causal associations with the child-rearing outcomes, rather than with the parent-child interaction processes which lead to the outcomes (Schaffer, 1984). Kuczynski (2003) labeled this period as a unidirectional or “before bidirectionality” era and stated the underlying assumption of unidirectional causality is embedded in the larger assumption system of the unilateral model. The assumptions of the unilateral model of parent-child interactions and relations include (a) unidirectional causality from parent to child, (b) an unequal agency with a more active role assigned to parent than to child, (c) parent-child interactions happening at the individual level not in the context of relationship, and (d) a static, vertical asymmetric power structure between parent and child (Kuczynski). Research under this unilateral framework often conceptualizes

parenting variables as antecedents with child variables as outcomes, giving little consideration to the process in which antecedents are transformed into outcomes. Recently, this unilateral framework has faced many theoretical, psychometric, and empirical challenges.

Some researchers have been concerned with the underlying static unilateral assumptions of parent-child interactions, and the oversimplified and stereotyped configuration of parenting. For instance, Kuczynski (2003) stated that the assumptions in the unilateral framework of parent-child interactions have remained untested. Holden and Edwards (1989) complained too many quick and dirty questionnaires treat parents as generic and trait-like and regard parent-child interactions as unidirectional in an acontextual way. Barber (1996) argued it is important to differentiate between behavioral control and psychological control and stated Baumrind's parenting style only captures behavioral control but not psychological control; and psychological control should be treated as the third dimension. Lau and Cheung (1987) expressed it is important to differentiate between two types of parental control, the dominating or interfering one and the organizational one for maintaining coordination and order in the family.

Particularly relevant to the present study, Darling and Steinberg (1993) stated there are other components in parenting tasks that are not part of parenting style. They further proposed to differentiate the two related concepts: global parenting styles and specific parenting practices. A global parenting style is "a constellation of attitudes toward the child that are communicated to the child and create an emotional climate in which the parent's behaviors are expressed" (p. 493), whereas specific parenting practices are "behaviors defined by specific content and socialization goals" (p. 492). They contended parenting style and parenting practices affect the outcomes of children differently. Parenting practices directly affect child developmental outcomes, whereas the role of parenting style is distant or indirect (Brenner & Fox, 1999;

Darling & Steinberg). In studying adolescents, they further suggested parenting style is a moderator between parenting practices and children's outcomes. Part of the moderator model^{1, 2, 3} (see chapter notes in Appendix A) was represented in Figure 1. Yet, this model has mostly remained as hypothetical, requiring empirical validations.

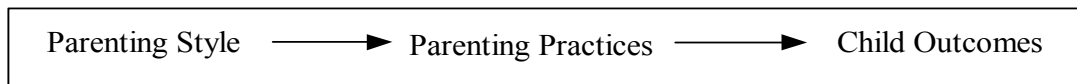


Figure 1. A moderator model of parenting style on child outcomes by parenting practices.
Adapted from Darling & Steinberg (1993)

From a psychometric perspective, Stewart and Bond (2002) expressed the concerns of variability and inconsistency in translating the theory into measures in examining the topological approach. The lack of consistent and systematic descriptions of the theoretical constructs in the topological models leaves operational definitions of these concepts widely open. Different researchers have different operational definitions for the same parental style and use different measures to measure it. They stated most instruments claimed to measure parenting styles are actually measuring parenting practices. In addition to the validity concerns, there are reliability challenges. Many diverse measurement tools for parenting styles have been used in the past studies. Some researchers employed standardized self-report (e.g., Cardinali & D'Allura, 2001; Coplan, Hasting, Lagace-Seguin, & Moulton, 2002). Some used self-developed surveys, even without reporting reliability and validity (e.g., Mucclun & Merrell, 1998). Others developed their own coding systems in natural observation studies (e.g., Hudson & Rapee, 2001; Metsapelto, Pulkkinen, & Poikkeus, 2001). These psychometric inconsistencies have made the results of many studies on parenting styles doubtful and incomparable.

The empirical challenges related to the present study were: (a) the universality of the parenting styles and their impacts on children, (b) the stability of parenting style, (c) the roles of

parent's and child's sex in parenting style, and (d) the ignored child's view of parent-child interactions and relationships. The unilateral topological framework of parenting style originated from the White American family background. Authoritative parenting style has been reported to be more effective for European American families in promoting children's development than for other ethnic or cultural groups (Darling, 1999; Park & Bauer, 2002; Pittman & Chase-Lansdale, 2001). Many studies have investigated the universality of the framework in other family types, ethnic groups, and cultures. They found that family type was a factor ignored in the original parenting style framework. Some researchers reported low SES parents are more authoritarian than authoritative (e.g., Furstenburg, 1993; Kelly, Power, & Wimbush, 1992), and the authoritarian parenting may be linked to more positive child outcomes than the authoritative parenting in these adverse families (Baldwin, Baldwin, & Cole, 1990). Similar inconsistencies between the authoritative parenting and optimal child outcomes were also found in minority ethnic groups in the United States (e.g., Avenevoli, Sessa, & Steinberg, 1999, Dornbusch et al., 1987; Pittman & Chase-Lansdale, 2001; Steinberg, Dornbusch, & Brown, 1992; Steinberg, Mounts, Lamborn, & Dornbusch, 1991).

In cross-cultural studies, although some evidences have shown the cross-cultural validity of the direct influence model (e.g., Chen, Dong, et al., 1997; Darling & Sternberg, 1993; Kaisa, Hakan, & Jari-Erik, 2000; Querido, Warner, & Eyberg, 2002), many other studies have challenged the generality of the unilateral framework and the superiority of authoritative parenting. Furthermore, Chao (1994) argued Baumrind's stylistic categories may be misleading in other Non-Anglo American cultures. Researchers have stated parents in the collectivism-oriented culture tend to be more authoritarian than authoritative in childrearing and may have optimal outcomes (e.g., Chao, 1994; Gorman, 1998; Rudy & Grusec, 2001). For instance, in a

study of high school students and their parents with Asian American, Hispanic American, African American, and European American family backgrounds, Park and Bauer (2002) reported the White American parents were more authoritative than the counterparts in other ethnic backgrounds. However, the positive relationship between authoritative parenting and student's academic achievement was not supported in the minority groups. Similarly, Chao (1994) found authoritative parenting was highly linked to school performance for European American adolescents, but only mildly for second generation Chinese American students, and even no relationships in first generation of Chinese American adolescents. In a sample of Israeli soldiers, Wintre and Ben-Kantz (2000) found authoritatively reared soldiers are less well adjusted to the army, more depressed, and lower in self-esteem compared to those from authoritarian and permissive family backgrounds. Parke and Buriel (1998) concluded "accumulating evidence underscores the nonuniversality of these stylistic distinctions and suggests the importance of developing concepts that are based on an indigenous appreciation of the culture" (p. 473).

Baumrind's parenting framework assumes that parenting style is global, consistent, and cross-contextual. This assumption has raised hot debates in parenting style research. On one hand, some researchers have reported that parenting style is stable, and its impacts on children are consistent. For instance, researchers have found that (a) mothers' activity and responsivity (Belsky, 1980; Metsapelto et al., 2001), (b) emotional involvement and verbal stimulation (O'Brien, Johnson, & Anderson-Goezt, 1989), (c) acceptance (Rothbaum, 1988), (d) affective response patterns (Coplan et al., 2002), and (e) level of attunement in parent-child dyads (Leyendecker, Lamb, Scholmerich, & Fricke, 1997) are correlated across contexts, suggesting parenting behavioral patterns tend to be stable. Rubin, Nelson, Hastings, and Asendorpf (1999) also found few differences existed between mothers' and fathers' expressed parenting styles for

children at 2- and 4-year-old. Conversely, many other empirical studies have challenged the stability of parenting style. For instance, Freeman and Newland (2002) found significant declines in parental behavioral control but not parental responsiveness in a study with ethnically diverse American adolescents' families. In a 13-month period study on mothers' relationships with their toddler sons, Aber, Belsky, Slade, and Crnic (1999) found parents with toddlers significantly increased in anger but no changes were found in (a) joy, (b) pleasure, (c) coherence, (d) guilt, and (e) separation distress. Parental behaviors are also found to vary according to (a) the types of engaged activities by parents and children (e.g., Seifer, Sameroff, Anagnostopolou, & Elias, 1992; Leyendecker et al., 1997), (b) the structure of the activities (e.g., Haden & Fivush, 1996; Lyytinen, Rasku-Puttonen, Ahonen, Poikkeus, & Laakso, 1995), and (c) the observational context (e.g., Belsky, 1980; O'Brien et al., 1989). These results seem to suggest that parenting style changes over time, establishing it as situational. Such findings seemed to challenge the cross-contextual generalizations and stability of parental behaviors and parenting styles (Belsky, 1980; Haden & Fivush, 1996), along with the universal superiority of the authoritative parenting style.

The traditional parenting style topology was neither concerning the factor of parent's sex, nor considering the possible differential effects of parenting style on boys and girls. One reason may be that Baumrind's earlier studies focused only on young children and their mothers (Maccoby & Martin, 1983). Later, Baumrind (1991c) reported 76% of the families had similar parenting characteristics between fathers and mothers. Some studies, indeed, found both parents had similar parenting patterns (e.g., Paulson, 1994; Rubin et al., 1999). However, many studies with both the American and international samples have shown that both parent's and children's sex play an important role in parenting styles and their effects on the child (e.g., Conrade & Ho,

2001; Russell, Alova, Feder, Glover, Miller, & Palmer, 1998; Shek, 1998, 2000, 2002). For instance, Warash and Markstorm (2001) reported the same parenting style had different effects on preschool boy's and girl's self-esteem in a sample of middle-class American families. Conrade and Ho (2001) found Australian parents were likely to be more authoritative to female children. Russell and colleagues (Russell & Saebel, 1997; Russell et al., 1998) also reported similar findings. In an Australian sample of parents with preschool children, they found: (a) mothers were more authoritative than fathers, (b) fathers were more authoritarian and permissive than mothers, and (c) both parents were more likely to use authoritarian strategies toward boys and authoritative reasoning or induction toward girls. In a sample of 429 secondary school students in Hong Kong, Shek (2002) reported Hong Kong adolescents perceived their fathers as (a) less responsive, (b) less demanding, (c) less concerned, and (d) harsher; whereas mothers were more demanding but less harsh.

Moreover, the child has a lost voice in the unilateral parenting style framework. Studies under this framework usually use parent's self-report, questionnaires administered to the parents, or natural observations which primarily focus on how parents influence children. All of these methods yield an adult view of parenting. However, children may perceive and interpret parents' parenting behaviors differently. For instance, Collins, Harris, and Susman (1995) stated that parents' and children's mutual cognition about each other in interactions changes over time. Smetana (1989) found parents' and children's mutual perceptions are relatively congruent between 10- to 11-year-old children and their parents when parent's authority is legitimate, whereas congruity becomes less likely during adolescence. Alessandri and Wozniak (1987, 1989) reported children's perceptions of their parents' beliefs about them during later middle childhood

(starting from age 10 years) were less accurate than the perceptions of 15- to 16-year-olds even though they became more congruent with their parents' in a 2-year follow-up study.

In a series of studies of Hong Kong adolescents, Shek (1998, 2000, 2002) found parents tended to rate themselves more authoritative than their adolescents rated them. In another study with Hong Kong adolescents, McBride-Chang and Chang (1998) found adolescents rated their parents more permissive, less authoritarian, and more authoritative than did the parents themselves. Smetana (1995) found American adolescents viewed their parents as more permissive and authoritarian than parents viewed themselves and parents viewed themselves more authoritative than adolescents did. In a three year longitudinal study of 31 ninth-grade starters and their parents, Paulson and Sputa (1996) reported parents rated themselves higher on all aspects of parenting dimensions (including demandingness, responsiveness, values toward achievement, involvement in schoolwork, and involvement in school functions) than their adolescents perceived them in both ninth and twelfth grades. These findings seemed to indicate that the differences between parent's and child's perceptions of parenting styles are prevalent.

In summary, the unilateral framework established an elegant and simple theoretical foundation. It has served as a springboard for further parenting research. And overwhelming evidences have shown that authoritative parenting is directly associated with positive child outcomes in the European American families. However, the stylistic approach of parenting styles and its implicit unilateral framework has faced many criticisms when applied to other populations. In addition, the unilateral-oriented studies on parenting styles may likely narrow the research scope by ignoring the critical process component (Maccoby & Martin, 1983, Kuczynski, 2003). Darling and Sternberg (1993) echoed similar concerns after reviewing research on Baumrind's topology by stating "despite consistent evidence that authoritative parents produce

competent children, we still do not really know how and why”(pp. 491-492). Indeed, new conceptual frameworks are required. The bilateral and ecological frameworks of parent-child interaction (Bronfenbrenner, 1979, 1986, 1989; Kuczynski, 2003), which emphasize both parental and child variables, as well as the interaction process, seem to be embraced by many contemporary researchers in the field of parenting.

The Bilateral Framework

In the same decade as Baumrind’s work on the topological approach of parenting, other psychologists reported the child’s active influence and power in shaping parental behaviors and the socialization process (Bell, 1968; Rheingold, 1969). The wide acceptance of Piagetian theory on the child’s active construction of their world in the 1970s indirectly contributed to recognition of the child’s active role in parent-child interactions. Soon after, many new bidirectional causality models, such as the transactional model (Sameroff, 1975), goodness of fit model (Lerner, 1993), and family system and ecological model (Belsky, 1984; Bronfenbrenner, 1979), have been proposed as alternatives of the unidirectional linear parental causality model. In the early 1980s, Maccoby and Martin’s (1983) landmark chapter explicitly emphasized the bidirectionality of parent-child interactions and relationships in a systematic way. Due to these pioneering works, the paradigm in parenting research has gradually shifted from the parent-oriented unidirectional topology approach to the bidirectional parent-child interaction approach over the past two decades although these bidirectional models have not become the mainstream in parenting research (Kuczynski, 2003; Parke & Buriel, 1998). Under the bilateral framework, parenting style is a product of (a) sociological and environmental factors, (b) parental behavioral and personality characteristics, and (c) the child’s characteristics. In addition, parenting behaviors are heavily influenced by the parent-child relationships (Abidin, 1992; Grusec, Goodnow, &

Kuczynski, 2000). Kuczynski summarized the assumptions of the bilateral framework as (a) bidirectional causality, (b) equal agency of parent and child, (c) interactions within the relationship context, and (d) interdependent asymmetric power between parent and child.

The bilateral framework focuses on the processes of parent-child interactions which occur over the continuous developmental changes, and recognizes the diversity of models of bidirectional causality. It also advocates the “agency of parents and children, the dynamic nature of the asymmetrical power, and the parent-child interactions as a distinctive context for parent-child interactions” (Kuczynski, 2003, p.20). This interactionist’s view of parent-child interaction is well aligned with the contemporary ecological theory of human development (Bronfenbrenner, 1979, 1989) and family socialization theories (Parke & Buriel, 1998). In summary, the relationship-oriented bilateral model proposes (a) bidirectional causality between parent and child, (b) equal agency of both parent and child, (c) the parent-child relationship as a context for parent-child interactions, and (d) the interdependency of parent’s power and child’s power (Kuczynski). In other words, the bilateral model emphasizes both the parent’s and the child’s roles in interactions, along with the interdependent relationships between parent and child. It also implies an input-process-output model rather than an input-output model as implied in the unilateral model.

Social Competence and Parent-Child Interaction in Middle Childhood

Social competence is a “complex, multidimensional construct that has been defined in a variety of ways in the literature” (Merrell & Caldarella, 2002, p.7). While most researchers conceptually concur that social competence is about effective functioning within social contexts, they differ in the views on the components of social competence. Some researchers intensively focus on the behavioral dimension of social competence. For example, Howes and James (2004)

defined social competence as “behavior that reflects successful social functioning” (p. 138). Foster and Ritchey (1979) referred to social competence as “those responses which, within a given situation, maximize the probability of producing, maintaining, or enhancing positive effects for the interaction” (p. 626). Others explicitly include the cognitive dimension of social competence. For instance, Kostelnik, Whiren, Soderman, and Gregory (2006) defined social competence as children’s ability to recognize, interpret, and respond appropriately in a given sociocultural context. Meichenbaum, Bultler, and Gruson (1981) proposed social competence as being composed of overt behaviors, cognitive processes, and cognitive structure. In an effort to reconcile disparate views of social competence, Cavell (1990) proposed a hierarchical model of social competence with three components: (a) social adjustment, (b) social performance, and (c) social skills. Social adjustment is defined as the extent to which an individual achieves socially and developmentally appropriate goals. Social performance or social functioning refers to “the degree to which an individual’s responses to relevant, primarily social situations meet socially valid criteria” (p. 118). The last component, social skills, refers to specific abilities which enable one to perform competently in social tasks. This tri-component model argued social performance has to be understood within relevant social tasks. For the present study, child social competence primarily focuses on the child’s adaptive social behavior characteristics and social functioning in various task-specific social contexts.

The ability to master social competencies is considered a primary developmental task for young children (Coolahan, Mendez, Fantuzzo, & McDermott, 2000) and is one of the most important accomplishments of early and middle childhoods for most children (Bracken, Keith, & Walker, 1994). In discussing children’s social development in early childhood, Howes and James (2004) made the premise that all children regardless of their races, family classes, and home

languages will develop social competence. However, there are variations in child social competence and the variability has rampant implications. Research has shown socially competent children are more successful in their interactions with others and more satisfied with life than their less competent peers (Kostelnik et al., 2006). In addition, successful development of social competence in the early childhood years predicts later personal psychological well-being, interpersonal relationships, and social adjustment during adolescence and adulthood (Hartup & Stevens, 1999; Parker & Asher, 1987). In contrast, socially incompetent children are frequently rejected by their peers, have low self-esteem, and perform poorly academically (Crockenberg, Jackson, & Langrock, 1996). Even worse, they are at risk of continuing the problematic behavioral patterns as they mature and of becoming involved in juvenile delinquency (Ladd, 2000). There are obvious cultural variations of child social competence (Rubin & Chung, 2006; Schneider, 1993). The review of Chinese children's social competence will be addressed in the section of "Studies on Social Competence in Chinese Children."

Parents of children in middle childhood (ages 6-12 years) have new parenting challenges arising from (a) changes in the children themselves, (b) changes in the children's immediate living environment, (c) changes in the socially imposed constraints and demands for children, and (d) changes in parental tasks (Collins et al., 1995). The salient changes for children in the age period of 6-12 years are: (a) their growing cognitive competence and the growth of knowledge in abstract representation of objects and events (Fischer & Bullock, 1984) and in adopting the perspectives of others (Dunn & Slomkowski, 1992), (b) their expanding social network incorporating extrafamilial adults and peers (Hartup, 1989), and (c) their increasing stable and comprehensive understanding of self-concept, self-regulation, and social responsibility (Damon & Hart, 1982). These underlying changes consequently alter the

frequency, forms, types, contents, and impacts of interactions between the parents and their children. For example, parents are more likely to use elaborate explanations and justifications and less likely to employ distractions or admonishment than in the earlier years to make children follow their wills.

Parents' adjustment to children's developing characteristics is well reflected in Galinsky's (1987) six-stage theory of parenthood. In the *authority* (italic added) stage for children between 2 and 5 years of age, parents develop, set, and enforce the rules for children. However, in middle childhood, with children's growing cognitive competence, experience, and knowledge; parents have entered the *interpretative* (italic added) stage and their central parental task has shifted to interpreting their own self-concept, their children's perception, and the surrounding world to children.

Collins (1992) stated middle childhood, the first segment of the compulsory school years in many countries, is primarily a preparation stage—preparing for eventual responsibility of adulthood. Parents' central issue during this age period is to “effectively adjust their interactions, cognitions, affectional behaviors to the changing characteristics of children, in order to maintain appropriate influence and guidance during age-graded transitions toward greater autonomy” (Collins et al., 1995, p. 66). Unlike in the earlier years, children in middle childhood spend less time with their parents and other immediate family members than with others outside of the family (Feiring & Lewis, 1991) due to entry into school. Formal schooling widens children's social world and increases the number and kinds of their developmental tasks (Collins et al.). Children encounter considerable pressure to create and maintain connections with peers during this age period (Hartup, 1989; Ladd & Le Sieur, 1995). Children's experiences outside of the family often bring parents additional responsibilities and burdens for knowing their children's

life events, for monitoring the children's activities, and for facilitating the children's positive behaviors and development (Collins et al.).

Concurrent with the individual and environmental changes in the middle childhood are the pattern changes of parent-child interactions and relationships. The rate of parent-child interactions becomes less frequent than before (Hill & Stafford, 1980). Overt affection by both parents and children decreases in middle childhood (Roberts, Block, & Block, 1984). Parents and children are less likely to experience and display negative emotions in the dyadic interactions than before (Collins et al., 1995). Children spend more time with their mothers than with fathers (Parke, 2002) and children tend to have more of both positive and negative emotional expressions and conflictual interactions with their mother than with their fathers (Russell & Russell, 1987). Collins et al. stated the mutual patterns of cognition between parents and children may influence their relationship during middle childhood. Maccoby and her associate (Maccoby, 1984; Maccoby & Martin, 1983) once speculated the mutual cognitions of parents and children are more significant determinants of their relationship qualities during the middle childhood years than in earlier years. Collins et al. concluded that middle childhood is a distinctive period of parenting and the four unique aspects of parenting tasks during this period are (a) adapting control processes for effective management of children's behaviors, (b) fostering children's self-management and social responsibility, (c) facilitating children's positive relationships with others, and (d) maintaining positive bonds and experiences outside of the family.

Since the later 1960s, especially after Maccoby and Martin's (1983) strong advocacy on the bidirectionality of parent-child interaction, a rich body of research has been conducted in examining the process variables affecting the relationships between parenting styles and child social competence under the bilateral umbrella. Some of the mediating factors explored include

(a) parent-child relationships (e.g., Cook, 2001), (b) child characteristics (e.g., Arnold & O’Leary, 1995; McDowell, Kim, O’Neil, & Parker, 2002), (c) family structural characteristics (e.g., Cheal & Dooley, 1997; Steinberg et al., 1992), and (d) other contextual factors (e.g., Crnic & Greenberg, 1990; MacKinnon-Lewis, Volling, Lamb, Dechman, Abiner, & Curtner, 1994; Mills & Rubin, 1993). It is beyond the scope of this paper to review the voluminous and diverse studies under the bilateral framework of parent-child interaction. Instead, the following sections focus on the bilateral research related to the three variables (i.e., child temperament, parent-child relationship, family functioning) investigated in the present study and their influences upon the relationship between parenting style and child social competence in middle-childhood.

Child Temperament, Parenting Style, and Child Social Competence

Although the concept of temperament as permanent moods and behavioral styles dates back to ancient Greek philosophers Hippocrates and Galen (Kagan, 1994; Rothbart & Bates, 1998), the empirical study of temperament in childhood and its relations to parental behaviors and child developmental outcomes are actually quite recent (Hart, Olsen, Robinson, & Mandleco, 1997; Parke & Buriel, 1998). Contemporary researchers of child temperament usually suggest infants come to this world with behavioral dispositions as demonstrated in child temperament (Bates, 1986). These early individual differences elicit variations in child-caregiver interactions (Crockenberg, 1986) and subsequently influence the dynamic developmental process within the child involving genetic, physiological, individual, and environmental factors (Thelen, 1995). While there are many variations in defining temperament in modern research, Thomas and Chess, pioneers in empirical research on child temperament, provided an influential one that defines temperament as behavioral style or stylistic qualities of personalities in 1977. Since then, the treatment of temperament as a stylistic component of behavior has become a focal point for

many psychologists. Normally contemporary researchers do not debate the theoretical definition of temperament; instead, they resort to the theoretical formulations and working definitions, which often lead to operational definitions (Slabach, Morrow, & Wachs, 1991).

Thomas, Chess, and Birch (1968) established one of the earliest conceptual models of temperament which includes nine dimensions: (a) activity level, (b) rhythmicity or regularity of biological functions, (c) approach or withdrawal response to novel stimuli, (d) adaptability, (e) intensity of mood expressions, (f) threshold of responsiveness, (g) quality of mood, (h) distractibility, and (i) attention span and persistence. From these dimensions, Thomas and Chess (1977, 1991) further described three broad patterns or constellations of temperament: (a) easy, (b) difficult, and (c) slow-to-warm-up. Easy temperament “comprises a combination of regularity, positive approach responses to new stimuli, quick adaptability to change, mildly or moderately intense mood that is preponderantly positive.” Difficult temperament “comprises irregularity in biological functions, negative responses to new stimuli or people, slow adaptability to change, and intense mood that is frequently negative.” Slow-to-warm-up temperament “comprises negative responses of mild intensity to the new, with slow adaptability after repeated contact” (Thomas & Chess, 1991; p.17).

Furthermore, Thomas and Chess (1977) proposed a “goodness-of-fit” model to illustrate the interactive nature between temperament and the environment in child development especially in explaining the development of behavioral problems in children. They asserted the goodness of fit occurs when an individual’s temperament and other personal characteristics such as motivation or abilities can cope successfully with environmental demands, whereas poorness of fit happens when the environmental demands or expectations are excessive and not compatible with a person’s temperament and other characteristics. However, Thomas et al.’s framework has

been criticized for the large number of separate temperament dimensions. Bates (1987) argued not all of these temperament traits are psychometrically meaningful.

Buss and Plomin (1975, 1984, 1986) proposed a different model of temperament with three dimensions: (a) emotionality, (b) activity, and (c) sociability. Emotionality is a measure of emotional reactivity in response to events that ranges from absence of emotional arousal to intense emotional response. Activity refers to energy output or preferred levels of vigor and speed of actions and is measured based on the rate and amplitude of verbal and nonverbal behaviors. Sociability refers to one's tendency to prefer being with others to being alone. Buss and Plomin (1986) stated that these inherited personality traits appearing in infancy are fairly stable throughout the life span, although subject to environmental modifications. They declared that the difficult child tends to display an extreme level of emotionality and/or activity, whereas the easy child manifests a relatively normal level of activity and emotional reactivity.

Rothbart and her colleagues perceived temperament as “constitutionally based individual differences in emotional, motor, and attentional reactivity and self-regulation” (Rothbart & Bates, 1998, p. 109). Goldsmith defined temperament as “individual differences in experiencing and expressing the primary emotions and arousal” (Goldsmith et al., 1987, p. 511) by emphasizing the emotional nature and behavioral tendencies of temperament.

The four aforementioned different approaches to temperament were well contrasted in a roundtable discussion among these theorists (Goldsmith et al., 1987). As Goldsmith et al. pointed out, although these psychologists differed on (a) the dimensions of temperament, (b) the boundary for temperament, and (c) the use of the popular term “difficult child,” they concurred on temperament as being behavioral *tendencies* (italic added) rather than actual behavior *actions*

(italic added), being continuous with a biological underpinning nature, and having a relatively strong and direct link with behaviors during infancy.

Each of the theoretical definitions has established a foundation for constructing measurements of temperament with foci on different dimensions of temperament. In fact, various techniques have been used in measuring child temperament. Rothbart and Bates (1998) have identified three major categories: (a) questionnaires from different informants such as parental reports for young children and self-report for older children, (b) natural observation, and (c) laboratory designs. The most frequently used technique has been parental questionnaire as it is inexpensive to develop, administer, and analyze (Rothbart & Bates). Recently, the use of natural observations and laboratory psychobiological methods in studying temperament has grown. In light of the possible high degree of objectivity, ecological validity, and precise control over the variables in these methods, some researchers have had doubts about the psychometric adequacy of parental reports as reflected in (a) subjective parental reactions (Field, Vega-Lahr, Scafidi, & Goldstein, 1987), (b) low interparental agreement (Slabach et al., 1991), and (c) perceptual bias (Field et al.; Slabach et al.). However, after comprehensively reviewing studies of parent reports in temperament research, Rothbart and Bates argued that the use of parental report of child temperament is still warranted since parents can provide a useful perspective on child personality, and they have “a fair degree of objective validity” (p.126).

The child’s potential influences upon parent-child interactions and the reciprocal influences between parenting and child development have long been acknowledged in parenting research after the later 1960s (Hart et al., 1997; Thelen, 1995). Current research has found there are some relationships between temperament and parenting (Crockenberg, 1986; Fish & Crockenberg, 1986). For instance, a child with an easy temperament may elicit responsive and

warm parenting. In return, this responsive parenting may decrease the child's expression of negative emotionality and responses (Crockenberg). In contrast, a very reactive child may be difficult to control and demand great attention and direction from parents (Chess & Thomas, 1984). In an 18-month longitudinal study exploring the relationship between early child temperament and later problem behavior at ages 6, 13, and 24 months, Lee and Bates (1985) found mothers of difficult children used intrusive control tactics more frequently than mothers of average or easy children; furthermore, difficult children resisted their mothers' efforts of control significantly more than easy or average children.

In general, it has been agreed upon that temperament is strongly implicated in the socialization process of both typically developing children (Rothbart, Ahahi, & Hershey, 1994) and atypically developing children (Rutter, 1987; Varni, Rubenfeld, Talbot, & Setoguchi, 1989). Studies have shown there is a modest direct link between child temperament and concurrent and later social adjustment (Bates, 1989; Chess & Thomas, 1989; Rothbart & Bates, 1998). Yet, although the bidirectionality between parenting and temperament has recently been widely accepted, the theoretical delineation of the synergistic process between the two factors has been still minimal.

Recently, Gallagher (2002) proposed a conditional model which specifies child temperament moderates the effects of parenting on child outcomes, that is, child temperament could increase or decrease the strength of the relationships between parenting and child adjustment. More specifically, qualities of parenting may have different outcomes for children with different temperamental characteristics. Figure 2 depicts this moderator conceptualization in Baron and Kenny's notations (1986). If the path C representing the interaction effect is significant, it implies the relation between parenting style and child outcome changes as a

function of child temperament. Thus, the moderator hypothesis of child temperament is supported.

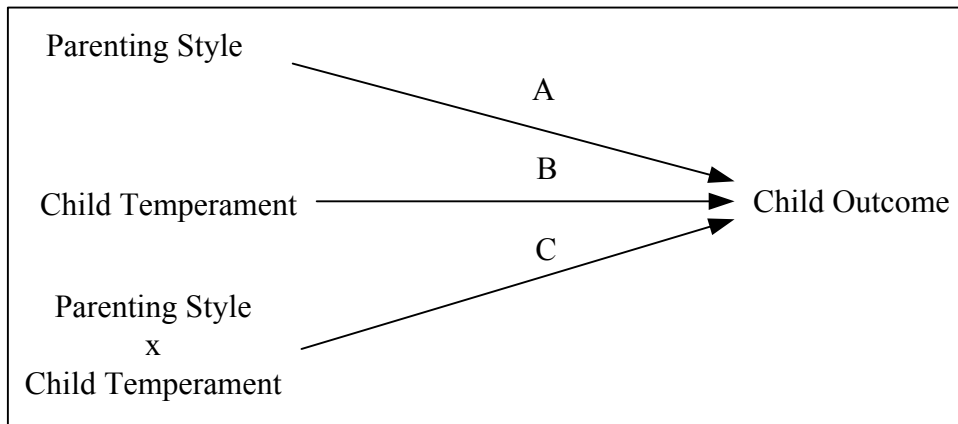


Figure 2. Child temperament as a moderator of parenting style on child outcome.

This moderation model has been tested in young children in many multiple regression studies on (a) the joint influences of parental socialization and child temperamental inhibition on children's moral development (Kochanska, 1995, 1997); (b) the interaction of child temperament and parent discipline in relation to children's prosocial behavior (Stanhope, 1999); (c) child positive/negative temperament and parent's positive/negative affect, sensitivity, and intrusiveness on children's social inhibition (Park, Belsky, Putnam, & Crnic, 1997); and (d) maternal sensitivity and child wariness on kindergarteners' social adjustment (Early, Rimm-Kaufman, Cox, & Saluja, 1999). With two longitudinal samples, Bates, Pettit, Dodge, and Ridge (1998) explored the interaction of maternal parenting and child temperament in relation to children's externalizing problems. They reported negative temperament was more amenable to socialization influences of parenting than was non-negative temperament. Mothering that was higher in power predicted a better adjustment for children who were more resistant to control.

They posited that more controlling maternal care helped resistant children develop internal controls.

For children in middle childhood or in the school years, the moderator-based studies have been relatively rare and have primarily focused on how parenting interacts with child temperament to predict children's maladjustment (Sanson & Rothbart, 1995). For instance, Blackson, Tarte, and Mezzich (1996) found parental discipline and child temperament interacted in predicting 10-12-year-old boys' both internalizing and externalizing behaviors. More specifically, when parents used negative discipline, children with difficult temperament have more mother-reported externalizing behaviors (e.g., aggression) and internalizing problems (e.g., depression) than non-difficult children. In a sample of sixty-four fourth and fifth grade boys and their parents, Colder, Lockman, and Wells (1997) reported parenting was related to child pathology in interaction with distinct characteristics of child temperament. Particularly, highly controlled and harsh parenting predicted negative adjustment outcomes only for boys exhibiting temperament characteristics associated with risk. Temperamentally negative boys were more susceptible to parenting in relation to adjustment outcomes than other boys.

In addition to the above direct and moderator model, Rothbart and Bates (1998) formulated other models such as the linear indirect mediation model, and the interaction model between parent temperament and child temperament. They concluded that these models of indirect, mediational, and moderator roles of temperament in child adjustment were less well established with inconsistent findings. As cross-cultural studies involving Chinese children have often reported some culturally specific imprints on child temperament (Gartstein et al., 2006; Porter, 2005), it is worthwhile to further investigate how child temperament may interact with parenting style and other variables influencing child social competence in the Chinese culture.

Parent-child Relationship, Parenting Style, and Child Social Competence

Psychologists under the bilateral view think it is important to differentiate the two closely related concepts: parent-child interactions and parent-child relationships (Collins & Madsen, 2003). These psychologists extended Hinde's (1979) distinction between a social interaction and a relationship and construed parent-child relationship as "conditional probabilities of recurring dependencies between behaviors in chains of interaction" (Collins & Madsen, p. 50). The parent-child relationship is formed from the accumulated history of interactions between the parent and the child which begin to "interject symbolic representations or expectancies of their past interactions into subsequent interactions with each other" (Kuczynski, 2003, p. 8) and constitutes the essential micro contexts for parent-child interactions.

Researchers subscribing to the bilateral view usually do not reject the existence of parenting style. In fact, they praise the explanatory power of the concept in understanding the diverse interactions. They argue parenting style as a relational pattern emerges from middle childhood, and closely links to interaction patterns (Kuczynski, 2003). They view parenting style is a product of sociological and environmental factors, parental behavioral and personality characteristics, and child's characteristics (Abidin, 1992; Grusec et al., 2000), and parenting behaviors are heavily influenced by the parent-child relationships. Under the bilateral lens, the dynamic moment-to-moment parent-child interactions form relative stable parent-child relationships over time. In return, parent-child relationships become a micro-context for parent-child interactions (Kuczynski). Accordingly, parent-child relationships are assumed to be the most salient factor in determining parenting styles and parenting behaviors. These psychologists have been more interested in how the parent-child relationships or the dynamic interactive family system in general influence parenting style than in the individual interactants.

Empirical studies also seem to support the influences of parent-child relationships on parent-child interaction and parenting styles. For example, in a study with two-parent two-child families of adolescents, Cook (2001) found “the unique actor–partner ‘fit’ were systematic sources of interpersonal influence, and reciprocal influence was present in most family dyads” (p.1179). Parents were also found to compensate for each other for their influences on children. In a study with forty mothers with a primary grade child in three different relationship contexts: their own child, their child's best friend, and an unfamiliar child, Dawber and Kuczynski (1999) found the nature of the relationship affected mothers’ affective reactions and discipline strategies. Mothers stated “They would experience more emotional upset, have more future-oriented goals, employ more power assertion, and use more teaching and reasoning strategies with their own child compared with unrelated children”(p. 475). Smetana, Crean, and Daddis (2002) argued it is necessary to conceptually distinguish parenting style and parent-child relationship as both having unique influences on children’s behavioral problems based on their findings in a sample of middle-class African American adolescents.

Studies investigating the distinct role of the parent-child relationships on parenting and child developmental outcomes involving Chinese samples have been limited so far. In exploring the mediational effect of the parent-child relationship between authoritative parenting and adolescent school academic performances, Chao (2001) reported that parent-child relationship had a stronger beneficial effect on European Americans than on first-generation Chinese. Such a mediational effect is graphed in Figure 3 in Baron and Kenny’s (1986) notions.

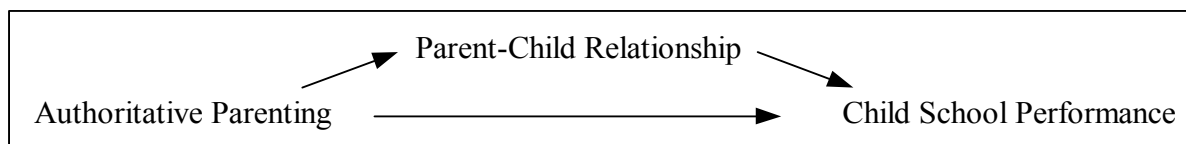


Figure 3. Parent-child relationship as a mediator of parenting on child school outcome.

Although the distinctive role of the parent-child relationship has been recognized in recent years, many major challenges still exist today. The biggest issue is the lack of a consensus on the theoretical and working definitions. A problem associated with this challenge is the lack of reliable and valid measurement of parent-child relationships. Even in the category of paper-pencil-based questionnaires alone, few instruments today could confidently claim they have solely targeted parent-child relationships, clearly apart from parent-child interactions, parenting styles, or parenting practices. The third challenge is that bilateral research on the parent-child relationships has primarily concentrated on the adolescent group. Studies of parent-child relationships from the perspectives of children at the early and middle childhood stages have been minimal, possibly due to children's developing abilities in those age groups or due to the limited availability of appropriate data collection techniques. So far, empirical studies including the parent-child relationships in the inquiry of the association between parenting style and young children's social competence using structural equation modeling have not been found.

Family Functioning, Parenting Style, and Child Social Competence

In the family science field, various family system theories have risen in contemporary family research (Parke & Buriel, 1998; Sameroff, 1994). One of them is Olsen's (1993) Circumplex Model of Marital and Family System, which captures the three common themes in many models of family systems: cohesion, flexibility, and communication (Gorall & Olsen, 1995). Cohesion describes the emotional connections among the family members. Flexibility or adaptability refers to the ability of a family to modify its rules and power structure in response to situational changes (Gorall & Olsen; Olsen, Gorall, & Tiesel, 2004). Communication, the facilitating dimension of the model, is defined as the family's skill and quality in listening and speaking with one other (Olsen; Gorall & Olsen). Olsen and associates have further developed

Family Adaptability and Cohesion Evaluation Scales (FACES) to quantify these dimensions in an endeavor to categorize family types and to measure the functioning of family system.

Empirically, studies have found many family environmental variables affect parental beliefs and behaviors such as negative life (e.g., illness) and daily family hassles (e.g., housework) (e.g., Crnic & Greenberg, 1990; MacKinnon-Lewis et al., 1994; Mills & Rubin, 1993). Crockenberg (1986) reported the availability of a social support network could be a moderator on the effects of stress in determining parenting. Cook (2001) found partner support in a family was a significant factor in explaining the quality of parental behavior. Studies also found many family variables linked to young children's social competency. For instance, in a sample of 492 African American parents with kindergarten children, Smith et al. (2001) reported family process linked to early reading achievement, child social and academic competence, and problem behavior. More specifically, family support and organization were consistently related to children's social competence and behavioral outcomes. Family cohesion and communication were also related to child competence and behavior, but none of the family process variables uniquely contributed to the academic achievement competency. Surprisingly, the varieties of family theories and the rich body of knowledge on parenting styles have not been well integrated. Multivariate inquiries of parenting style on child social competence with consideration of the family functioning have been limited.

Bioecological Model and Child Developmental Outcomes

Concurrent with the advance of the bilateral framework of parent-child interactions, many broad contextual models have surged in the past several decades for understanding how different variables interact with one another in influencing child development. These ecological models often emphasize the sociocontextual and interactive nature of the dynamics of parent-

child interactions (Bronfenbrenner, 1979, 1986, 1998; Morrow, 2003). Among them, Bronfenbrenner and Morris' (1998) Process-Person-Context-Time model (PPCT) has been an influential one (Gallagher, 2002). The core of this bioecological model is the process element or proximal process, particularly. Proximal processes are activities in which the child interacts with others (Person) in broad environments (Context) on a regular basis (Time) (Bronfenbrenner & Morris; Gallagher). Bronfenbrenner and Morris further stated "Proximal processes are posited as the primary engines of development" (p. 996) and they influence child developmental outcomes more than any single factor of person, context, or time alone (Gallagher). The effect of proximal processes on the child is postulated to vary with the characteristics of the persons (the child and others), characteristics of the context (family and other broad environments), and elements of time (the interaction duration and history). When a harmony among these factors is achieved in the proximal processes, optimal child developmental outcomes occur (Bronfenbrenner & Morris; Cook, 2001; Gallagher).

Although the PPCT model does not specify any models at the operational level, it set forth a theoretical foundation for the hypothesized interaction models of child characteristics, family environment, parent-child relationship, and parenting style in the present study. This study also is interested in how the interaction between parenting style and family environment might influence child social competence. More specifically, the present study formulates family environment moderate parenting style on child social competence.

Parenting Styles and Child Social Competence in the Chinese Culture

The Traditional Chinese Culture

Although China has a history of over five thousand years, the systematic philosophies did not appear until the Spring and Autumn Period (770-475 B. C.) and the Warring States Period

(475-221 B. C.) (Schirokauer & Brown, 2005). During these periods, many thinkers had developed competing theories including Daoism, Legalism, and Confucianism, but these theories did not have much influence before the Han Dynasty. In 143 B. C., Dong Zhongshu, an important scholar and ideologue, suggested the emperor to make Confucianism as Han state cult by discarding other theories. Thereafter, Confucius became a cultural hero and Confucianism had become the orthodox philosophy of many dynasties. Zhu Xi, a scholar in the Song Dynasty, compiled a core curriculum of Confucianism in four textbooks in 1190. The four books had become the fundamental teaching materials for children and the guidelines for national tests in selecting governmental officers. Confucianism had gradually become a philosophical ideology of the general public from a national theory for the rulers in the earlier years.

The core goal of Confucianism is to create a harmonious society in which everyone knows the designated societal positions and behaves accordingly (Strom et al., 1995). Three cardinal behavioral principles are minister obeys emperor, son obeys father, and wife obeys husband. Most people had internalized these unequal rights and obligations between the South Song Dynasty and the period of the Republic of China (1911-1949) (Xia & Hui, 1990). Central Confucian values include humanism, collectivism, self-restraint, order and hierarchy, wisdom of elders, modesty, harmony, and obligations (Suzuki, 1980).

Confucianism had great influences on parenting and children's socialization practices in the Chinese history. Family was structured as a large harmonious system with strong affections between the parents and their children. Children were required to obey, respect, and support their parents during their lifetime. Elders were to love and protect younger ones; in return, the young ones were required to respect the authority of elders. Males were assumed to have a higher position and a more power than females. The primary parental task of mothers was to provide

care and guidance to children in a kind way, whereas fathers as the ultimate authority were to make important decisions for children and to administer harsh discipline for children's serious misbehaviors (Ho, 1981; Hus, 1985; Strom et al., 1995; Topping, 1973). Parents usually held different socialization goals for sons and daughters. A son was legitimated as the legal heir of family properties, and was responsible for family heritage and reputation. It was typical for mothers to praise, spoil, and overprotect their sons while depreciating their daughters (Chao, 1983). A daughter was raised for marriage and was not considered as a member of her original family after the marriage. A girl was assumed to obey and depend on her father and older brothers before the marriage, on her husband after getting married, and on her son after the death of her husband. The long-term socialization goals for girls were to work and serve their parents, parents-in-laws, and their children, especially their sons (Lu & Shi, 1991).

The Only Child and Socialization Goals in Contemporary China

With the establishment of the People's Republic of China in 1949, the Communist Chinese government fundamentally changed the family power structure and the social relationships among family members (Wei, 1990). Gender equity was officially declared in the nation's constitution in 1982 (Lu & Shi, 1991). Women were legally entitled to the same wages, rights, and opportunities as men. More than 90 percent of urban women between 18 and 55 years of age have been in the labor force (Lui, 1991). The Chinese family has been moving from the traditional patriarchal to a more egalitarian relationship (Tseng & Wu, 1985). Nevertheless, although urban couples increasingly enjoy equality in many aspects including family affairs, the division of domestic responsibilities remains disproportionate with many women feeling overwhelmed by career and family roles (Qi, 1985). Also despite the recent dramatic changes in China, however, some of the traditional Confucian creeds such as parental control and discipline,

obedience to authority, emphasis of education and diligence, filial piety and respect for elders, family loyalty, emotional serenity, and minimization of conflicts seem to persist in contemporary Chinese families (Chan, 1992; Chao, 1983; Chen, 2000).

As described earlier, another significant event affecting parenting in China is the nation's one-child-policy imperative started in 1979 (Davis & Harrell, 1993). The policy has been influential at both the family and national level. Today, more than 90 percent of families in cities with medium or high educational and socioeconomic levels have only one child (China's State Population and Family Planning Commission, 2004). Based on its fifth national census data in 2000, China had 1.295 billion people, 348.47 million households with the average size of 3.44 persons per household. Over 36% of the population lived in the urban areas. Children below age 14 were 289.79 million and accounted for about 23% of the total population. The number of children had declined slightly to 285.59 million in 2003 (China's State Population and Family Planning Commission) and accounted for 22% of the national population.

In terms of child gender preference, whereas the traditional favoritism to boy may remain popular in the countryside as reflected in 117 boys versus 100 girls in the sex ratio at birth in the national census data (China's State Population and Family Planning Commission, 2004), the preference of son to daughter appeared to be blurred in urban cities. Most couples in cities did not have a strong preference over either sex (Wu, 1985).

The majority of the Chinese children especially from the urban cities grow up without siblings. Some critics worry about the 4-2-1 syndrome: four grandparents, two parents, and one child, which may produce spoiled, egocentric, maladjusted "little emperors" (Falbo et al., 1989; Wan, Fang, Ling, & Jing, 1994). Many studies have investigated different psychological profiles of only children versus those with siblings (Edwards et al., 2005). Findings on the Chinese only

children are not entirely consistent and are even contradictory at times (Chen, Bi, Mao, Rappe, Edwards, & Shinfuku, 2002). Whereas some studies found only children are inferior to non-only children in social and behavioral domains (for review, see Chen & Goldsmith, 1991), many other studies reported no differences between the two groups (for review, see Jing et al., 2003). For instance, Chen, Rubin, and Li (1994) reported no significant differences between Chinese 8- and 10-year olds with and without siblings in social and academic competence. Zhang, Kohnstamm, Cheung, and Lau (2001) investigated the personality characteristics of 235 Chinese children aged 3-14 years in the perceptions of their parents and found no signs of spoiling. The stereotyped descriptors of the “little emperor” only appeared for children at ages 3-5 years. Some researchers attributed these discrepancies to the methodology differences (Chen & Goldsmith; Jing et al.; Farbo & Poston, 1993; Wan et al., 1994).

The current Chinese school system consists of four stages: primary, junior secondary, senior secondary, and higher education; which lasts 6, 3, 3, and 4 years, respectively. In addition, children between 3 and 6 years old usually go to kindergarten for preschool education (Zhang, 2002). The government declared enrollment rate in 2002 was 98.58% for elementary school students with 98.62% for boys and 98.53% for girls.

In socializing their children, Chinese parents often have high expectations for their children. They have believed efforts play a much more important role than innate characteristics in attaining personal goals (Gardner, 1999; Stevenson et al., 1992; Stevenson et al., 1990). Such a long-lasting cultural philosophy has been prevalent or become even more intensive for the past three decades as children have been admitted to different ranks of schools primarily based on the testing scores.

Generally, the primary goals of childrearing for children at the primary grades and below in contemporary China are good behavior conducts, good habits of studying, and excellence in academic education. Parents may be lenient toward their children before age three. However, starting from the kindergarten ages, parents gradually impose high behavioral expectations such as good daily habits, politeness, and self-control of tantrum (Chan, 1992). When children enter formal schooling starting from age seven years, academic achievement excellence and development of a habit of diligence become the highest priorities as Chinese parents have believed these traits are essential for future personal advancement, high social status and wealth, and family respect (Lum & Char, 1985; Chao & Tseng, 2002). The changing patterns of parental expectations of their children also have been evidenced in empirical studies. For instance, in understanding parents' perceptions of their children aged 3-14 years, Zhang et al. (2001) found the proportions of parents' negative descriptors increased with children's age, which might indicate the Chinese parents have higher expectations and greater concerns about their children's future as children mature.

Studies on Social Competence in Chinese Children

Although some cross-cultural psychologists found impressive cross-cultural similarity of children's social development, which implies social behavior is primarily driven by the maturation process (e.g., Whiting & Edwards, 1988), many other cross-cultural psychologists have been interested in the cultural uniqueness in child social competence (Schneider, 1993). They think of sociocultural contexts both as a result of human behavior and as a causal shaping agent of human social behavior (Schneider; Segall, 1979). In conceptualizing the various aspects of cultural influence on child social development, Super and Harkness (1986) proposed a three-component framework: physical and social setting, norms and customs of childrearing, and the

psychology of caregivers. They argued that the homeostatic mechanism of development is achieved when there is a balance among these three components, and the balance is in harmony with the child's age and individual characteristics.

Indeed, studies on Chinese children's social competence are generally aligned with the cultural difference-driven paradigm. These studies can be roughly classified into three broad categories: (a) the unique aspects of Chinese children's social competence and the correlates, (b) the different profiles of social competence between children with and without siblings, and (c) the cross-cultural comparisons between Chinese children and their counterparts in other countries. It should be noted that the reviewed studies below on Chinese children's social competence were primarily based on (a) the literature in English, (b) the three Chinese journals whose article abstracts were available in the PsycInfo database, and (c) the limited available full-text article contents in Chinese from the interlibrary loan services. Studies published in other sources were not included.

The main purposes of studies in the first category were (a) to describe the status of Chinese children's social competence at various age groups, (b) to find the developmental trends and relations, and (c) to identify the sociocultural factors/mechanism which may influence child social competence in the Chinese culture. As comprehensive reviews on these topics could not be located, some individual studies relating to child social competence during early and middle childhood were selectively reviewed below.

In investigating social competence and related factors in 517 primary school children with the mean age of 10.4 years in an urban city in East China, Wang, He, and Liu (2002) reported the students' total average score of social competence on the Achenbach's Children Behavior Checklist was 15.00 with a standard deviation of 3.83. Girls scored statistically higher

than boys, and 10.1% of the students were in the category of low social competence. They also found students' social competence was correlated with mother's parenting and the students' activity and sociability. In a two year longitudinal study of 8- and 10- year-old Chinese children in Shanghai, Chen et al. (1995) reported (a) sociability-leadership was predictive of adjustment, (b) aggression was predictive of maladjustment, and (c) shyness-sensitivity was associated with peer rejection at age 12 years as in the Western literature. However, shyness was positively associated “with peer acceptance, teacher-rated competence, leadership, and academic achievement at ages 8 and 10 years in the Chinese children” (p. 531). In a four-year longitudinal study with a sample of 162 second and fourth elementary graders initially in Shanghai, China, Chen, Rubin, and Li (1997a) investigated if maternal acceptance interacted with child adjustment and if the relations between early maternal acceptance and child adjustment had an effect on later maternal attitudes and child outcomes. Based on the regression analyses, they reported children's behavioral problems and peer rejection negatively predicted maternal acceptance, and academic achievement positively predicted maternal acceptance at both of the time points in four years. However, maternal acceptance/rejection contributed to the development of social adjustment but not to later academic adjustment. Furthermore, they reported there were no cross-lagged associations between children's social competence and maternal acceptance. They concluded that maternal acceptance/rejection linked to Chinese children's functioning, particularly of the maladaptive nature.

To examine the possible effect of societal changes in different periods of time on the relationship between Chinese children's social functioning and adjustment, Chen, Cen, and Li (2005) studied the third and fourth graders of Chinese elementary school children in three cohorts ($N = 429$ in 1990, $N = 390$ in 1998, and $N = 266$ in 2002) and found similar results.

They reported “sociability-cooperation was associated with peer acceptance and teacher-rated competence, whereas aggression was associated with social and school difficulties in all 3 cohorts” (p. 182). However, shyness-sensitivity in the three cohorts was not consistent. In the 1990 cohort, it was associated with social and academic achievement, but it became either weaker or nonsignificant in the 1998 cohort; and it was even positively “associated with peer rejection, school problems and depression in the 2002 cohort” (p. 182). They concluded the effect of different social contexts was reflected in the changing relations between shyness-sensitivity and adjustment.

The primary purpose of the studies in the second category was driven by the concern about egocentric and maladjusted social behaviors of the only child. Such studies had been summarized in the section of “The Only Child and Socialization Goals in Contemporary China.” As some researchers stated (Jing et al., 2003), it became more and more difficult to compare social competence of Chinese children with and without siblings as most children grew up in the only child family environment nowadays. Hence, such type of research is minimal recently in literature.

The studies in the third category focused on international comparisons from a contextual cross-cultural perspective. The primary goal was to find whether Chinese children are less socially competent than counterparts in other countries possibly due to children’s limited social experiences resulting from the overwhelming time spent in school work, the depreciated importance of non-academics, the lack of sibling experiences, and parental overprotection and spoiling. The second goal was to understand if there are different mechanisms governing Chinese children’s social development. Studies under this umbrella seem to support the position that Chinese children are generally less socially competent than counterparts in other countries,

especially peers in industrialized countries. For instance, Chen and Rubin (1992) found Chinese kindergarteners were “less accepting of each other, less prosocial, and more agonistic and authority-oriented in social problem solving” (p. 259) than Canadian counterparts although they used more relevant strategies. Chen et al. (2004) examined children’s self-perceptions in social, scholastic, and general self-worth domains in 404 Brazilian, 434 Canadian, 502 Chinese, and 194 Italian children in fifth and sixth grades on Harter’s *The Self-Perception Profile for Children*. They found Chinese children scored lower than Canadian children in self perceptions of scholastic and general self-worth, but had higher scores than Brazilian children on social domain and than Italian children on general self-worth. Zhang, Zhou, and Sakata (2002) compared 306 Chinese and 215 Japanese preschoolers (ages 3-5 years) in six domains of social adaptability: independent living, sports, homework, interpersonal interaction, group activities, and self-management. They reported Chinese children scored statistically lower than Japanese children in all domains except for sports.

Many researchers have argued there may be different socialization patterns and different paths linking to children’s social competence in the Chinese collectivistic culture from those in the individualistic cultures (Chao & Tseng, 2002; Chen, 2000; Chen et al.). For instance, Chen (2000) stated shyness, which emphasizes self constraint and often prospers in the Chinese society, may associate with low self-esteem and adjustment problems in the extroverted American society. Chen further stated the fit among children’s temperament, personality, and the societal expectations is critical to the overall social adjustment of children.

Studies on Parenting Style and Child Outcomes in the Confucius Cultures

Mainland Chinese parents have been often compared with parents in other countries or regions such as Hong Kong, Taiwan, the United States, or other countries from the cross-cultural

perspective. Also the East Asian countries often share Confucianism as the common cultural foundation. For these reasons, the review below expands to parenting in the Asian Confucius cultures with a focus on Chinese parenting in Mainland China.

Similar to studies in the Western literature, much of the research on parenting styles in the Chinese culture has stemmed from Baumrind's (1966, 1971) conceptualization of parental controls and Maccoby and Martin's (1983) orthogonal framework of responsiveness and demandingness. The fundamental interests of parenting research in the Confucius societies are: (a) are modern Chinese or East Asian parents authoritarian-oriented? (b) are there any unique parenting constructs in the Confucius cultures? (c) how do different parenting styles or dimensions relate to child developmental outcomes in these societies? and (d) how does parenting interacting with other factors influence child outcome?

The first research interest was based on the widespread concept that Chinese or East Asian families had traditionally been authoritarian (Chao & Tseng, 2002; Chen, 2000). Some researchers argued that modern Asian parents still tend to endorse the use of high power and authoritarian methods such as physical punishment in child rearing due to the prevalent cultural support of such a style, despite the recent rapid socioeconomic changes in these countries (e.g., Chao, 1994; Chen et al., 2000). This assertion has been supported in some studies. For instance, Jose, Huntsinger, Huntsinger, and Liaw (2000) reported Taiwanese mothers and Chinese-American mothers of preschoolers and kindergarteners endorsed more traditional Chinese values, were more directive, and exerted more parental controls over their children than the American mothers. However, many other studies reported that the contemporary Asian parents were authoritative-oriented. For instance, Chen and Luster (2002) found that authoritative parenting pattern is predominant in Chinese mothers with young children in Taiwan. Li (2002) also

reported most mothers and grandmothers of 3- to 6-year-olds favored a more authoritative parenting style than the other parenting styles in Taiwan. Kim (1999) also found Korean-American youths were prevalently raised by authoritative parents, followed by authoritarian, inconsistent, and permissive parents. Interestingly, studies across geographic locations in the Chinese communities have found sub-cultural differences. For instance, parents from Hong Kong were more authoritarian and controlling than the Chinese parents from Beijing and Taiwan (Berndt, Cheung, Lau, Hau, & Lew, 1993; Lai, Zhang, & Wang, 2000).

Another way to examine parenting is to break it into separate dimensions such as parental warmth and parental control. Although current research on the warmth factor for Asian parents from the cross-cultural perspective is inconsistent ranging from less warm than the Western counterparts (e.g., Dinh, Sarason, & Sarason, 1994; Hertz & Gullone, 1999) to no differences (e.g., Jose et al., 2000; Lin & Fu, 1990), the warmth dimension has been found consistently linking to positive child and adolescent outcomes such as (a) high self-worth and competence (McFarlane, Bellissimo, & Norman, 1995), (b) enhanced emotional well-being and self-esteem (Scott & Scott, 1989), and (c) reduced adolescent depression (Chiu, Feldman, & Rosenthal, 1992) in Asian families. Parental control and its effects on child outcomes have been controversial and unclear (Lim & Lim, 2003). Whereas some studies found parental control positively links to child social competence (e.g., Chen, 1998) or academic achievements (e.g., Bush, 2001), others reported its adverse effects on child social functioning (e.g., Chen, Dong, et al., 1997). Lau and Cheung (1987) attributed the ambiguous results to the undifferentiated nature of the parental control in the Chinese or Asian cultures. They argued it is important to differentiate between two types of parental control– the dominating and interfering one, and the organizational one for maintaining coordination and order in the family. In a sample of Hong Kong adolescents, they

found the greater domineering parental control was associated with less familial cohesion and more familial conflicts, whereas greater organizational control was associated with more family cohesion and less conflict. In another study, Lau, Lew, Hau, Cheung, and Berndt (1990) investigated the same questions and reported similar results in a sample of 925 educated Chinese adults by asking them to recall the child-rearing patterns of their parents. Furthermore, they found no differences between fathers and mothers and between sons and daughters on the functionality of the two types of controls.

The second category of research interests on parenting in the Chinese or other Asian cultures is to identify indigenous Chinese parenting styles or dimensions and their possible associations with child developmental outcomes. Chao (1992, 1994) pioneered this approach by arguing that Baumrind's typologies may not be culturally relevant and meaningful to Asians or Asian Americans as they may ascribe different meanings to parental control and warmth as for European Americans. In exploring the apparent paradox of the "restrictive" or "authoritarian" parenting for immigrant Chinese American mothers and their children's high school achievements, Chao (1994) reconceptualized chiao shun or guan (i.e., "training" or "governing") as an indigenous Chinese parenting style, distinct from the more "domineering" control in Baumrind's authoritarian parenting style, and found guan is usually associated with positive child outcomes for Chinese American samples (Chao, 1992, 1994, 2001). Chao's concept of guan as a unique parenting style in the Chinese or Confucius cultures has stimulated many studies in recent years (e.g., Bond, McBride-Chang, Stewart, Rao, Fielding, & Kennard, 1998; McBride-Chang & Chang, 1998; Pearson & Rao, 2003; Stewart, Bond, Kennard, Ho, & Zaman, 2002; Wu et al., 2002). For instance, in examining whether guan is the third dimension of parenting in the Chinese culture, Stewart and colleagues (1998) found guan was highly

correlated with parental warmth in a sample of Hong Kong late adolescent girls, implying guan did not exist as an independent construct.

The third umbrella of parenting research with Asian samples has focused on examining the superiority of authoritative parenting or the effects of different parenting styles on child outcomes. Consistent results across studies have not been found for Chinese, Asians, or Asian Americans (Chao & Tseng, 2002; Lim & Lim, 2003). Some studies found the superiority of authoritative parenting style just as in the mainstream American culture (e.g., Chan, 1981; Chen, Dong, et al., 1997). For instance, Chen, Dong, et al. found that the authoritative parenting style of both mothers and fathers was positively related to 6- and 7-year-old children's school achievement and social competence, whereas authoritarian parenting of both parents was negatively related to these outcomes. In a sample of 199 third-sixth graders in a semi-rural town in South China, Zhan (1996) found a warm and close child-parent relationship was conducive to the development of children's social intelligence whereas a strict or controlling parenting such as criticizing and discouragement was not. Zhang and Zhang (2002) also reported parents' warmth positively related to self-concept in 184 middle school students in an urban city in South China. They concluded that parental rearing patterns closely associated with the middle school students' self-concepts.

However, many other studies did not find the superiority of authoritative parenting style for Chinese children. For example, Dornbusch et al. (1987) reported that authoritative style was unrelated to Asian American adolescents' school performance although the authoritarian style was negatively related as in the Western literature. Several studies involving Hong Kong Chinese adolescents have reported either no effects of parenting style on academic achievement or on the opposite direction as in European American counterparts. For instance, McBride-Chang and

Chang (1998) found neither authoritative nor authoritarian style related to adolescents' achievement test scores. In a sample of 284 fourth-sixth graders in Taiwan, Wu (1997) also reported mothers' authoritarianism did not relate to children's self-esteem, and speculated the lack of the association might be explained by the positive perceptions of authoritarian parenting in the Chinese culture. In a cross-cultural study with 82 Chinese and American 9-11- year-old children with their parents, Quoss and Zhao (1995) reported Chinese parents' democratic parenting did not relate to their children's overall satisfaction in parent-child relationships, whereas authoritarian parenting did. In short, these studies seem to imply that the superiority of authoritative parenting may not hold in the Chinese or Asian populations.

Another group of studies have investigated the interaction patterns of parenting styles/dimensions and other variables on children's social developmental outcomes. For instance, in a sample of 476 primary school children and their parents in Shanghai, China, multiple regression analysis by Chen and Rubin (1994) found parental acceptance and rejection mediated the association between family psychological resources such as quality of the marital relationship and social support and children's competent and aggressive behaviors. They also reported parental acceptance and rejection was the mediating factor in the positive relationship between family psychological resources such as family income and housing conditions and children's aggression. In another study with a sample of 171 pairs of parents and their preschool children, Chen (1998) found that the relationships between parental goals of cooperation, interaction and independence and children's socially competent and aggression behaviors were mediated by parenting practices such as parental warmth, disciplinary control, consistent control, and management. While growing in the literature, such type of studies has been limited so far.

Summary of Literature Review

The above review showed voluminous studies have been conducted on parenting styles and their effects on child developmental outcomes primarily from the perspective of the unilateral framework since 1960s. Research generally supports authoritative parenting promotes the optimal child developmental outcomes in middle-class European American families in the United States. The superiority of authoritative parenting has become controversial in other social classes, races, and cultures. Recently, researchers have adopted the bioecological and the bilateral framework in understanding the complex nature of parenting style and its associations with other variables in influencing child developmental outcomes.

However, the interactive bidirectional models have not blossomed in the past three decades. Although contemporary researchers generally acknowledge the mutual determinism of parent and child in the dynamic parenting processes, and realize the deficiency of the traditional parenting style frameworks, the bilateral models have often been conceptually configured rather than empirically-based. Practical research questions and analyses continue the unidirectional determinism from parent to child that was prevalent in the past (Kuczynski, 2003). Many researchers have voiced their dissatisfactions with the singular, deterministic view of parental influence as the dominating tone of mainstream research in the field (Bronfenbrenner, 1986; Cook, 2003; Holden & Edwards, 1989; Kuczynski, 2003). They have called for investigations of the nonlinear effects on parenting styles studies (Cook, 2001; Dawber & Kuczynski, 1999; Deater-Deckard & Dodge, 1997; Kuczynski, 2003).

In the past, child temperament, family environment, and parent-child relationship have been empirically examined independently in adjusting the relations between parenting style and various child outcomes. The simultaneous investigation of these variables, however, has been

rarely conducted. Moreover, the existing studies in exploring the relationships among these variables have been primarily based on multiple regression and path analysis techniques. Model testing using structural equation modeling has been rare. The lack of testable models of parenting style on child developmental outcomes is especially true for the Chinese sample. No studies have been found in examining the role of child temperament, parent-child relationship, and family environment in adjusting the association between parenting style and Chinese children's social competence using the structural equation modeling approach.

Purposes of the Study

The above literature review clearly demonstrated there was a need of multivariate investigation with structural equation modeling into parenting style on child social competence in the Chinese culture. Although parenting and child social competence may influence each other mutually (Chen & Rubin, 1994), the present study primarily focuses on the direct and indirect influences of parenting styles along with child temperament, parent-child relationship, and family functioning on child social competence in elementary school grades 1-3 children in the People's Republic of China. More specifically, the three purposes for the present study are: (a) to obtain the descriptive information on children's social competence, parenting styles, child temperaments, parent-child relationships, and family environment for the urban and semi-urban Chinese sample and to examine the relevant group differences, (b) to investigate whether there is a direct relationship between parenting style and child social competence, and (c) to explore whether child temperament, parent-child relationship, and family functioning may influence the association between parenting style and child social competence.

Proposed Models, Rationales, and Hypotheses

To fulfill the last two research purposes above, several latent models were hypothesized. Nevertheless, it should be noted in the beginning, due to the unavailability of latent models on the same variables either in the Chinese or American cultures, the hypothesized models for this study were primarily based on theoretical configurations and some empirical studies using the multiple regression and path analysis statistical techniques. Hence, these models were exploratory in nature. In all of the hypothesized models, child social competence was the dependent latent variable whereas parenting style was the primary independent latent variable. Child temperament, parent-child relationship, and family functioning served as additional latent predictors affecting the relationship between parenting style and child social competence. Therefore, strictly speaking, this study was broadly contextual or ecological rather than actually bidirectional. The five hypothesized models were elaborated and justified below.

1. The direct model of parenting on child social competence

The simplest model of parenting style on child outcomes is the direct model between parenting style and child outcomes independent of other factors. Baumrind's (1991) longitudinal study exemplified this approach. Baumrind followed authoritative, authoritarian, and permissive parents and their children from the preschool to adolescence. She reported (a) authoritative parenting continued to associate with positive competence in adolescence as in early childhood, (b) the positive link was especially true for sons, (c) authoritarian parenting had more long-term negative outcomes for boys than for girls, and (d) boys raised by authoritarian parents were low in both cognitive and social competence. Recently, using the National Survey of Families and Household (NSFH), Amato and Fowler (2002) also found the direct influence of parenting on child outcomes in two groups of children with diverse family contexts in ages of 5-11 year-old

and 12-18 year-old. They reported mostly parenting practices of parental support, monitoring, and harsh punishment did not interact with parents' demographic characteristics (e.g., race, family structure, education, income, or gender) in predicting children's adjustment and behavior problems in Wave 1 and child's self-esteem in Wave 2. The beneficial effects of authoritative parenting and the detrimental influences of authoritarian parenting on child social competence were also reported in the Chinese culture (e.g., Chen, Dong, et al., 1997; Zhan, 1996; Zhang & Zhang, 2002).

With regard to permissive parenting, it has been less studied than the other two parenting styles. In the American culture, children with indulgent parents are likely to have more problem behaviors but better social skills (Darling, 1999). In the Chinese culture, permissive parenting has presumably been associated with the “little emperor” metaphor of the spoiled only-child. Research on the effect of parenting style on child social competence with the Chinese samples so far has mainly employed the non-latent-model approach to examine the effects of authoritative and authoritarian parenting styles separately. However, in reality, rare parents possess only one parenting style. Most parents often possess all of the three parenting styles to certain extents. Hence, this study aggregated authoritative, authoritarian, and permissive parenting into a latent variable and hypothesized a positively significant direct relationship between parenting style and child social competence as in Figure 4.

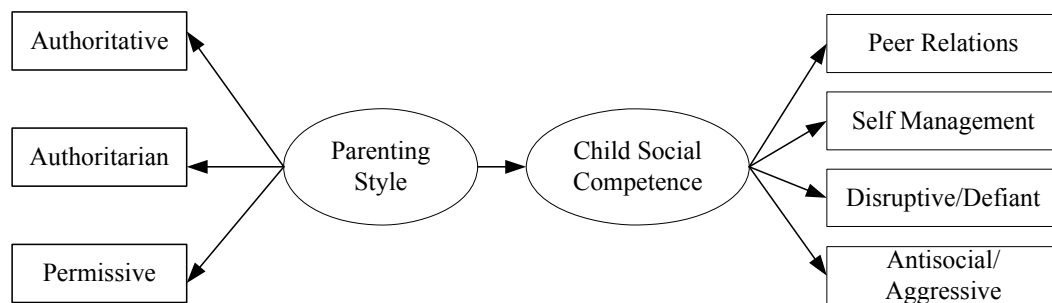


Figure 4. The hypothesized direct model of parenting on social competence.

Under the non-SEM approaches, many studies have shown parent's or child's sex plays an important role in parenting styles and their differential effects on boys and girls (e.g., Conrade & Ho, 2001; Russell et al., 1998; Russell & Saebel, 1997; Warash & Markstorm, 2001). Yet, the evidences of a directional hypothesis on parent's or child's sex in latent model approach have not been sufficiently supported. Therefore, the present study made a null hypothesis on parent's and child's sex in this direct model. In other words, it hypothesized the direct model works the same for both mothers and fathers, and has the same impact on both boys and girls. Similarly, the null hypothesis of parent or child sex was established for other hypothesized models in this study.

2. Child temperament moderates parenting on child social competence

Child temperament as the moderator of parenting on child outcomes has been extensively investigated in the Western culture (Aiken & West, 1991; Gallagher, 2002; Holmbeck, 1997). For instance, Ramos, Guerin, Gottfried, Bathurst, and Oliver (2005) examined child temperament as a moderator between family conflict and child behavior problems using structural equation modeling in a sample of 108 children at ages 3-10 years old in a longitudinal study. The study tested the moderator model across the easy, intermediate, and difficult temperament groups. By comparing the association coefficients and the fitting indices for the three groups, they concluded the moderating role of temperament was supported and argued "temperamental difficultness operates as a vulnerability factor with respect to the development of children's behavior problems in families with high conflict" (p. 279). Multiple regression studies with the Chinese samples also revealed child temperament served as a moderator of parenting style on child developmental outcomes such as infant-mother security attachment (Fang, 2005).

Whereas it was theoretically possible to treat child temperament as a latent variable represented by the nine temperamental dimensions on the DOTS-R as described in Chapter III,

to simplify the model testing, the present study used child temperament as a categorical variable based on the Difficult Temperament Index (DTI) deriving from the DOTS-R dimensions (Windle, 1992b), and hypothesized the relationship between parenting style and child social competence was different for children with easy and difficult temperament. In structural equation modeling, categorical moderating effect is often tested with the multigroup approach (Hair, Black, Babin, Anderson, & Tatham, 2006). Figure 5 graphically depicted the moderational model of child temperament. The path coefficient between parenting style and child social competence for the easy child group (i.e., γ_1)⁴ was hypothesized to be different from that for the difficult child group (i.e., γ_2).

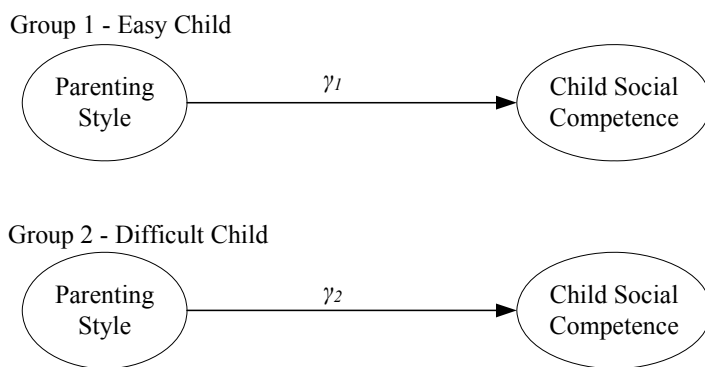


Figure 5. Child temperament as a moderator of parenting on social competence.

3. Parent-child relationship mediates parenting on child social competence

Parent-child relationship as the relational context in exerting the parenting influence on child development was central to the bidirectional framework of parent-child interactions (Kuzynski, 2003). Limited empirical studies also found the mediational effect of parent-child relationship on authoritative parenting on child academic achievement (e.g., Chao, 2001). Accordingly, parent-child relationship was hypothesized to mediate the effect of parenting style

on child social competence as in Figure 6. In addition, both parent's and child's perceptions of parent-child relationship were assumed to have the same mediational function.

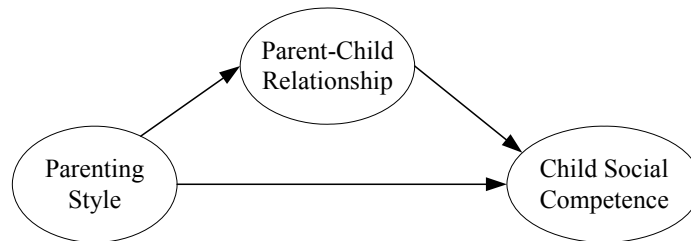


Figure 6. Parent-child relationship as the mediator of parenting on social competence.

4. Family functioning interacting with parenting on child social competence

Although explicit latent interaction models between family functioning and parenting styles on child social competence were unable to be located, however, theoretical discussion of the interaction between family environment and parenting behavior is well elaborated in the ecological system theory (Bronfenbrenner, 1989). In addition, empirical multiple regression studies have shown familial variables interact with parental variables influencing child development and behaviors (Cook, 2001; Crnic & Greenberg, 1990; Crockenberg, 1986; MacKinnon-Lewis et al., 1994; Mills & Rubin, 1993; Smith et al, 2001). Accordingly, this study took one step further to propose a latent interaction model between family functioning and parenting style as in Figure 7.

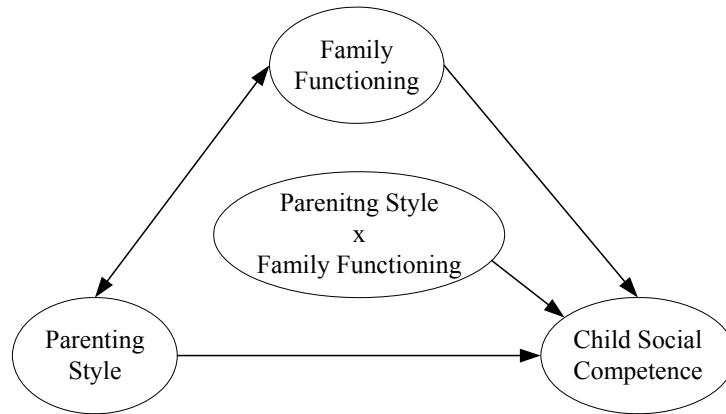


Figure 7. Family functioning interacting with parenting on social competence.

In structural equation modeling, an interaction model, indeed, is a latent moderator model (Hair et al., 2006; Jöreskog & Sörbom, 2002; Kline, 1998; Schumacker & Lomax, 2004). In addition to the family functioning and parenting as the predictors, the third variable representing the interaction of the first two variables was introduced into the equation. It was hypothesized the interaction variable significantly contributes to the prediction of child social competence.

5. A bidirectional model of parenting on child social competence

The bilateral framework of parent-child interaction generally suggests bidirectional models, that is, effective parenting leads to child social competence and child social competence results in increased positive parenting; or ineffective parenting results in child social incompetence and social incompetence leads to increased parental control (Rubin & Stewart, 1996). Bronfenbrenner's bioecological system theory (1989), particularly, the Person-Process-Context-Time model (Bronfenbrenner & Morris, 1998) provided an even broader framework in understanding the complex nature of parental influences on child development under the sociocultural and temporal contexts. Several bidirectional models have been proposed conceptually (e.g., Bronfenbrenner & Morris; Cook, 2003; Rubin & Stewart).

Limited empirical studies also supported the interactive nature between parenting and child social competence in contexts. For instance, Paterson and Sanson (1999) investigated how specific temperament, parenting, and family variables, and their interactions predict problem behaviors and social skills in 5-6-year-old children. Using hierarchical multiple regression, they found (a) different combinations of variables predicted each behavioral outcome; (b) the extent of the child meeting with the expectations of the environment rated by parent was a strong predictor of problem behavior and social skills, and (c) child temperamental inflexibility and punitive parenting interacted with each other on child externalizing behavior problems. Leve, Kim, and Pears (2005) studied the interaction between child temperament and family environment in predicting problem behavior in a sample of 337 children aged 5-, 7-, 14-, and 17-years using latent growth curve modeling. They reported both main effects of temperament and family environment, and an interaction effect of temperament and family environment for both parent's and child's sex in predicting externalizing behaviors in the 17-year-old group.

Studies involving the same five variables as in the present study were not found. As this study concentrated on child social competence as the dependent latent variable, the proposed bidirectional model required all of the four predictors have to relate to child social competence in some way (i.e., directly and/or indirectly) as in Figure 8. Also the model was hypothesized to be different for children with easy and difficult temperament.

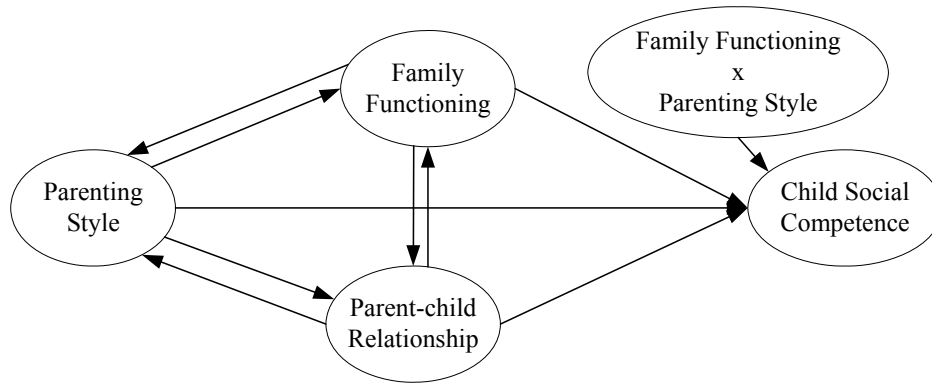


Figure 8. A bidirectional model of parenting on social competence.

However, such a model does not mean all of the paths would be significant. If the moderational effect of family functioning and the mediational effect of parent-child relationship were supported, the direct association between parenting and child social competence would become either weak or insignificant. The newly-included bidirectional link between family functioning and parent-child relationship may also make the relationships different from those in the previous three-factor models. It was uncertain to make specific hypotheses on the relationships in this bidirectional model except for an insignificant or indirect link between parenting and child social competence due to the inclusion of the other four variables in the model. In the cases of insufficient evidences from theory to models, the model generating approach (Schumacker & Lomax, 2004) is often suggested. Therefore, this study proposed the initial model as in Figure 8 and employed the specification search functionality in AMOS 6.0 to seek the best fitting models.

In addition to the model testing, as there is insufficient empirical information for Chinese samples on the five studied variables, the descriptive statistics and the univariate analysis of the between-group differences on these variables were also meaningful. The next section detailed the research questions for the present study.

Research Questions

1. What are the current statuses of child social competence, child temperament, parenting style, parent-child relationship, and family functioning in the Chinese families? Are there any group differences on children's social competence, child temperaments, parenting style, parent-child relationship, and family functioning between the relevant subsamples?
 - a. What are the current statuses of child social competence?
 - b. Are there any differences between boys and girls on social competence?
 - c. Are there any differences among the children in different grades on social competence?
 - d. Are there any differences between the Chinese children and their American counterparts?
 - e. What are the current statuses of parenting styles for the Chinese parents?
 - f. Does the couple have similar parenting styles?
 - g. Do the Chinese parents treat their sons or daughters similarly?
 - h. Are there any differences on parenting styles between the parents from the high socioeconomic family backgrounds and those with low SES?
 - i. What are the current statuses of child temperament?
 - j. Are there any temperamental differences between boys and girls?
 - k. Do the Chinese children and American peers have similar temperamental profiles?
 - l. What are the current statuses of parent-child relationships in the Chinese families?
 - m. Do the mother and father report similar parent-child relationships with their children?
 - n. Does the child have the perceptions of the parent-child relationships as the parents?
 - o. What are the statuses of family functioning in the perceptions of the Chinese parents?
 - p. Does the couple view the quality of family functioning similarly?
 - q. Are there any differences in the perception of family functioning between the Chinese parents and the Americans?

2. Does parenting style directly relate to child social competence?
 - a. Does maternal parenting style directly relate to child social competence?
 - b. Does paternal parenting style directly relate to child social competence?
 - c. Do maternal parenting style and paternal parenting style have the same influence on boys' and girls' social competence?
3. Does child temperament moderate parents' parenting styles on child social competence?
 - a. Does child temperament moderate maternal parenting style on child social competence?
 - b. Does child temperament moderate paternal parenting style on child social competence?
 - c. Does child temperament equivalently moderate the relationship between maternal or paternal parenting style and child social competence?
4. Does parent-child relationship mediate the association between parenting style and child social competence?
 - a. Does the mother's perception of mother-child relationship mediate the relationship between maternal parenting style and child social competence?
 - b. Does the father's perception of father-child relationship mediate the relationship between paternal parenting style and child social competence?
 - c. Does the child's perception of mother-child relationship mediate the relationship between maternal parenting style and child social competence?
 - d. Does the child's perception of father-child relationship mediate the relationship between paternal parenting style and child social competence?
 - e. Do the parents' perceptions of parent-child relationships equally mediate the relationship between parenting style and child social competence?
 - f. Do the child's perceptions of child-parent relationships equally mediate the relationship between maternal or parental parenting style and child social competence?
5. Does family functioning interact with parenting style influencing child social competence?
 - a. Does the mother's perception of family functioning interact with maternal parenting style influencing child social competence?

- b. Does the father's perception of family functioning interact with paternal parenting style influencing child social competence?
 - c. Does the parent's perception of family functioning equivalently interact with parenting style influencing child social competence?
6. How does parenting style interact with child temperament, parent-child relationship, and family functioning influencing child social competence?
- a. Does maternal parenting style interact with child temperament, mother-child relationship, and mother's perception of family functioning influencing child social competence?
 - b. Does paternal parenting style interact with child temperament, father-child relationship, and father's perception of family functioning influencing child social competence?
 - c. Is the interaction mechanism among these five variables the same in both parents?

Due to the space concern and the focus of the present study being on the model testing, the hypotheses for the univariate analyses were not specifically justified. But the findings from the univariate analysis were discussed in relating to existing literature in Chapter V. Table 2.1 listed all of the hypotheses on both the univariate and SEM analyses, which guided the present study.

Table 2.1
Research Hypotheses

Research questions	Hypotheses
Q1. Univariate Analysis	
Child social competence	
H1	Chinese children's positive social competence outperformed the negative ones.
H2	Chinese children had lower social competence than the American peers.
H3	Girls had higher social competence than boys.
H4	Boys had more antisocial behaviors than girls.
Parenting style	
H5	Chinese parents used more authoritative than authoritarian and permissive parenting.
H6	There were no parental sex differences on parenting.
H7	Parents treated the boys and girls equally authoritative.
H8	Parents treated the boys and girls equally authoritarian.
H9	Parents treated the boys and girls equally permissive.
H10	Low SES parents were less authoritative than high SES ones.
H11	Low SES parents were more authoritarian than high SES ones.
Child temperament	
H12	Boys and girls had similar temperament profiles.
H13	Boys and girls had similar degree of difficult temperament.
H14	Chinese children had similar temperament profiles as the U. S. peers.
Parent-child relationship	
H15	There were differences between the mother's view and the father's view.
H16	Children viewed their relationships with both parents similarly.
H17	There were no differences between the mother's and child's views.
H18	There were no differences between the father's and child's views.

(table continues)

Table 2.1 (continued).

Research questions	Hypotheses
Family functioning	
H19	There were no differences between the mother's and father's perceptions on family functioning.
H20	The Chinese families had lower family functioning than the American families as compared to the normal data in the FACES IV manual.
Q2. Latent Model Testing	
Direct Model	
H21	There was a significant direct effect between parenting and child social competence in both parents.
H22	There were no differences on the direct effect between parenting and child social competence between the mothers and fathers.
H23	There were no differences for the direct effect between parenting and child social competence on boys and girls.
Q3. Child temperament as a moderator	
H24	Child temperament moderated maternal parenting on child social competence.
H25	Child temperament moderated paternal parenting style on child social competence.
Q4. Parent-child relationship as a mediator	
H26	Mother-child relationship mediated maternal parenting on child social competence.
H27	Father-child relationship mediated paternal parenting on child social competence.
H28	Child-mother relationship mediated maternal parenting on child social competence.
H29	Child-father relationship mediated paternal parenting on child social competence.

(table continues)

Table 2.1 (*continued*).

Research questions	Hypotheses
Q5. Parenting interacting with family function	
H30	Mother's view of family functioning moderated maternal parenting on child social competence.
H31	Father's view of family functioning moderated paternal parenting on child social competence.
H32	Mother's view of family functioning mediated maternal parenting on child social competence.
H33	Father's view of family functioning mediated paternal on child social competence.
Q6. Bidirectional model	
H34	Maternal parenting became insignificant or indirect due to the inclusion of mother-child relationship and family functioning.
H35	Paternal parenting became insignificant or indirect due to the inclusion of father-child relationship and family functioning.
H36	The best prediction model on child social competence with parenting style, parent-child-relationship, and family functioning were different for children with easy and difficult temperament.

Assumptions

The cultural relevance of the used measurement instruments and the reliable data were centrally important to the present study. Whereas it was better to examine the appropriateness of the instruments for the present sample through the confirmatory/exploratory factor analyses first, such steps were skipped in this study due to the unavailability of a second independent sample. Instead, the validity was simply examined by a panel of experts and assumed to be acceptable. Nevertheless, the internal consistency reliability coefficients in Cronbach alpha and the interfactor correlations on the instruments for the data in hand could partially reveal evidences of the construct validity and reliability in the current sample. By and large, this study relied on the following major assumptions: (a) The questionnaires translated to Chinese from English through the forward-and-backward translation process maintained the conceptual validity; (b) the questionnaires on the targeted variables had acceptable construct validity for the sample; (c) parents were able to understand and answer the questions on the questionnaires regarding parenting, their relationships with the child, child temperament, child social competence, and family functioning; (d) children were capable of understanding and responding to the questions on the questionnaire that describe their relationships with their parents, and (e) each participant answered the questionnaires independently.

CHAPTER III
METHODLOGY

Participants and Populations

The participants were 628 grades 1-3 students and their parents in two elementary schools in Nanjing, China. Among them, 133 third graders in four classes with a student body size of 160 were from a key school in one of the thirteen school districts in Nanjing¹ (see chapter notes in Appendix A). The other 495 students in a total student body of 590 were from another elementary school in the eastern vicinity area of Nanjing. They comprised of 128 first graders in four classes, 164 second graders in five classes, and 203 third graders in five classes. Over 80% of the targeted families participated in the study. The remaining families did not participate in the study primarily due to the requirement on parent’s education with a minimum of completion of elementary school. Table 3.1 listed the compositions of the 628 children.

Table 3.1
Students’ Mean Age and Standard Deviation by School and Grade

Schools	Grade one (<i>n</i> = 128)		Grade two (<i>n</i> = 164)		Grade three (<i>n</i> = 336)	
	Boy	Girl	Boy	Girl	Boy	Girl
Semi-urban school (<i>n</i> = 495)	<i>n</i> = 69	<i>n</i> = 59	<i>n</i> = 85	<i>n</i> = 79	<i>n</i> = 99	<i>n</i> = 104
Mean (<i>SD</i>)	6.82(.31)	6.74(.34)	7.89(.36)	7.81(.40)	8.82(.34)	8.78(.36)
Urban school (<i>n</i> = 133)					<i>n</i> = 78	<i>n</i> = 55
Mean (<i>SD</i>)					8.79(.27)	8.72(.29)

There were no age differences between the boys and girls for each grade in either school and between the two schools for the third grade: $t(126) = 1.34$ ($p > .05$) for grade one; $t(162) = 1.21$ ($p > .05$) for grade two; $t(201) = .90$ ($p > .05$) for grade three in the semi-urban school;

$t(131) = 1.52$ ($p > .05$) for grade three in the urban school; and $t(318) = 1.15$ ($p > .05$) between the third graders in the two schools² (see chapter note for the value of the degree of freedom).

A total of 625 mothers and 628 fathers, of them were 615 married couples, participated in the study. Table 3.2 showed these parents' social demographics. In quantifying the social economic status (SES), Hollingshead's (1957) two-factor index of social position was applied. As the job categories in the U.S. may not be entirely compatible with these in China, five job categories customized to the modern China (see Appendices C and D) were developed by the investigator and validated by two professionals in China. The five education levels in Hollingshead (1957) were retained. The parent's highest education or job level in a family was used to compute the family SES. Table 3.2 indicated majorities of the parents in the semi-urban area were in the technical and semi-professional fields with an average of high school level education. These families were slightly below the medium SES in China. For urban parents, most of them were professionals with some level of college education. These families could be considered slightly above the middle level social classes.

Further examination revealed (a) the fathers were older than mothers, and father's education was higher than mother's in every grade in both school at the .01 level; (b) the parents with children in the semi-urban school had similar education: $F(2, 492) = 2.16$ ($p > .05$) for fathers, and $F(2, 490) = 2.21$ ($p > .05$) for mothers; (c) there were no differences on family job category or SES in the semi-urban families either: $F(2, 492) = 1.80$ ($p > .05$) for jobs, and $F(2, 492) = 2.16$ ($p > .05$) for SES; and (d) the parents of the third graders in the urban school had higher education, job rank, and family SES than their counterparts in the semi-urban school at the .001 level. These results suggested: (a) the parents in the semi-urban area were homogeneous, and (b) they were statistically significant lower than the urban counterparts on education, jobs, and SES.

Table 3.2
Means and Standard Deviations for Parents' Social Demographic Characteristics

Schools	Grade one		Grade two		Grade three	
	Mother	Father	Mother	Father	Mother	Father
Semi-urban school						
Sample size	127	128	163	164	203	203
Age in years	32.94 (2.43)	35.80(3.49)	33.78(2.53)	36.66(3.34)	34.55(2.61)	37.54(3.54)
Education in year	11.71(3.12)	12.46(3.05)	11.05(3.30)	12.50(3.17)	11.05(2.73)	11.92(2.73)
Job category	2.56(1.04)		2.63(1.08)		2.42(1.11)	
SES ^a	31.63(9.26)		32.05(9.13)		30.17(8.96)	
Urban school						
Sample size					132	133
Age in years					36.37(2.89)	38.80(3.72)
Education in year					13.51(2.94)	14.17(2.88)
Job category					3.21(1.04)	
SES ^a					37.45(9.06)	

Note: a. SES = 4*Education Index + 7*Occupation Index (See Appendix C for educational and occupational indices)

Table 3.3 showed information on family marital status, family structure, ethnicity, and child singleton status in the participants. It indicated most of the families for this sample were intact Han Chinese with the only child. About 55% were the nuclear families, significantly more than the families having other adult family members living in the same household: $\chi^2(1) = 5.92$ ($p < .05$).

Table 3.3
Family Marital Status, Family Structure, and Child Singleton Status

Family characteristics	<i>n</i>	Percentage
Family marital status		
First marriage, intact family	612	97.5%
Single parent family	10	1.6%
Remarried	6	1.0%
Family structure		
Nuclear family	345	54.9%
Living with other adult(s)	283	45.1%
Ethnicity		
Chinese – Han (汉族)	610	97.1%
Chinese – Hui and others (回族及其它)	18	2.9%
Child singleton status		
Only child	584	93.0%
Twins	10	1.6%
With sibling(s)	34	5.4%

Nanjing is a national level metropolitan city in Jiangsu Province, one of the rich provinces in China. As the participated families covered approximate 84% of the available family body, this sample may be considered as representative of the young children and their parents in the two schools. The potential generalized populations are the families demographically similar to the studied sample, that is, the Han families from lower to upper middle SES in big urban cities and their vicinity areas in China with typically developing only child at the primary grades.

Variables and the Measurement Instruments

Social Competence

Social competence was defined as the ability to recognize, interpret, and respond appropriately in social situations (McCay & Keyes, 2002). However, as Schneider (1993) noted, the measurement of social competence has usually focused on social behaviors. For the present study, the *Home and Community Social Behavior Scales* (HCSBS, Merrell & Caldarella, 2002) was used. The instrument was designed to measure both positive social behaviors (i.e., social competence) and negative social behaviors (i.e., antisocial behavior). It has 32 items in the positive domain with two subscales: peer relationship and self-management/compliance, and 32 items in the antisocial area with two subscales: defiant/disruptive and antisocial/aggressive. An example in each of the four areas is “Cooperates with peers,” “Controls temper when angry,” “Blames others for his/her problems,” and “Cheats on schoolwork or in games.” A parent rated the child on a 5-point Likert scale with 1 as *never*, 3 as *sometimes*, and 5 as *frequent* based on the observations of the behavioral occurrence frequency for each of the sixty four items. The HCSBS yields six raw and standardized scores: three on positive social behaviors with two subscales and one total social competence, and three on antisocial social behaviors with two

subscales on defiant/disruptive and antisocial/aggressive behaviors and one on total antisocial behaviors (Merrell & Caldarella).

Merrell and Caldarella (2002) reported high reliability coefficients for the total scores and subscores for the HCSBS: (a) the Cronbach alphas ranging from .93 to .97 and the split-half reliability coefficient in the low .90s in 616 American children aged 5-11 years old, (b) the test-retest reliability coefficients from .82 to .91 in 137 American children and adolescents in a 2-week interval, and (c) .64 to .86 of interrater reliability coefficients in 83 pairs of mothers and fathers. They also demonstrated the HCSBS has good validity evidence based on the test content and internal structure. Convergent and discriminant construct validity is evident in comparing with other five rating scales measuring children's social behaviors (Merrell, Streeter, Boelter, Caldarella, & Gentry, 2001; Merrell & Caldarella) such as the Social Skills Rating System (SSRS) (Gresham & Elliot, 1990) and the Child Behavior Checklist (Achenbach, 1991).

The HCSBS was selected for its comprehensive coverage of child social behaviors, its easy administration, its sound psychometric properties, and the availability of the norm data for the American children in the equivalent age group as the participated Chinese children. The original instrument in English was translated into Chinese through the back-translation process as explained in the section of "Back-translation and Validation of the Cultural Validity" in this chapter. The original questionnaire does not have written descriptions for the rating points of 2 and 4. The respondents needed to infer a choice of 2 or 4 from the descriptions of the anchoring points 1, 3, and 5. In conjecturing some Chinese parents with low levels of education may find it difficult to infer, the translated Chinese version had explicitly described each of the 5 points as 1 for *never*, 2 for *a few*, 3 for *sometimes*, 4 for *a lot*, and 5 for *frequent*. The parent knowing the child better was requested to complete the behavior ratings.

Parenting Styles

Although the topological approach of parenting styles has been challenged as stated in Chapter II, contemporary researchers rarely deny the existence of parenting styles. But they differ in its definition. Parenting style sometimes is simply referred as “how a parent parents” (Jacobsen, Edelstein, & Hofmann, 1994) or “to capture normal variations in parents’ attempts to control and socialize their children” (Baumrind, 1991b). Darling and Steinberg (1993) offered a complex definition of parenting style as "a constellation of attitudes toward the child that are communicated to the child and that, taken together, create an emotional climate in which the parents' behaviors are expressed" (p. 488). Along with the varieties of the theoretical delineation on parenting styles, various measures in the form of rating scale, Q-sort, or behavioral observation have been developed to assess (a) Baumrind’s topologies, (b) Maccoby and Martin’s four parenting styles, and (c) other parenting dimensions. Block’s (1965) Child Rearing Practices Q-sort was one of the earliest efforts and has been widely used in assessing parenting styles of parents with young children. However, it suffered from low reliabilities and was not closely linked to the well-known Baumrind’s topologies (Robinson et al., 1995).

Inspired by Block’s questionnaire and Darling and Steinberg’s idea of parenting composed of parenting styles and parenting practices, Robinson and colleagues (1995, 2001) developed a 62-item *Parenting Styles and Dimensions Questionnaire* (PSDQ) in tapping on Baumrind’s three-parenting-style topology from the initial pool of 133 items. The PSDQ has three higher-order factors: authoritative, authoritarian, and permissive. Authoritative factor has four subscales: warmth and involvement in eleven items, reasoning and induction in seven items, democratic participation in five items, and four items on good nature/easy going. Authoritarian factor also consists of four subfactors: verbal hostility in four items, corporal punishment in six

items, non-reasoning/punitive strategies in six items, and six items on directiveness. Permissive parenting has three subscales: (a) lack of follow through in six items, (b) ignoring misbehavior in four items, and (c) lack of self-confidence in five items. Robinson and colleagues initially tested the PSDQ on 1,251 volunteer parents of preschool children in Utah, USA with satisfactory factorial validity and Cronbach alphas of .91, .86, and .75 for each of the three higher-order factors, respectively.

Traditionally measurement of parenting styles has heavily relied on one family member only, typically on the mother. As some studies have found the parent sex effect on parenting behaviors (Pettit, Brown, Mize, & Lindsey, 1998), the PSDQ made an effort to collect data from both parents by instructing them to make two ratings for each item, one for the spouse, the other one for self. For each of the 62 items, a parent needs to make two 5-point Likert ratings with 1 = *never*, 2 = *once in a while*, 3 = *about half of the time*, 4 = *very often*, and 5 = *always* based on “how often your spouse or self exhibit this behavior.” Examples of the PSDQ items for a father are “She/I spoil our child” and “She/I know our child’s friend names.”

An advantage of the PSDQ is that it is closely linked to Baumrind’s topology of authoritative, authoritarian, and permissive parenting with a concurrent consideration of parenting practices (Darling & Sternberg, 1993). This theoretical feature is in concert with the definition of parenting style for the present study, that is, a parenting style is a relatively stable parenting behavioral patterns deriving from the daily parenting practices. Other reasons for selecting the PSDQ were: (a) its claimed good psychometric properties; (b) the responses from both parents, which make the examination on the role of parent’s sex possible; and (c) it had been previously used in the Chinese culture. The Chinese version of the PSDQ was obtained from the first author of the original questionnaire and used without modifications.

Child Temperament

Temperament is theoretically defined as a stylistic component of behavior (Plomin & Dunn, 1986; Windle & Lerner, 1986). The present study used the *Revised Dimensions of Temperament Survey*–Parent-Rating Form (DOTS-R; Windle & Lerner, 1986) to assess children’s temperament. This instrument is rooted in Thomas and Chess’ (1977) and Buss and Plomin’s (1975) theories (Lerner, Palermo, Spiro, & Nesselroade, 1982). Each of the 54 items on the DOTS-R has four response choices which correspond to the degree each statement being a characteristic of the child. For example, one item states “My child resists changes in routine.” Responses choices include A = *usually false*, B = *more false than true*, C = *more true than false*, and D = *usually true*. In the translated Chinese version, 1, 2, 3, and 4 instead of the original A, B, C, and D were used. Windle provided the scoring instructions for the 9-factor structure of DOTS-R applicable to young children (M. Windle, personal communication, May 4, 2006; see Appendix E): activity level-general (seven items), activity level-sleep (four items), approach-withdrawal (seven items), flexibility-rigidity (five items), mood (seven items), rhythmicity-sleep (six items), rhythmicity-eating (five items), rhythmicity-daily habits (five items), and task orientation (eight items).

The internal reliability coefficients were from .54 to .81 for a sample of 224 elementary school American students. Windle (1989) also demonstrated satisfactory evidence of convergent and discriminant validity of the DOTS-R in comparing with Plomin’s Emotionality, Activity, Sociability, Impulsivity temperament measure (EASI-II), and Eysenck’s Personality Inventory (EPI). In an effort to be consistent with Thomas and Chess’ (1977) categories of easy, difficult, and slow-to-warm-up temperament, Windle (1992b) derived the Difficult Temperament Index (DTI) to globally represent how difficult/easy a child’s temperament is.

The original work on the DTI from the DOT-R was based on a sample of adolescent. M. Windle (personal communication, May 4, 2006) informed it is also appropriate to compute the DTI for elementary school children. The same procedures and criteria as in Windle (1992b) were used to calculate the DTI for each child in the present study. To make the DTI comparable across the grades and schools, the cutting-off points to derive the DTI indicators were based on the entire sample rather than on subsamples by grade or school. To simplify the model testing, the present study only used the global DTI as the indicator of temperament. The uniqueness of this questionnaire is (a) its facilitation of testing the goodness-of-fit model via the DTI indicator, (b) its emphasis on age-continuous nature of temperament, and (c) its heavy loading of factor analyses on empirical data (Lerner et al.; Windle, 1985; Windle & Lerner).

Parent-child Relationship

Parent-child relationships are complex and multidimensional (Russell, Mize, & Bisssaker, 2002). Hinde's (1987) definition of a relationship as "a series of interactions over time between two individual known to each other" (p. 24) has been widely adopted in research in parent-child relationship (Russell et al.). Despite there is little agreement on the theoretical definition of parent-child relationship, there is some consensus about the core dimensions of parent-child relationship such as affection, closeness, as well as control (Russell et al.). Operationally, the short version with 40 items of the *Parent-Child Relationship Questionnaire* (PCRQ; Furman, 2001; Furman & Giverson, 1995) was used in this study. The PCRQ could assess parents' or children's perceptions of qualities of the parent-child relationships in five dimensions with 19 subscales: (a) warmth involvement (relating to nurturance, affection, and admiration for one another), (b) personal relationship (relating to companionship and intimacy), (c) disciplinary warmth (relating to praise, prosocial behaviors, and shared decision-making), (d) power assertion

(relating to quarreling and verbal punishment), and (e) possessiveness (relating to control and protectiveness). Each item is rated on a 5-point Likert scale (i.e., *hardly at all, not too much, somewhat, very much, extremely much*). An example of the parent-version PCRQ item is “How much do you and this child care about each other?”

In the present study, both parents in a family were requested to independently complete their own ratings. The same question for the child version was re-worded as “How much do you and your mother (father) care about each other?” The child was instructed to rate the relationships with the parents separately, first with the mother, then with the father. As the elementary grade one students may have difficulty with the number-based Likert-scale ratings, vertical bars (|) were used to replace the numbers. Another modification for the child version was to place the ratings for both parents on the same page with the mother’s part on the left side and the father’s part on the right side. Appendix F showed some sample questions and the format for the child version of the PCRQ in Chinese used in the present study.

The PCRQ has shown evidences of the convergent validity as demonstrated in the fact that its subscales were correlated to observed parenting behaviors, other self-reported measures of parenting, and parents’ discipline tactics (Furman & Giberson, 1995; Johnston, Murray, Hinshaw, Pelham, & Hoza, 2002). Several empirical studies using the PCRQ also reported acceptable internal consistency reliability. For instance, in a sample of 252 parents with 5-12-year-old children with externalizing disorders, Kashdan, Pelham, Lang, Hoza, Jacob, Jennings, et al. (2002) found Cronbach alpha was .81 on the “positive parenting” by combining the personal relationship, warmth, and disciplinary warmth factors. In another sample of 47 parents with 4.3-8.3 years old children with externalizing behaviors, Feinfield and Baker (2004) used the personal relationship and power assertion subscales and obtained alphas .71 and .78, respectively. In a

sample of 142 ADHD boys (7.33-12.75 years old) and their parents (125 mothers and 61 fathers) and 55 control boys with their parents (50 mothers and 35 fathers), Gerdes, Hoza, and Pelham (2003) reported Cronbach alphas for the five subscales were from .63 to .88 for children's reports about their mothers, from .63 to .91 about their fathers, from .71 to .83 for mothers' reports about their children, and from .73 to .90 for fathers' reports about their children.

The PCRQ is one of the few available questionnaires directly assessing the parent-child relationships (Power, DuPaul, Shapiro & Kazak, 2003). It has both the parent and child versions for comparisons. It also demonstrates satisfactory psychometric properties and is easy to be administered and scored.

Family Functioning

Family is one of the primary socialization agencies for children in early and middle childhood (Parke & Buriel, 1998). Various family system theories have risen in contemporary family research (Parke & Buriel; Sameroff, 1994). In an effort to bridge the gap between research, theory, and practice in the family field, Olsen (1993) theorized the Circumplex Model of Marital and Family System. The circumplex model and the accompanying FACES I, II, III have facilitated over 1,000 research studies (Olsen et al., 2004; Smith et al., 2001) since its inception in 1979. Although FACES I, II, and III had shown some cross-ethnic equivalences (Knight, Tein, Shell, & Roosa, 1992; Smith et al.), challenges have been raised about the validity and reliability of the previous FACES measures and their inability to capture the extremely high levels of cohesion (enmeshment) and adaptability (chaos) (Franklin, Streeter, & Springer, 2001; Olsen, et al.). For instance, whereas the confirmatory factor analysis studies have generally demonstrated the scales exhibit adequate fit of the cohesion and flexibility/adaptability factors in Anglo American families, these two factors had a less satisfactory fit for families of color,

especially on the cohesion dimension (Franklin et al.; Knight et al.; Smith et al.). In improving the limitations of previous FACES measures, Olsen and associates (2004) had developed FACES IV. Tiesel (1996) conducted a validity study on FACES IV with 2,359 individuals in nine different states in the United States and reported FACES IV had the prominent evidence for construct validity, criterion-related validity, reliability, and convergent validity with other scales of family functioning.

The present study adopted the definition of family functioning proposed by Olsen in the circumflex model (Olsen, 1993), that is, family functioning is the combination of cohesion, flexibility, communication, and satisfaction within a household. FACES IV³ (Olsen et al., 2004) was used to assess family functioning. It is a 42-item self-report instrument that assesses family functioning. A 5-point Likert scale was used as 1 = *Does not describe our family at all*, 2 = *Slightly describes our family*, 3 = *Somewhat describes our family*, 4 = *Generally describes our family*, and 5 = *Very well describes our family*. An example of the items is “Family members are involved in each other’s lives.” The scale yields six distinct scales: balanced cohesion, balanced flexibility, disengaged, enmeshed, rigid, and chaotic. Each scale has seven items and taps the low, moderate, and high regions of the cohesion and flexibility dimensions in the circumplex model. These six scales could also be used to derive the cohesion ratio, flexibility ratio, and total circumplex ratio to represent the functional or dysfunctional level in the family system. In addition, FACES IV has a scale for family communication in 10 items as in the previous versions of FACES and a newly developed family satisfaction scale in 10 items.

For the present study, only the cohesions ratio, flexibility ratio, communication, and satisfaction scores were used. Olsen and colleagues have claimed FACES IV is reliable and valid and could deal with important dynamics in any family system (Olsen et al.; Tiesel, 1996). The

Cronbach alphas were in the range of .77 to .89 (Olsen et al.). FACES IV was chosen for this study because of (a) its solid theoretical model, (b) its flexibility for using different indices at different levels, (c) its sound psychometric properties, and (d) the arrangement of a free FACES IV package with exchange of the Chinese translation and sharing of the data with the publisher. Also an earlier version of FACES (i.e., FACES II) had been used in Mainland China (e.g., Li, Shi, & Liu, 2002; Phillips, West, & Shen, 1998; Tang, Huang, & Lei, 2004).

Summary of the Instruments Used

The instruments used for this study included:

1. “*Home and Community Social Behavior Scale*” (HCSBS, Merrell & Caldarella, 2002), completed by a parent who knows the child better. The four subscales (i.e., peer relations, self-management/compliance, disruptive/defiant, antisocial/aggressive) and the two total scales (i.e., social competence total and antisocial behavior total) were used in this study.
2. “*Parenting Styles and Dimensions Questionnaire*” (PSDQ, Robinson et al., 2001), completed by both parents for the self-ratings and spousal-ratings. However, only the self-rating parts were used in this study. Three higher-order scores on authoritative, authoritarian, and permissive parenting styles were used in the model testing.
3. “*The Revised Dimensions of Temperament Survey*” (DOTS-R, Windle, 1985; Windle & Lerner, 1986), completed by a parent who knows the child better. Only the derived Difficult Temperament Index (DTI) was used in the model testing.
4. “*Parent-Child Relationship Questionnaire*” (PCRQ, Furman, 2001; Furman & Giverson, 1995), completed by both parents and the child. Both parents rated their relationship with the child independently, and the child assessed the relationships with both parents separately. Whereas all of the five higher-order scales were used in the univariate

analysis, only three of them (i.e., warmth, personal relationships, and disciplinary warmth) were used in the model testing as explained in Chapter IV.

5. “*Family Adaptation and Cohesion Evaluation Scales IV*” (FACES-IV, Olsen et al., 2004) completed by both parents. Four scores (i.e., cohesion ratio, flexibility ratio, communication, and satisfaction) were used to assess the quality of family functioning.
6. “*Family Demographic Questionnaire*” – In addition to the above structured questionnaires, a family demographic information sheet was designed for the present study, which could be completed by either parent (see Appendices C and D).

Back-translation and Validation of the Cultural Validity

All of the above questionnaires except for the self-designed *Family Demographic Questionnaire* and the available Chinese version of the PSDQ were in English. To ensure the semantic equivalence of the instructions and items in the two different languages, the investigator translated the questionnaires into Chinese with helps from the committee chair for some difficult items in English and back-translated into English by a university English instructor fluent in both Chinese and English in China. FACES IV required three professionals in the forward- and backward-translation process. Another university English instructor in China, currently working on a Ph. D degree in linguistics in the United Kingdom, was involved.

These questionnaires were developed with the Western culture. They may not be pertinent to the Chinese culture although some questionnaires (i.e., PSDQ and FACES II) had been used with Chinese samples. To check on the facial validity for these translated questionnaires in the Chinese culture, they were sent to four Chinese professors in early childhood education and child development in China. Yet, although they had identified some culturally irrelevant items on each questionnaire, these items were retained in data collection for

the purposes of confirmatory factor analysis on these questionnaires, which are beyond the scope of this study. However, some items in these questionnaires were excluded in the data analyses due to the low alpha coefficients as explained in the section of “Exclusion of items on the questionnaires.” In other words, the culturally inappropriate items were determined primarily based on the internal inconsistency of the collected data rather than based on the judgments from a panel of experts.

Procedures

Data Collection Procedures and the Protection of Human Rights

The principals in the two schools were initially contacted for the feasibility to have the teachers, students, and parents participated in the study. After obtaining the official permission letters from the schools and the Institutional Review Board’s (IRB) approval from the university, the translated questionnaires were pilot-tested with several parents with elementary school level of education and with a few children at grade one to make sure they could understand the instructions and the statement sentences. These people were not affiliated with the two schools in the study. Before distributing the questionnaires to the parents, the principal office at each school sent a short introduction letter to the parents in encouraging their participations. After the parents signed on the school’s notice for voluntary participation, the introduction letter from the investigator and the consent forms for parents including the one on the behalf of the child were brought to home by children within a sealed envelope. The participants were informed of the purpose of the study, the voluntary participation, the free will to discontinue at any time without penalty, and about four hours to complete all of the questionnaires.

For the urban school, the questionnaires were distributed to the parents at one time in three separate envelopes: one for the mother, one for the father, and one for the parent who

knows the child better. The parents were instructed to finish the questionnaires independently without any discussions. For the parents in the semi-urban school, the questionnaires were distributed to them in three different times within a three-week interval. The child brought the first sealed envelope to the parent who knows the child better to complete the *Family Demographic Questionnaire*, the DOTS-R, and the HCSBS. After all of the questionnaires from the first time were collected, the second package including the questionnaires of the PSDQ, the PCRQ, and FACES IV for the mothers was distributed. After the mothers' completed responses were received, the third package including the same set of questionnaires as that for the mothers was distributed to the fathers. During the same timeframe, the children completed the consent form and the PCRQ and other three questionnaires (not included in the present study) at school. The investigator administered and read all of the questionnaires to the children. For the children in the urban school, they took the questionnaires at one time within an hour in the school auditorium. For the children in the semi-urban school, the investigator administered the questionnaires to them in six different sessions due to the limitation of the physical facility in the school. Each session lasted about seventy minutes.

Upon receiving the returned questionnaires from the participants, the investigator and the hired college students checked the completeness of the responses. If there were missing data, the parents were either contacted through phone calls from the investigator or sent another sealed envelope to further complete the questionnaires if many items were missed. If children missed some items, the investigator went to the school and asked them to complete the missed ones at their convenience. Due to the large number of questionnaires, the relatively big sample size, and the investigator's short schedule in China, the scanning of the missing information was not complete. Missing data were still found in the data entry process two months later⁴. Furthermore,

it was found a few parents partially or wholly answered for their spouses or the investigator was unable to determine who answered a questionnaire. For the missing data at this point, if the responses seemed to be in high quality and the missed items were less than ten and the contact phone number was available, the investigator called the parent in China to further collect the information. If the missed questions were more than ten or there were no contact phone numbers, the missed items with the original instructions were sent to the contacts at the two schools (a vice principal in the semi-urban school and a classroom teacher in the urban school). They delivered the sealed envelopes to the students, who then brought them to their parent(s). The re-collected data were sent back to the investigator via email and were verified after the investigator had the physical questionnaires on a later trip to China. Figure 9 briefly diagrammed the timeline and the approaches used for collecting the missing data.

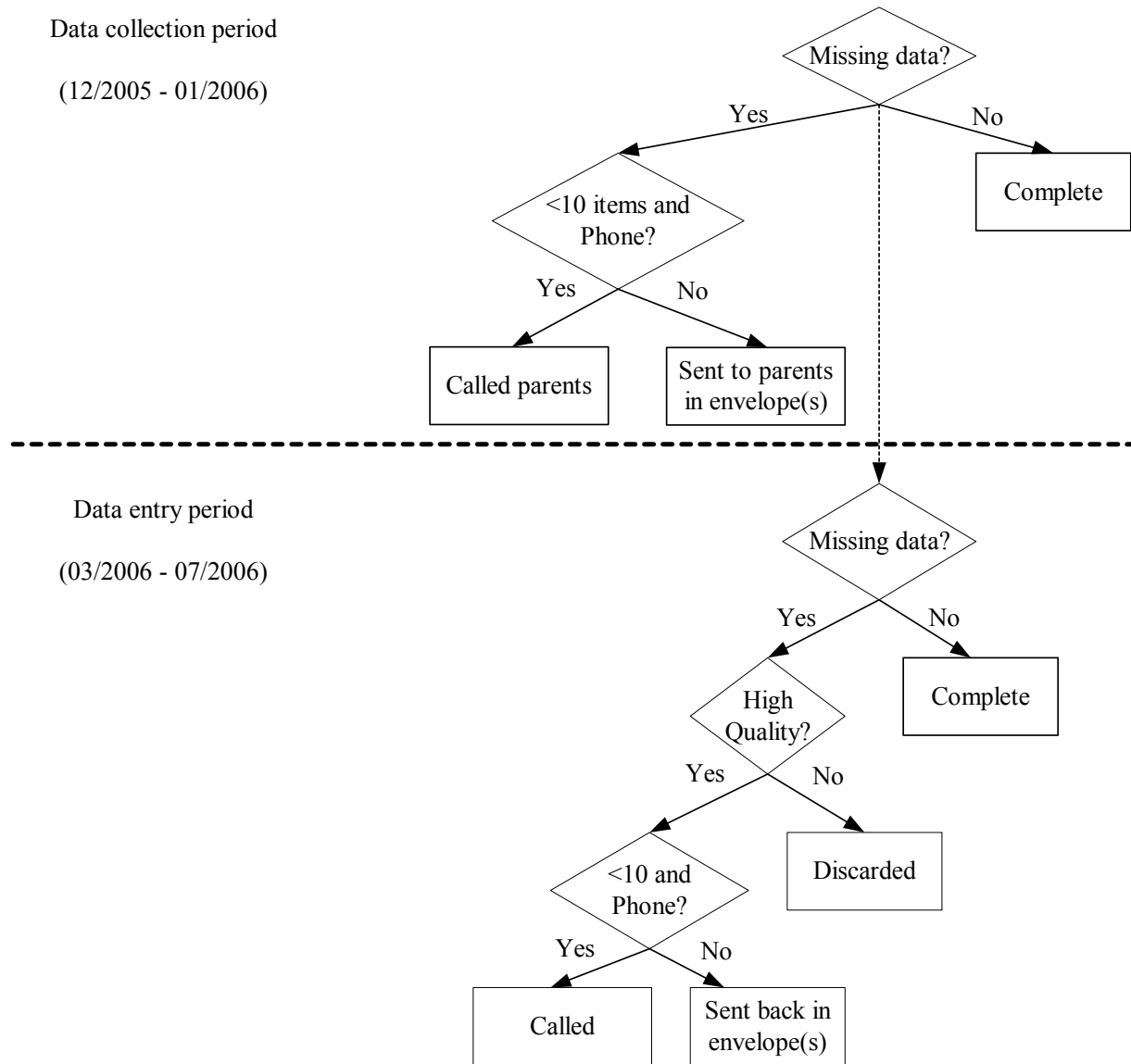


Figure 9. Timelines and strategies used for collecting the missing data.

It is critical for the parents to answer their own parts independently for this study. When there was any ambiguity, the investigator contacted the parent in China for clarification. However, only the authentic responses were used for the present study. If the investigator could not determine whether a questionnaire was answered by the designated informant from the original physical questionnaires, it was discarded. The abandoned rate varied from questionnaire to questionnaire, approximately in the range of 2% to 4%. The singleton status of child was not

on the original demographic questionnaire. As the committee commented the singleton status may be an important variable, this piece of information was later re-collected from the classroom teachers, who obtained the information from children or parents if necessary.

Data Analysis Strategies

Strategies Used to Handle the Missing Data

Although every effort had been made in minimizing the missing information, there were still missing data in the “high quality” answered questionnaires in some parents primarily due to the non-responses in the data re-collection process. Yet, only few questionnaires had few missing items. Various strategies have been proposed to handle the missing data and there is no general consensus on the “best” solution (Stevens, 2002). One possible way was to use the listwise deletion approach to eliminate any participants with missing data on any item. But this approach may possibly result in loss of a large number of participants and reducing the sample size dramatically. It is usually not recommended for structural equation modeling (SEM) studies (Schumacker & Lomax, 2004). As the missing data seemed not to be in a systematic way and only a small number of missing values were in the dataset, the recommended approach of mean substitution was used in the present study (Schumacker & Lomax).

Because each of the five questionnaires has subscales tapping on different factors and these factors are not necessarily additive, the factor mean seemed to be more appropriate than the grand mean for the entire scale for replacing the missing value. If the missed items exceeded 20% of the total number for a factor, however, the responses on the entire questionnaire were discarded. One couple in the urban city did not provide the information of their ages on the demographic questionnaire. Their ages were then replaced with other parents’ average ages in the same classroom, which was confirmed by the classroom teacher as appropriate. One mother

missed the 20 items on communication and satisfaction on FACES IV in the urban city. The responses on family cohesion and flexibility were retained. With the above strategies, the final datasets were either no missing values or no values at all for all of the items in a questionnaire for each participant. For the model testing, as not every participant finished all of the questionnaires, the listwise deletion method was used.

Strategies to Handle the Non-Only-Child

Forty four non-only-child (10 twins, 34 with sibling) children were in the sample (about 7.0%). As there are fourteen observed variables ($p = 14$) in the final bidirectional models, implying 119 free parameters [i.e., $p(p + 3) / 2$; Schumacker & Lomax, 2004]; it was desirable to retain the sample size as large as possible. Otherwise, there may not be enough information to estimate parameters in the model. An obvious question was whether these 44 children and their parents should be included in the final sample. To answer this question, the differences on the studied variables and familial characteristics among the three groups (i.e., the only child, child with sibling, and the twins) were examined. If there was an omnibus significance, Turkey's HSD was then used for post-hoc tests as it allows testing all of the possible pairwise comparisons while maintaining the alpha level (Maxwell & Delaney, 2004). The overall differences and the statistically significant pairwise comparisons were presented in Table 3.4.

Table 3.4
Differences between Only Child and Non-Only-Child

Variables	<i>F</i>	<i>p</i>	Mean difference ¹ in Turkey's HSD
Child age	$F(2, 625) = 1.68$	<i>ns</i>	
Father age	$F(2, 625) = .33$	<i>ns</i>	
Mother age	$F(2, 622) = .57$	<i>ns</i>	
Father education in years	$F(2, 625) = 5.96$.003	
Only child vs. with sibling			1.772** ²
Mother education in years	$F(2, 622) = 16.37$.000	
Only child vs. with sibling			3.066***
Family SES	$F(2, 625) = 2.96$	<i>ns</i>	
Social competence	$F(2, 619) = 1.05$	<i>ns</i>	
Antisocial behavior	$F(2, 619) = 3.31$.044	
Only child vs. with sibling			-1.949*
Authoritative– Mother	$F(2, 545) = 1.26$	<i>ns</i>	
Authoritarian– Mother	$F(2, 545) = 2.92$	<i>ns</i>	
Permissive– Mother	$F(2, 545) = .69$	<i>ns</i>	
Authoritative– Father	$F(2, 528) = 1.56$	<i>ns</i>	
Authoritarian– Father	$F(2, 528) = 2.08$	<i>ns</i>	
Permissive– Father	$F(2, 528) = .12$	<i>ns</i>	
Child temperament in DTI	$F(2, 618) = 2.67$	<i>ns</i>	

(table continues)

Table 3.4 (continued).

Variables	<i>F</i>	<i>p</i>	Mean difference ¹ in Turkey's HSD
Cohesion ratio– Mother	$F(2, 543) = 1.30$	<i>ns</i>	
Flexibility ratio– Mother	$F(2, 543) = 4.98$.007	
Only child vs. with sibling			.340*
Cohesion ratio– Father	$F(2, 535) = 1.56$	<i>ns</i>	
Flexibility ratio– Father	$F(2, 535) = 2.43$	<i>ns</i>	
Possessiveness– Mother	$F(2, 547) = .13$	<i>ns</i>	
Warmth– Mother	$F(2, 547) = 4.53$.011	
Twins vs. with sibling			.608*
Power assertion– Mother	$F(2, 547) = 1.31$	<i>ns</i>	
Personal relations– Mother	$F(2, 547) = 2.20$	<i>ns</i>	
Discipline warmth – Mother	$F(2, 547) = 4.75$.009	
Only child vs. with sibling			.343*
Twins vs. with sibling			.549*
Possessiveness– Father	$F(2, 534) = .82$	<i>ns</i>	
Warmth– Father	$F(2, 534) = 1.92$	<i>ns</i>	
Power assertion– Father	$F(2, 534) = 1.16$	<i>ns</i>	
Personal relations– Father	$F(2, 534) = .99$	<i>ns</i>	
Discipline warmth– Father	$F(2, 534) = 2.92$	<i>ns</i>	

Note: 1. Except for education in years, other numbers were the factor mean differences.

2. *ns* = not statistically significant; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 3.4 showed for the familial demographics, there were no differences on child age, parents' ages, and family socioeconomic status. The only differences were that both parents with only child had higher education than those with sibling children. For child social competence, children in the three groups did not differ on social competence total but the only child group seemed to have fewer antisocial behavioral problems than the children with a sibling. For the three parenting styles, there were no differences among the three groups for both mothers and fathers. The quality of family environment was also usually the same for both parents. The only difference was the mothers with only child reported they had more family flexibilities than those with sibling children. There were no differences on the degree of difficulty temperament (DTI) among the three groups. For parent-child relationship, the parents were again similar on most of the dimensions except for that the mothers with twins reported higher warmth and disciplinary warmth than did the mothers with sibling children, and the only-child mother also reported higher disciplinary warmth than did the mothers with sibling children.

However, these significant differences may not be entirely contributed to the differences in child singleton status. Other variables such as parents' education may relate to the significant differences on child negative social behavior, mother's perception of family flexibility, and the mother-child relationship. Hence, these differences were further tested by controlling parents' education in a series of hierarchical multiple regression analyses to examine the effect of the singleton status after parents' educations being controlled which were the only demographic variables showing statistically significant differences. As the child singleton status was categorical, criterion coding (Schumacker & James, 1993) was used. In the hierarchical regression, parents' education(s) was entered first, and then the child status was entered as the second block. The results were shown in Table 3.5.

Table 3.5
Effects of Child Singleton Status by Controlling Parents' Education

Criterion variables	Variables controlled	R_1^2	R_2^2	ΔR^2	Effect of singleton
Child antisocial behavior	Parents' education	.015	.019	.004	$F(1, 617) = 3.31$
Mother's flexibility	Mother's education	.020	.032	.012	$F(1, 543) = 7.79^{**}$
Mother's warmth	Mother's education	.030	.038	.008	$F(1,547) = 5.81^*$
Mother's disciplinary warmth	Mother's education	.097	.101	.004	$F(1,547) = 3.40$

* $p < .05$; ** $p < .01$

The values of R_1^2 in Table 3.5 were the adjusted R^2 for the controlled variable(s) (i.e., parents' or mother's education) on the targeted criterion variables, the values of R_2^2 were the adjusted R^2 for both the controlled variable(s) and child singleton status on the targeted criterion variable. ΔR^2 is the effect of child singleton status after controlling parents' education on the criterion variables. The results showed that overall the values of ΔR^2 were very small, implying child singleton status had nominally unique contributions to the four criterion variables. The F values in the last column further demonstrated the effect of child singleton status on each predicted variable after controlling parent's education. Even when the effect was significant at the .01 level as for the mother's perception of family flexibility, the change of the multiple R^2 was only .012, indicating child singleton status could predict up to 1.2% of the variance in mother's view of family flexibility. These results showed: (a) child singleton status itself did not link to the differences on child antisocial behavior and mother's discipline warmth after the parent's education was controlled, and (b) child singleton status significantly related to mother's perception of family flexibility and disciplinary warmth after mother's education was controlled.

However, other unexamined variables such as child sex could further reduce the R^2 and F values, which would result in even smaller effect of child singleton status on the criterion variables. In summary, the findings in Tables 3.4 and 3.5 suggested that the three groups did not differ on most of the variables and child singleton status did not contribute significantly to the variances of the targeted variables, even in the two instances of statistical significance. Therefore, the two non-only-child groups were similar to the only child group. Accordingly, all of the children and their parents with valid data were included in the final sample in the model testing.

An accompanying issue with the inclusion of the ten twins in the sample was how to handle their parents' responses on the child-independent questionnaires such as the PSDQ for parenting styles and FACES IV for family functioning. Some parents with twins responded identically for both children, whereas others answered slightly different. Carefully examination of their answers revealed that the different responses could be justified as the relevant items were not completely child-independent. For this reason, these parents were treated as separate participants and matched with their twin children.

Exclusions of Items on the Questionnaires

As the questionnaires used in the present study were originated in the American culture, some items may not be appropriate in the Chinese culture. For instance, Wu et al. (2002) used only part of the items on the PSDQ in a sample of mothers in Beijing, China and claimed the other items were culturally inappropriate. Some possible ways to identify the culturally irrelevant items include using the approach of a panel of experts and/or utilizing factor analysis techniques. The strategy used in the present study was primarily based on the results of internal consistency reliability in Cronbach alpha. Cronbach alpha tends to be larger with more items in the same content domain (Crocker & Algina, 1986). Therefore, if the alpha coefficient for a factor

obviously is improved without an item, it is reasonable to suspect the item is different from the rest of the other items for that factor, possibly imposing cultural relevance challenge for that item. Accordingly, such type of items might be excluded for further analyses. Another reason to examine the internal consistency reliability is that the structural equation modeling technique separates true scores from measurement errors. When the data for the observed variables have low reliability, the Pearson product-moment correlation coefficient corrected for attenuation (i.e., for the true scores) could be larger than 1.00, often resulting in a non-positive definite error message and stopping the structural equation software program running (Jöreskog & Sörbom, 2002; Schumacker & Lomax, 2004).

Tables 3.6-3.9 presented the candidate items for exclusion on four instruments based on the relatively large alpha improvements. The inter-item correlations did not suggest any items on the HCSBS to be excluded. As shown in the tables, the low quality items were generally consistent across the independent subsamples, supporting the action of excluding them in the study. Six items on the PSDQ as specified in Table 3.6 were excluded in this study. The average factor means for the three parenting styles were adjusted accordingly. Four items associated with four temperament subscales on the DOTS-R as in Table 3.7 were excluded. The DTI value for each child was computed based the cutoff values without these four items. Table 3.8 showed that the PCRQ had improved alphas without item 20 and item 27 in all of the four views. Therefore, they were excluded. Table 3.9 suggested items 12 and 38 on FACES IV for a possible deletion. However, as the cohesion ratio and the flexibility ratio were derived from the standardized scores of the six subscales by using the conversion tables from the publisher, excluding these two items would make it hard to populate the two ratios correctly. Hence they were retained.

Table 3.6
Excluded Items with Changes in Cronbach Alpha on the PSDQ

Item	Associated factor	Number of items in the factor	Mothers		Fathers	
			Kept	Deleted	Kept	Deleted
Q38	Lack of follow-through	6	.302	.492	.362	.469
Q40	Directiveness	4	.477	.531	.455	.466
Q44	Verbal hostility	4	.657	.678	.639	.697
Q47	Nonreasoning	6	.539	.587	.580	.639
Q52	Lack of self-confidence	5	.483	.555	.437	.475
Q60	Democratic participation	5	.591	.643	.627	.688

Table 3.7
Excluded Items with Changes in Cronbach Alpha on the DOTS-R

Item	Associated factor	Number of items in the factor	Kept	Deleted
Q4	Rhythmicity– sleep	6	.544	.588
Q17	Approach– withdrawal	7	.497	.509
Q42	General activity– sleep	7	.645	.714
Q49	Flexibility/rigidity	5	.504	.518

Table 3.8
Excluded Items with Changes in Cronbach Alpha on the PCRQ

Item/Factor/Number of items	Mother-child		Father-father		Child-mother		Child-father	
	Kept	Deleted	Kept	Deleted	Kept	Deleted	Kept	Deleted
Q20 in Possessiveness (6)	.555	.564	.580	.585	.453	.469	.451	.486
Q27 in Power assertion (12)	.802	.818	.826	.838	.815	.835	.791	.813

Table 3.9
Low Quality Items with Changes in Cronbach Alpha on FACES IV

Item	Associated factor	Number of items	Mothers		Fathers	
			Kept	Deleted	Kept	Deleted
Q12	Chaotic	7	.507	.545	.652	.677
Q38	Balanced flexibility	7	.627	.653	.680	.704

Data Normalization and Outliers

Data normal distribution is often a critical assumption in inferential statistics (Maxwell & Delaney, 2004; Schumacker & Lomax, 2004). Therefore, it is necessary to check the normality of data distribution before model testing. The Kolmogorov-Smirnov test, along with its correction of the Lilliefors test in the SPSS package, was used to examine the univariate normality for the observed variables in the present study. This test is often suggested for a sample size greater than 50 (Maxwell & Delaney). The advantage of the Kolmogorov-Smirnov/Lilliefors test is that it provides a single index by combining the information in skewness and kurtosis and the associated standard errors indicating if the data fits the normal distribution. When the *p* value is less than .05, the data is not normally distributed. The

disadvantages of this test are that it does not provide any information on why the data is departure from normality and it is conservative, elevating the likelihood of finding non-normality (Statistical Solution, n.d.). Table 3.10 presented the skewness and kurtosis, the standard errors, and the p values for the Kolmogorov-Smirnov/Lilliefors statistics on the studied variables. Results showed all of the variables except for social competence total were significantly departing from the normal distribution.

Table 3.10
Skewness and Kurtosis and the p Values in Kolmogorov-Smirnov Test

Variables	Skewness	SE of Skewness	Kurtosis	SE of Kurtosis	p
Child age	-.604	.097	-.731	.193	.000
Peer relations	-.118	.098	-.095	.196	.017
Self-management/compliance	-.340	.098	.387	.196	.025
Social competence total	-.198	.098	.176	.196	.200
Disruptive/defiant	.816	.098	.524	.196	.000
Antisocial/aggressive	1.827	.098	4.976	.196	.000
Antisocial total	1.160	.098	1.762	.196	.000
Mother authoritative	-.401	.104	.238	.208	.000
Mother authoritarian	.595	.104	.640	.208	.000
Mother permissive	.501	.104	.388	.208	.000
Father authoritative	-.379	.106	.240	.211	.038
Father authoritarian	.633	.106	.807	.211	.000

(table continues)

Table 3.10 (continued).

Variable	Skewness	SE of Skewness	Kurtosis	SE of Kurtosis	<i>p</i>
Father permissive	.755	.106	1.284	.211	.000
Mother cohesion ratio	1.110	.105	2.306	.209	.000
Mother flexibility ratio	1.583	.105	4.930	.209	.000
Father cohesion ratio	1.948	.105	11.852	.210	.000
Father flexibility ratio	3.087	.105	18.204	.210	.000
Possessiveness– Mother	.141	.104	.002	.208	.000
Warmth– Mother	-.163	.104	-.021	.208	.000
Power assertion– Mother	-.051	.104	-.119	.208	.000
Personal relationship– Mother	.055	.104	.236	.208	.002
Discipline warmth– Mother	.220	.104	.140	.208	.000
Possessiveness– Father	.076	.105	-.280	.210	.000
Warmth– Father	.022	.105	-.312	.210	.002
Power assertion– Father	.333	.105	.350	.210	.000
Personal relationship– Father	.069	.105	.115	.210	.001
Discipline warmth– Father	-.117	.105	.071	.210	.000
Child temperament difficulty	.359	.098	-.606	.196	.000

Nonnormal data distribution in structural equation models is often problematic (Jöreskog & Sörbom, 2002). If the usual maximum likelihood (ML) estimation method is used, standard errors and chi-squares, and other fitting indices may be incorrect (Schumacker & Lomax, 2004).

Although theoretically weighted least squares (WLS) could produce correct estimates of standard errors and chi-squares for nonnormal data, this estimation method requires a very large sample (Jöreskog & Sörbom). Another reasonable compromising approach is to use the ML with corrected bias in standard errors, but this method requires a very large sample as well (Jöreskog & Sörbom). LISREL provides the “Normal Scores” function to make the nonnormal variable normalized without changing its mean and standard deviation. In addition, the correlation and variance-covariance matrices of the normal scores are very similar to those of the original data (Jöreskog & Sörbom). Due to the nonnormality for most of the variables and the limited sample size for the model testing, this study used the normal score feature in LISREL with the common ML estimation method in the model testing. But first, the originally least and most normally distributed variables (i.e., father’s perception of family flexibility ratio and child social competence total) were compared to their corresponding normalized scores to show the degrees to which the original data were “distorted.” Table 3.11 demonstrated the means and standard deviations remained the same with the changed origins and units of measure after normalization (Jöreskog & Sörbom) in the two variables. As the original scores for all of the variables on the five structured questionnaires were Likert scale based, they were actually rank data in nature. Therefore, the equal intervals between two adjunct anchors may not necessarily be as precise as in interval data. The changed origins and/or apexes and the units of measure seemed to be justifiable for the model testing.

In fact, Jöreskog and Sörbom (2002) stated the normal score approach is an effective way to handle nonnormality continuous variables in small and moderate sample sizes. This approach was employed in the present study in the following steps: (a) all of the negatively stated items on the questionnaires were first reversely coded based on the scoring instructions, (b) factor means

on each questionnaire after eliminating the low reliable items as shown in Tables 3.6-3.8 were computed for each participant, (c) each of the original factor means was imported to PRELIS for normal scores separately, and (d) the normal scores were carefully matched with the original scores for each factor in each participant. All of the variables were normalized based on the entire sample.

Table 3.11
Comparisons of the Original Score and Normal Score on Two Variables

Statistics	Father's flexibility ratio		Social competence total	
	Original score	Normal score	Original score	Normal score
<i>N</i>	535	535	619	619
Minimum	.04	-1.23	1.53	1.82
Maximum	8.18	3.58	4.81	5.14
Mean	1.175	1.175	3.477	3.477
<i>SD</i>	.755	.755	.514	.514
Skewness	3.087	.001	-.198	.000
SE of Skewness	.105	.105	.098	.098
Kurtosis	18.204	-.010	.176	-.007
SE of Kurtosis	.210	.210	.196	.196

Whereas the normal scores were used for the model testing, the original scores were still used for the descriptive statistics and the univariate analyses on the between-group differences for two reasons: (a) The normal score may change the intrinsic meaning of the origin and unit of

measurement in the original variable (Jöreskog & Sörbom) as demonstrated in the changes of minimum and maximum values in Table 3.11. Such changes made it hard to interpret the univariate results if normalized scores were used; and (b) ANOVA is generally robust to violation of the normality assumption with a large sample size (Maxwell & Delaney, 2004).

As the present study focuses on the latent model testing, the univariate outliers on the original scores were not checked and eliminated for the univariate analyses. In the model testing, although each of the observed variables was normally distributed after the normal score transformation, however, multivariate outliers could still exist. These multivariate outliers were detected based on the Mahalanobis distance statistics ($p < .001$) for each latent variable through the multiple regression approach (Hair et al., 2006).

Univariate Analysis Strategies

The main interests of the univariate analysis for the present study were: (a) the descriptive statistics, (b) the group differences among different Chinese subsamples, (c) the group difference between the Chinese sample and the norm data for the American sample; and (d) the interfactor correlations on each of the questionnaires between the subsamples. ANOVAs and *t*-test were used to test the group differences and the bivariate Pearson product-moment correlation coefficient was used to examine the relationships among different constructs. For ANOVAs, when interaction effect(s) presented, the significant main effect(s) was usually not interpreted as advocated by some researchers (e.g., Maxwell & Delaney, 2004; Pedhazur & Schmelkin, 1991) unless the interaction was ordinal (Hair et al., 2006), that is, the mean for one group is always higher than another group no matter how they are combined.

As the sum score affected by the number of items in a scale, the mean score for each respective factor in each of the scales was used for both univariate and multivariate analysis. In

determining the statistical significance, the conventional 2-tailed .05 level was used throughout this study. It should be noted that the .05 alpha level was set for per test, not for each family. Familywise error rate may be inflated as some of these separate tests may constitute a family (Maxwell & Delaney, 2004; R. Henson, personal communication, March 9, 2007). A better way may be setting the alpha level to .05 for each of the identified families. Again, as the focus of this study was on the model testing, the control of the familywise error rate at .05 was not tried. In judging the magnitude of a practical significance, Cohen's guidelines were followed. More specifically, for the effect sizes on the mean differences, .2 was deemed as small, .5 as medium, and .8 as large. For correlation coefficients, .1 was considered as small, .3 as medium, and .5 as large; corresponding to 1% as small, 9% as medium, and 25% as large in terms of percentage of variance explained (Cohen, 1988). The mean-type effect size in Cohen's d was computed with Schmidt, Hunter, and Jackson's (1982) weighted standard deviation. For the percentage of variance of the dependent variable explained by the grouping variables in the ANOVAs, the default η^2 in the SPSS software package, which is SS_{effect} divided by SS_{total} , was used instead of the recommended $\hat{\omega}^2$. Maxwell, Camp, and Arvey (1981) noted that the difference between the two approaches is usually very small for large sample sizes like in this study.

SEM Model Testing and the Criteria for the Selected Fitting Indices

As structural equation modeling (SEM) allows for the simultaneous examination of the relations among multiple latent variables and separates the measurement errors from the true scores, it was used to test whether the hypothesized models fit to the data. Mulaik and Millsap's (2000) four-step approach has often been recommended for testing models without substantive theoretical bases (Schumacker & Lomax, 2004). However, as this study had no data from another sample to confirm the plausible model identified in the first step— exploratory common

factor analysis, this approach was not applied. Instead, Anderson and Gerbing's (1988) two-step approach was employed for the model testing. In the first step, measurement model was proposed to specify the relationships among the observed variables underlying the latent variables. In the second step, the structural model on the relationships among the latent variables was established and tested.

There are three main approaches of SEM applications from theory to model testing depending on how strong of the theoretical foundation (Jöreskog & Sörbom, 2002; Kline, 1998; Schumacker & Lomax, 2004). The confirmatory approach is often applicable to a solid theoretical model or a previously established model. In this approach, a theoretical model is first hypothesized and the model is either confirmed or rejected based on the model fit criteria. In the second nested models approach, a limited number of theoretically different models are usually first proposed and then the best model is sought by comparing the fit statistics in these different models. This competing-models approach has often been applied in the case of some theoretical confidence in the specified models. The model development approach often is used when no sufficient theoretical justification in the models and primarily is data-driven. In this approach, the research first specifies an initial model, and then improves the model by using the modification indices suggested by the results or by taking advantage of the specification searching function in a software program such as AMOS 6.0. Finally the researcher determines the substantively and statistically best-fitting model (Schumacker & Lomax; Statistical Solutions, n. d.). The present study primarily used the model development/generating approach as no sufficient evidences suggested any solid SEM models among the five studied variables.

Measurement invariance in examining whether the measurement models were similar across different groups is also important in structural equation modeling. Cheung and Rensvold

(2002) argued if the measurement invariance cannot be established, then the findings on the between-group differences are questionable. This study was particularly interested in whether the measurement and structural invariance existed between the mother and father groups in the tested models and whether there was a group difference between them if the invariance held.

As correlation matrices could lead to imprecise parameter estimates (Boomsma, 1983) and structural equation software packages usually use the variance-covariance matrix for model estimations (Schumacker & Lomax, 2004), this study used the variance-covariance matrices, too. Various methods for estimating the parameters have been developed. If the observed variables are interval scaled and have multivariate normality, then the maximum likelihood (ML) method is appropriate (Schumacker & Lomax). As the normal scores were used in the present study, skewness and kurtosis for each variable in the variance-covariance matrices were close to zero. Therefore, the multivariate normality was assumed and the ML method was used.

Model fit statistics indicate the degree to which the sample variance-covariance data fit the structural equation model. Schumacker and Lomax (2004) stated choosing the model fit indices in SEM is complicated for several reasons: (a) different sets of fit criteria have been developed under different model-building assumptions, (b) SEM does not have a single statistic to indicate the best model for a given sample data, and (c) different software packages offer different fit indices. Hair et al. (2006) suggested using various combined model fit criteria to assess model fit, model comparison, and model parsimony. Kline (1998) also recommended reporting multiple fit indexes as they usually reflect somewhat different facets of model fit. As a minimum, Kline suggested to report “the χ^2 statistics and its degrees of freedom and significant level; an index that describes the overall proportion of explained variance such as the Jöreskog-Sörbom GFI, the Bentler-Bonnet NFI, or the Bentler CFI; an index for that adjusts the proportion

of the explained variance for model complexity such as the Bentler-Bonett NNFI ... ; and an index based on the standardized residuals such as the SRMR” (p. 130). The global fit indices and the cutoff values used for the present study as shown in Table 3.12 were primarily from the recommendations in Jöreskog and Sörbom (2002), Kline, Hair et al., and other empirical SEM studies on parenting. As the χ^2 statistic is sensitive to the sample size, χ^2 / df was used. Kline stated a ratio of less than 1.5 usually is considered as adequate, less as 2 as satisfactory, and less than 3 as acceptable. The GFI indicates the proportion of the sample covariances explained by the model-implied covariances, analogous the R^2 in multiple regression. The AGFI is the downward correction of the GFI for model complexity, similar to the adjusted R^2 in multiple regression (Kline). The NFI indicates the proportion of the improvement of the overall fit of the tested model to a null model (Bentler, 1990). CFI is similar to NFI, but less affected by sample size (Kline). The SRMR is a standardized summary of the average covariance residuals. The RMSEA is based on the non-centrality parameter with a value of less than .07 considered as satisfactory and as poor if larger than .10 for a sample size larger than 250 (Hair et al.).

Table 3.12
Model Fit Criteria and the Cutoff Values

Model fit criteria	Cutoff values / Acceptable level
Chi-square/degree of freedom	$\chi^2/df < 3$
Goodness-of-fit (GFI)	>.95
Adjusted GFI (AGFI)	>.95
Normed fit index (NFI)	>.95
Comparative fit index (CFI)	>.95
Standardized root mean squared residual (SRMR)	User defined, 0 meaning perfect fit.
Root-mean-square error of approximation (RMSEA)	<.07

Model Testing Procedures

The models were generated, modified, and validated in a five-step approach. In the first step, initial models were developed based on the relevant theories and empirical studies as explained in Chapter II. In the second step, each of the hypothesized models was first tested with the mother sample. In the third step, the model was modified according to modification indices and the model fit indexes were examined to determine if the model fit had significantly improved after every reasonable suggestion was followed. In the fourth step, the restricted model from the mother sample was validated in the father and/or child samples. Finally, the validated structural equation model was tested for measurement and structural invariance between the mothers and fathers, between the boys and girls, or between the parents and children. If measurement and structural invariance were supported, then the between-group difference was further examined. The above steps were applied to all of the five hypothesized models.

Reliability in Factor Model

Whereas internal consistency reliability, often in Cronbach alpha, has been popular in the psychoeducational measurement field for decades and available for calculation in many statistics programs, the practical experiences on factor-based reliability coefficients have been rare (Bentler, 2005). To remedy the deficiency, EQS has implemented the feature of computing factor-based reliability in several different indices. Bentler stated the selection of the coefficients for reporting is largely depending on if the composite model is unit-weighted or optimally weighted and whether the model is imposed to the data. For a unit-weighted model, Cronbach alpha (α) and Raykov's Rho (ρ) are the two popular ones. Alpha indicates a reliability coefficient for a highly restricted one-factor model with all equal loadings and equal error variances. Unlike alpha, Raykov's Rho allows for factor variances across multiple groups. It has been considered a

better indicator than alpha under the assumption of one-factor model underlying its constituents. Bentler further stated it is desirable to compute Raykov's Rho for a restricted one-factor model. In the present study, all of the models were assumed to be unit-weighted. Both alpha and Rho were reported for the models to show some reliability evidences for the models in the sample.

Software Packages

LISREL 8.51 was the primarily software package used for the model testing in the present study. EQS 6.1 was mainly employed to get the reliability in alpha and Raykov's rho for the factor models, and to test for the measurement and structural invariance. AMOS 6.0 was basically utilized for model specification search in seeking the best "bidirectional" models. SPSS 14.0 was used for: (a) obtaining descriptive statistics, (b) conducting the univariate analyses, and (c) producing the variance-covariance matrices as the inputs to LISREL or EQS for the model testing.

CHAPTER IV

RESULTS

Univariate Analysis

Prior to data analyses, the internal consistency reliability coefficients in Cronbach alpha were checked. Many factor such as the homogeneity of the examinee group, quality of test items, test lengths, or even time limit in test administration could affect the internal consistency reliability (Crocker & Algina, 1986). There have been debated on the acceptable and satisfactory cutoff-criteria of alphas for decades (Carmines & Zeller, 1979; DeVillis, 1991; Nunnally, 1978). Some researchers used the .70 as the minimum criterion for acceptable, .80 for satisfactory, and .90 and above for adequate (e.g., Nunnally, 1978), whereas others viewed alpha coefficients between .60 and .70 as acceptable although undesirable (e.g., Devillis, 1991).

For the present study, the acceptability of the obtained alphas was primarily determined based on: (a) the comparison with the reported alphas in the test manual or in other studies using the same instruments, and (b) the .60 cutoff criterion by Devillis as it seems to be more appropriate for exploratory studies. In addition to the internal consistency reliability, the convergent and discriminant validity evidences based on the inter-factor correlations among the subscales and total scales were also explored and compared with other studies. The alpha coefficients and the correlation coefficients among the scale factors could reveal some reliability and validity evidences for the instruments in the current Chinese sample.

Child Social Competence

Assessment of the Psychometric Properties

Table 4.1 showed the alphas on the *Home and Community Social Behavior Scales* (HCSBS) were from .86 to .89 for the subscales, .92 for social competence total, and .93 for

antisocial behavior total. These alphas were either satisfactory or adequate although they were slightly below the ones in the test manual, indicating this scale was reliable for this sample.

Table 4.1
Alpha Coefficients on Home and Community Social Behavior Scale (HCSBS)

Subscales	Number of items	Sample size	Cronbach α
Social competence total	32	622 616 ^a	.92 .97 ^a
Peer relations (PR)	17	622 616	.86 .95
Self-management/compliance (SMC)	15	622 616	.86 .94
Antisocial behaviors total	32	622 616	.93 .96
Disruptive/defiant (DD)	17	622 616	.89 .93
Antisocial/aggressive (AA)	15	622 616	.87 .94

Note: a. Numbers in the second row were from the test manual ($N = 616$, ages 5-11 years old).

Table 4.2 showed high correlations between the subscales and their corresponding total scales as in the norming American sample (Merrrel & Caldarella, 2002), indicating each subscale tapping a higher order construct of social competence or antisocial behavior. The strengths of association between the subscales of social competence and the subscales of antisocial behavior were from -.20 to -.40 with a mean intercorrelation of -.30, much more desirable than -.74 in the range of -.65 to -.82 in the norm sample. When the mean intercorrelation of -.30 among the four subscales coupled with the correlation of -.33 between the two total scores, the two scales, on average, shared 9.9% of their variance, much less than the 57% common variance in the norming sample (Merrrel & Caldarella), indicating the two scales have much more separate variance than shared variance. The convergent and discriminant validity were supported in this sample.

Therefore, the proposed use of the two scales in social competence and antisocial behavior appeared appropriate for this sample of Chinese children.

Table 4.2
Intercorrelations among Subscale and Total Scales on HCSBS

Subscales	PR	SMC	SCT	DD	AA	ABT
Peer relationship (PR)	-	.84 ^b	.96	-.68	-.65	-.68
Self-management/compliance (SMC)	.72 ^a	-	.96	-.82	-.73	-.80
Social competence total (SCT)	.93	.92	-	-.78	-.72	-.77
Defiant/disruptive (DD)	-.26	-.40	-.35	-	.89	.97
Antisocial/aggressive (AA)	-.20	-.28	-.25	.77	-	.97
Antisocial behavior total (ABT)	-.25	-.37	-.33	.96	.92	-

Note: a. All correlations were significant at $p < .01$; $N = 622$.

b. Numbers above the diagonal were from the test manual ($N = 1,562$, ages 5-18 years old).

Descriptive Statistics

The descriptive statistics of child social competence in means and standard deviations by school, grade, and child sex were in Table 4.3. Overall, the parents perceived their children with much more socially competent behaviors than antisocial behaviors (3.48 vs. 1.66): $t = 57.81$, $p < .001$. The practical significance of the difference was substantially large: $d = 4$, indicating there were four standard deviation difference between social competence total and antisocial behavior total for all of the children as a whole. Hypothesis one was supported. At the sub-domain level, the parents reported their children frequently displayed positive social behaviors on peer relations and self-management/compliance (3.52 and 3.42) and had a few disruptive/defiant or

aggressive/antisocial behaviors (1.93 and 1.43). Further examinations at the sub-domain level revealed that children had higher social competence on peer relations than on self-management/compliance ($t = 5.99, p < .001, d = .18$) and engaged more in disruptive/defiant behaviors than in serious aggressive/antisocial behaviors ($t = 21.76, p < .001, d = .63$). The magnitude of the practical difference between peer relations and self-management was small, whereas the effect size between disruptive/defiant and aggressive/antisocial behaviors was medium, evidencing the necessity of examining child social competence at the subscale level.

Table 4.3
Descriptive Statistics of Child Social Competence by School, Grade, and Sex

Subscales	Total		Boys		Girls	
	Mean	SD	Mean	SD	Mean	SD
Grade one - Semi-urban school	$n = 128$		$n = 69$		$n = 59$	
Peer relations	3.54	.57	3.48	.54	3.61	.61
Self-management/compliance	3.40	.57	3.34	.56	3.46	.58
Social competence total	3.47	.53	3.42	.51	3.54	.54
Disruptive/defiant	2.00	.52	2.09	.55	1.91	.48
Aggressive/antisocial	1.42	.34	1.49	.36	1.33	.29
Antisocial total	1.69	.40	1.77	.43	1.60	.35
Grade two - Semi-urban school	$n = 164$		$n = 85$		$n = 79$	
Peer relations	3.48	.53	3.46	.47	3.49	.59
Self-management/compliance	3.42	.56	3.40	.52	3.45	.61
Social competence total	3.45	.50	3.44	.44	3.47	.56
Disruptive/defiant	1.97	.58	1.99	.57	1.95	.59
Aggressive/antisocial	1.46	.39	1.52	.42	1.40	.35
Antisocial total	1.70	.45	1.74	.47	1.66	.43

(table continues)

Table 4.3 (continued).

Subscales	Total		Boys		Girls	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
Grade three - Semi-urban school	<i>n</i> = 203		<i>n</i> = 99		<i>n</i> = 104	
Peer relations	3.58	.53	3.59	.58	3.66	.54
Self-management/compliance	3.43	.59	3.38	.63	3.48	.55
Social competence total	3.51	.54	3.49	.57	3.53	.51
Disruptive/defiant	1.93	.58	2.07	.61	1.80	.53
Aggressive/antisocial	1.42	.37	1.55	.39	1.40	.35
Antisocial total	1.66	.45	1.79	.48	1.66	.43
Grade three -Urban school	<i>n</i> = 127		<i>n</i> = 74		<i>n</i> = 53	
Peer relations	3.48	.49	3.49	.49	3.47	.49
Self-management/compliance	3.45	.54	3.41	.59	3.51	.46
Social competence total	3.46	.47	3.45	.50	3.49	.44
Disruptive/defiant	1.82	.59	1.82	.82	1.82	.60
Aggressive/antisocial	1.40	.42	1.40	.36	1.34	.38
Antisocial total	1.60	.47	1.59	.44	1.56	.43
Grades 1-3 Semi-Urban school	<i>n</i> = 495		<i>n</i> = 253		<i>n</i> = 242	
Peer relations	3.53	.55	3.52	.53	3.55	.57
Self-management/compliance	3.42	.58	3.38	.57	3.46	.57
Social competence total	3.48	.52	3.45	.51	3.51	.53
Disruptive/defiant	1.96	.57	2.05	.80	1.87	.54
Aggressive/antisocial	1.43	.37	1.52	.39	1.34	.32
Antisocial total	1.68	.44	1.77	.46	1.60	.52
All children	<i>n</i> = 622		<i>n</i> = 327		<i>n</i> = 295	
Peer relations	3.52	.54	3.51	.52	3.54	.56
Self-management/compliance	3.42	.58	3.38	.58	3.47	.55
Social competence total	3.48	.51	3.45	.51	3.51	.52
Disruptive/defiant	1.93	.57	2.00	.52	1.86	.55
Aggressive/antisocial	1.43	.38	1.42	.34	1.35	.35
Antisocial total	1.66	.44	1.69	.40	1.59	.41

Group Differences

Child social competence for the present Chinese sample was first compared with the American equivalent age group (ages 5-11) in standardized T scores. Table 4.4 showed Chinese children were significantly less competent than the American peers ($t = 14.34, p < .001, d = .58$), but exhibited fewer antisocial behaviors ($t = 9.98, p < .001, d = .40$). These differences were medium in effect size, practically meaningful. It should be pointed out that the American norm group in the test manual had more balanced numbers of children at each age level than the current sample which had much more third graders. Child Age may be a confounding variable to distort the results on the between-group differences. However, as demonstrated below, the main effect of grade/age on all of the domains of social competence was not found in the current sample. Therefore, the comparison results between this sample with disproportional numbers of children in the three grades and the American normative group seem to be warranted. Hypothesis two was considered supported.

Table 4.4
Comparisons of Social Competence between American and Chinese Children

Variables	The U. S. norm sample	Current sample
Total Sample size	613	622
Boys	317	327
Girls	286	295
Ages in years	5-11	6.01-9.77
Peer relations		
<i>M</i>	66.16	59.90
<i>SD</i>	12.96	9.18
Difference	$t(621) = 17.00^a, p < .001; \text{Cohen's } d = .68^b$	
Self-management/compliance		
<i>M</i>	54.60	51.36
<i>SD</i>	11.15	8.52
Difference	$t(621) = 9.48^a, p < .001; \text{Cohen's } d = .38^b$	
Social competence total		
<i>M</i>	120.77	111.26
<i>SD</i>	23.32	16.42
Difference	$t(621) = 14.34^a, p < .001; \text{Cohen's } d = .58^b$	
Disruptive/defiant		
<i>M</i>	31.55	29.00
<i>SD</i>	11.46	8.60
Difference	$t(621) = 7.40^a, p < .001; \text{Cohen's } d = .30^b$	
Aggressive/antisocial		
<i>M</i>	27.37	24.24
<i>SD</i>	10.41	6.46
Difference	$t(621) = 12.08^a, p < .001; \text{Cohen's } d = .48^b$	
Antisocial behavior total		
<i>M</i>	58.92	53.24
<i>SD</i>	21.07	14.20
Difference	$t(621) = 9.98^a, p < .001; \text{Cohen's } d = .40^b$	

Note: a. Based on one-sample *t*-test as the raw data for the norm sample were unavailable.
b. The standard deviation for the norm group was not considered.

Next, the within-culture differences on child social competence in this sample were examined. One possible way was to conduct three-way (i.e., school x grade x child sex) ANOVAs. However, as no children at grades one and two in the urban school participated in the study, the three-way ANOVAs seemed to be inappropriate due to many empty cells. Two-way ANOVA was left as the choice.

Before conducting the two-way ANOVAs, it was first necessary to check the three assumptions for a two-way ANOVA: independent and random samples from the defined populations, normal distribution of the dependent variable, and homogeneity of variance (Hinkle, Wiersma, & Jurs, 2003). Although there were no ways to justify this sample was random from the population as in many other studies using convenient samples, the effect of the violation to the first assumption on the Type I error rate is minimal (Glass, Peckham, & Sanders, 1972). For the second assumption, as shown in Table 3.10, all variables except for social competence total were not normally distributed. Nevertheless, two-way ANOVA is robust to the violation of this assumption especially with a large sample size (Hinkle et al., 2003; Maxwell & Delaney, 2004). The assumption of homogeneity of variance was tested on six 2 x 3 (child sex x grade) two-way ANOVAs for the semi-urban school (i.e., one for each of the six dependent variables) and six 2 x 2 (child sex x school) two-way ANOVAs between the urban and semi-urban third graders. Two out of the twelve two-way ANOVAs did not meet this assumption: the one on aggressive/antisocial behavior for the semi-urban school and the one on aggressive/antisocial behavior for the third graders in the two schools.

Glass et al. (1972) stated there may be a serious possibility of changing the Type I error rate if the equal variance assumption is violated when sample sizes in the cells are unequal, which is the case for the present study. More specifically, Glass et al. argued the *F* test tends to

be too conservative when the larger cell sample has the larger variance and tends to be liberal if the larger cell sample has the smaller variance. Based on these guidelines and the variances in the cells for the two 2-way ANOVAs violating the assumption, the alpha level was kept at .05 for the first 2 x 3 two-way ANOVA as the largest variance was neither associated with the largest cell size nor with the smallest cell. For the second 2 x 2 two-way ANOVA, alpha was set to .01 to correct the liberal *F* test as the largest cell size had the smallest variance.

Table 4.5 showed the results of the six 2 x 3 (child sex x grade) two-way ANOVAs on child social competence for the semi-urban school. Neither the main effects of child sex and grade/age nor the interaction effect were found on peer relations, self-management, and social competence total. Boys and girls in each grade basically were equally competent on the positive domains of social behaviors. Hypothesis three was rejected in this school. However, the main effect of child sex was found on the total antisocial behavior and its two sub-domains. Boys had more negative social behaviors than girls, especially on the relatively serious aggressive and antisocial behaviors. Hypothesis four was supported in the semi-urban school. The practical significances in η^2 were .02 for disruptive/defiant behaviors, .06 for aggressive/antisocial, and .04 for antisocial total, implying the child sex factor could account for 2%, 6%, and 4% of the variances on the targeted variables, respectively. These values had small practical significances (Cohen, 1988).

Table 4.5
ANOVA Tables for Child Social Competence in the Semi-Urban School

HCSBS Scales	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Peer relations						
Sex	.20	1	.20	.66	<i>ns</i>	.00
Grade	.95	2	.48	1.56	<i>ns</i>	.01
Sex x Grade	.43	2	.21	.70	<i>ns</i>	.00
Error	149.24	489	.31			
Total	150.73	494				
Self-management/compliance						
Sex	.89	1	.89	2.66	<i>ns</i>	.01
Grade	.07	2	.04	.11	<i>ns</i>	.00
Sex x Grade	.12	2	.06	.17	<i>ns</i>	.00
Error	162.57	489	.33			
Total	163.69	494				
Social competence total						
Sex	.46	1	.46	1.67	<i>ns</i>	.00
Grade	.30	2	.15	.54	<i>ns</i>	.00
Sex x Grade	.16	2	.08	.29	<i>ns</i>	.00
Error	134.45	489				
Total	135.31	494				
Disruptive/defiant						
Sex	3.19	1	3.19	10.29	<.01	.02
Grade	.37	2	.19	.59	<i>ns</i>	.00
Sex x Grade	1.17	2	.58	1.87	<i>ns</i>	.00
Error	153.09	489	.31			
Total	158.35	494				
Aggressive/antisocial						
Sex	3.79	1	3.79	29.55	<.001	.06
Grade	.18	2	.09	.71	<i>ns</i>	.00
Sex x Grade	.35	2	.17	1.35	<i>ns</i>	.01
Error	62.69	489	.13			
Total	67.40	494				
Antisocial total						
Sex	3.50	1	3.50	19.25	<.001	.04
Grade	.12	2	.06	.32	<i>ns</i>	.00
Sex x Grade	.67	2	.34	1.85	<i>ns</i>	.01
Error	89.02	489	.18			
Total	93.78	494				

Note: *ns* = not statistically significant at the .05 level.

As the third graders in the two schools were from quite different familial backgrounds, it was meaningful to examine if there were any differences on child social competence for the grade three students between the two schools. Six 2 x 2 (school x gender) two-way ANOVAs were performed and the results were in Table 4.6.

The results showed, just like in the semi-urban school, there were neither main effects nor interaction effect on peer relations, self-management/compliance, and social competence total between the two schools. The male and female third graders in both schools had similar levels of social competence. Hypothesis three was again rejected for the third graders across the schools.

However, interaction effects of sex by school were found on the negative social behaviors: $F(1, 326) = 5.53, p < .05, \eta^2 = .02$ for disruptive/defiant behavior, $F(1, 326) = 9.14, p < .01, \eta^2 = .03$ for aggressive/antisocial behavior, and $F(1, 326) = 7.82, p < .01, \eta^2 = .02$ for antisocial total. These interaction effects were further examined in post-hoc tests using simple effect testing (Maxwell & Delaney, 2004). The boys in the semi-urban school were found displaying more disruptive/defiant behaviors than their female classmates ($F = 11.354, p = .001, \eta^2 = .05$) and than the boys in the urban-school ($F = 11.354, p < .001, \eta^2 = .05$).

Similar patterns were found on aggressive/antisocial behavior and antisocial total. More specifically, the boys in the semi-urban school exhibited more aggressive/antisocial behaviors than the girls in the same school ($F = 24.71, p < .001, \eta^2 = .11$) and than the boys in the urban school ($F = 6.76, p = .01, \eta^2 = .04$). Not surprisingly, they scored higher on antisocial total than their female classmates ($F = 18.24, p < .001, \eta^2 = .08$) and other boys ($F = 7.71, p < .001, \eta^2 = .04$).

There were no differences on antisocial behavior total or its sub-domains between the boys and girls in the urban school or between the girls in the two schools. Hypothesis four was not supported in the urban school.

The practical significances for the significant group differences ranged from small to medium effect sizes. In summary, these results indicated the grade three students in the two schools did not differ on the positive domains of social competence but the boys in the semi-urban school had considerably more negative social behaviors than other follow students.

Table 4.6
ANOVA Tables for the Third Graders' Social Competence in the Two Schools

<i>HCSBS Scales</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Peer relations						
Sex	.02	1	.02	.06	<i>ns</i>	.00
Grade	.75	1	.475	2.64	<i>ns</i>	.01
Sex x Grade	.01	1	.01	.03	<i>ns</i>	.00
Error	92.89	326	.305			
Total	93.68	329				
Self-management/compliance						
Sex	.70	1	.70	2.16	<i>ns</i>	.01
Grade	.04	1	.04	.13	<i>ns</i>	.00
Sex x Grade	.01	1	.01	.02	<i>ns</i>	.00
Error	106.42	326	.33			
Total	107.23	329				
Social competence total						
Sex	.11	1	.11	.41	<i>ns</i>	.00
Grade	.13	1	.13	.49	<i>ns</i>	.00
Sex x Grade	.00	1	.00	.00	<i>ns</i>	.00
Error	86.81	326				
Total	87.08	329				
Disruptive/defiant						
Sex	1.01	1	1.01	3.02	<i>ns</i>	.01
Grade	.90	1	.90	2.69	<i>ns</i>	.01
Sex x Grade	1.85	1	1.85	5.53	<.05	.02
Error	108.92	326	.33			
Total	113.58	329				
Aggressive/antisocial						
Sex	.99	1	.99	6.94	<.01	.02
Grade	.06	1	.06	.41	<i>ns</i>	.00
Sex x Grade	1.30	1	1.30	9.13	<.01	.03
Error	46.46	326	.14			
Total	49.53	329				
Antisocial total						
Sex	1.01	1	1.01	5.05	<.05	.02
Grade	.32	1	.32	1.63	<i>ns</i>	.01
Sex x Grade	1.56	1	1.56	7.82	<.01	.02
Error	64.80	326	.18			
Total	68.49	329				

Note: *ns* = not statistically significant at the .05 level.

Parenting Style

Assessment of the Psychometric Properties

Table 4.7 showed the PSDQ had alphas .91 on authoritative for both parents, .87 on authoritarian for both parents, and .64 for the mothers and .66 for the fathers on permissive style. The alphas on authoritative and authoritarian parenting were equally satisfactory as .91 and .86 in Robinson et al. (1995). The alphas on permissive parenting were somewhat lower than .76 in Robinson et al., but similar to .65 as reported by Zeng (1999) in another Chinese sample. It seemed that overall the PSDQ had acceptable alpha coefficients for this Chinese sample. Permissive parenting had lower alphas than the other two parenting styles even after adjusting to the same number of items by keeping the same interitem correlation (Peterson, 1994), implying the items targeting on permissive parenting may be problematic in the Chinese culture.

Table 4.8 showed there were moderate or high correlations between the subscales and their corresponding total scale on the PSDQ for both the mothers and fathers, indicating each subscale tapped a higher order construct exactly as claimed (Robinson et al., 1995). The strengths of intercorrelation between the subscales of the three parenting styles were, on average, -.16 for both parents between authoritative and authoritarian parenting styles, -.07 for the mothers and -.11 for the fathers between authoritative and permissive, .32 for the mothers and .31 for the fathers between authoritarian and permissive. When the above mean intercorrelations among the subscales coupled with the correlation of -.23, -.09, and .56 for the mothers and -.24, -.16 and .53 for the fathers among the three higher-order scales; the three parenting styles, on average, shared the variance of 3.7% for the mothers and 3.8% for the fathers between authoritative and authoritarian, 1% for the mothers and 2% for the fathers between authoritative and permissive, and 17.9% for the mothers and 16.4% for the fathers

between authoritarian and permissive, indicating the three scales overall had much more separate variance than shared variance. However, the moderate correlations between authoritarian and permissive parenting in both parents may suggest permissive parenting on the PSDQ is a less distinct construct in concurrently considering its low reliability in this Chinese sample. In conclusion, the proposed three categories of parenting styles were somewhat supported in this Chinese sample although there may be a challenge on permissive parenting.

Table 4.7
Alpha Coefficients for Parenting Styles on the PSDQ

Subscales	No. of items	Mothers		Fathers	
		<i>N</i>	α	<i>N</i>	α
Authoritative	26	548	.91	531	.91
Warmth and involvement	11	548	.83	531	.80
Reasoning/induction	7	548	.77	531	.77
Democratic participation	4	548	.64	531	.69
Easy going	4	548	.67	531	.73
Authoritarian	17	548	.87	531	.87
Verbal hostility	3	548	.68	531	.70
Corporal punishment	6	548	.88	531	.83
Non-reasoning	5	548	.59	531	.64
Directiveness	3	548	.53	531	.47
Permissive	13	548	.64	531	.66
Lack of follow through	5	548	.49	531	.47
Ignoring misbehavior	4	548	.39	531	.55
Lack of self-confidence	4	548	.56	531	.48

Table 4.8
Intercorrelations among the Subscales and Total Scores on the PSDQ

Parenting Scales	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Warmth and involvement	-	.69 ^b	.64	.73	.93	-.13	-.21	-.20	.02	-.19	.18	-.06	-.35	-.07
2. Reasoning/induction	.68 ^a	-	.62	.57	.85	-.13	-.14	-.18	.12	-.12	.02	-.14	-.34	-.19
3. Democratic participation	.67	.61	-	.57	.79	-.22	-.23	-.20	-.08	-.24	.03	-.05	-.32	-.14
4. Good natured/easy going	.67	.51	.58	-	.82	-.31	-.35	-.31	-.05	-.34	.02	-.12	-.42	-.22
5. PSDQ - Authoritative	.94	.84	.81	.77	-	-.20	-.26	-.25	.02	-.24	.10	-.10	-.41	-.16
6. Verbal hostility	-.04	-.06	-.15	-.30	-.12	-	.66	.48	.39	.77	.33	.26	.41	.45
7. Corporal punishment	-.19	-.10	-.28	-.38	-.25	.69	-	.56	.45	.89	.23	.23	.44	.40
8. Non-reasoning	-.23	-.17	-.24	-.27	-.26	.44	.58	-	.46	.81	.36	.34	.42	.51
9. Directiveness	-.03	.09	-.10	-.17	-.04	.48	.54	.52	-	.68	.28	.19	.26	.34
10. PSDQ - Authoritarian	-.17	-.09	-.26	-.36	-.23	.79	.90	.79	.74	-	.37	.32	.49	.53
11. Lack of follow-through	.20	.09	.10	.07	.15	.34	.25	.39	.31	.38	-	.29	.30	.77
12. Ignoring misbehavior	-.06	-.13	-.03	-.02	-.08	.12	.14	.30	.16	.22	.21	-	.31	.71
13. Self-confidence	-.27	-.24	-.25	-.32	-.31	.43	.45	.56	.42	.57	.32	.25	-	.70
14. PSDQ - Permissive	-.04	-.11	-.07	-.12	-.09	.43	.40	.59	.43	.56	.77	.63	.73	-

Note: a. Numbers below the diagonal were for the mother sample ($N = 548$).

b. Numbers above the diagonal were for the father sample ($N = 531$).

Descriptive Statistics

First of all, it may be interesting to find out how many parents claim them as authoritative, authoritarian, permissive, or balanced. If a parent scored the highest on authoritative parenting, that person was designated as authoritative. The same logic was applied to the detections of the authoritarian and permissive parents. If a parent had an equally highest score on two or three parenting styles, that person was classified as balanced. Table 4.9 showed that over 91% of the both parents were authoritative, about 5% were authoritarian, about 1-2% were permissive, and less than 1% were balanced.

Table 4.9
Percentages of Different Types of Parents in Parenting Style

Type of parents	Mothers (<i>N</i> = 548)		Fathers (<i>N</i> = 532)	
	<i>n</i>	Percentage	<i>n</i>	Percentage
Authoritative	509	92.9	487	91.5
Authoritarian	28	5.1	30	5.6
Permissive	7	1.3	14	2.6
Balanced	4 ^a	.7	1 ^b	.2

Note: a. The four mothers had the same highest score on authoritative and authoritarian.

b. The father had the equally highest score on authoritarian and permissive parenting.

Table 4.10 listed the means and standard deviations for parents' self ratings on the three parenting styles. Both the mothers and fathers reported higher scores on authoritative parenting than on authoritarian and permissive parenting. In further exploring the differences on the three parenting styles in the mothers or fathers, a set of paired-sample *t* test were conducted. The

results indicated the difference between authoritative and authoritarian parenting was both statistically and practically significant: $t(547) = 38.60, p < .001, d = 2.58$ for the mothers; and $t(530) = 37.13, p < .001, d = 2.54$ for the fathers. The difference between authoritative parenting and permissive parenting was also similarly significant: $t(547) = 49.10, p < .001, d = 3.10$ for the mothers, and $t(530) = 42.31, p < .001, d = 2.80$ for the fathers. Hypothesis five was supported. However, the differences between authoritarian and permissive parenting in both parents had much smaller effect sizes although they were statistically significant: $t(547) = 5.41, p < .001, d = .22$ for mothers; and $t(530) = 2.08, p < .05, d = .09$. These results evidenced the necessity of reporting both statistical and practical significances especially when the sample size is large, which often elevates the likelihood of finding statistical significances. In summary, the results demonstrated that both the Chinese mothers and fathers perceived themselves much more authoritative than authoritarian or permissive. But the differences between authoritarian and permissive parenting were practically small.

Group Differences

To understand whether the mothers and fathers parent their child differently, a series of paired-sample t test were performed. The results were also in Table 4.10. In addition, Table 4.10 displayed the paired-sample correlation coefficients between the couples and the magnitudes of the practical difference in Cohn's d for the between-group differences on the subscales and the three higher-order scales. The table clearly showed the couple in a family positively correlated with each other at the .001 level on all of the parenting dimensions at either a moderate or moderate low degree (Cohen, 1988), implying the couple within a family tended to be very similar on parenting. Conversely, contrary to hypothesis six, the mothers scored higher than the fathers on all of the dimensions at the .01 level except for on non-reasoning and ignoring

misbehaviors. Although statistically significant, most of the within-couple differences had small practical significances except for the medium effect sizes on warmth involvement ($d = .58$) and verbal hostility ($d = .46$). In summary, the above results indicated the couple tended to have similar parenting styles. And the mother was more authoritative, more authoritarian, and more permissive than the father. This was especially true on warmth involvement and verbal hostility.

Table 4.10
Descriptive Statistics and the Within-Couple Differences on Parenting Styles

Parenting subscales	<i>Mothers</i> (<i>N</i> = 548)		<i>Fathers</i> (<i>N</i> = 532)		<i>Paired-sample</i> <i>correlation</i> (<i>N</i> = 492)	<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Authoritative	3.69	.54	3.47	.55	.35***	5.94	***	.31
Warmth and involvement	3.78	.60	3.42	.58	.33***	11.08	***	.58
Reasoning/induction	3.64	.61	3.51	.62	.26***	3.32	***	.18
Democratic participation	3.50	.71	3.34	.72	.31***	4.16	***	.22
Easy going	3.77	.64	3.63	.70	.24***	3.13	**	.17
Authoritarian	2.28	.55	2.13	.51	.31***	5.49	***	.29
Verbal hostility	2.48	.77	2.16	.64	.21***	8.06	***	.46
Corporal punishment	2.12	.66	1.95	.63	.30***	5.01	***	.27
Non-reasoning	2.08	.60	2.04	.61	.24***	1.24	<i>ns</i>	.07
Directiveness	2.73	.71	2.60	.66	.24***	3.27	***	.18
Permissive	2.17	.44	2.09	.43	.28***	3.78	***	.20
Lack of follow through	2.49	.61	2.39	.60	.21***	2.97	**	.17
Ignoring misbehavior	1.75	.56	1.75	.60	.24***	.56	<i>ns</i>	.03
Lack of self-confidence	2.19	.66	2.05	.59	.30***	4.32	***	.23

Note: ** $p < .01$; *** $p < .001$
ns = not statistically significant at the .05 level.

To examine if the parents treat the boys and girls differently in concurrently considering the familial SES, six 2 x 2 (child sex x SES) two-way ANOVAs were conducted, separately for the mothers and fathers. The assumption of homogeneity of variance was met in all of the six ANOVAs. As SES was an ordinal variable with 18 distinct values in unequal group sizes as demonstrated in Table 4.11, arbitrary cutoff points had to be established to split the sample into equal groups (Pedhazur & Schmelkin, 1991). The SES data distribution seemed to suggest that two groups were reasonable. Hence, families with a SES value of 30 and below were deemed the low SES group ($N = 270$) and the others were in the high SES group ($N = 278$).

Table 4.11
Values and Frequencies of Familial SES

SES	Number of families	Percentage	Accumulated percentage
15.00	3	.5	.5
19.00	78	12.4	12.9
22.00	2	.3	13.2
23.00	5	.8	14.0
26.00	211	33.6	47.6
29.00	2	.3	47.9
30.00	21	3.3	51.3
33.00	44	7.0	58.3
34.00	2	.3	58.6
36.00	1	.2	58.8
37.00	75	11.9	70.7
40.00	21	3.3	74.0
44.00	133	21.2	95.2
48.00	16	2.5	97.8
51.00	8	1.3	99.0
55.00	5	.8	99.8
75.00	1	.2	100.0
Total	628	100.0	

Table 4.12 listed the means and standard deviations of the three parenting scores by child sex and family SES for both the mothers and fathers. Tables 4.13-4.14 showed the results of the two-way ANOVAs. Table 4.13 indicated there was no main effect of child sex on authoritative and authoritarian parenting. The mothers treated the boys and girls equally authoritative and authoritarian: $F(1, 544) = 2.22, p > .05$; $F(1, 544) = 1.26, p > .05$. Hypotheses seven and eight were supported for the mother sample. The main effect of SES was found as expected. The mothers in the low SES families were less authoritative and more authoritarian toward their children than those in the high SES group with small sizes of practical significance: $F(1, 544) = 9.84, p < .01, \eta^2 = .02$ for authoritative parenting; and $F(1, 544) = 7.26, p < .01, \eta^2 = .01$ for authoritarian parenting. Hypotheses ten and eleven were supported in the mothers. Interestingly, an interaction effect was found on permissive parenting: $F(1, 544) = 4.20, p = .041, \eta^2 = .01$. More specifically, the mothers in the high SES group were more permissive toward girls than toward boys. Hypothesis nine was rejected in the mothers on permissive parenting.

The father sample revealed quite different patterns as shown in Table 4.14. An interaction effect was found on authoritative parenting: $F(1, 527) = 4.66, p = .031, \eta^2 = .01$. More specifically, the fathers from the high SES families were more authoritative toward their sons than the low SES fathers toward their boys, whereas the fathers in the two groups were equally authoritative toward their daughters. As this interaction effect was ordinal, the significant main effect of family SES was supported as well. The fathers from the high SES families were more authoritative than the low SES fathers: $F(1, 527) = 8.35, p < .01, \eta^2 = .02$. Hypothesis ten was also supported in the fathers. For authoritarian parenting, only the child sex main effect was found: $F(1, 527) = 6.10, p = .014, \eta^2 = .01$. The fathers tended to be more authoritarian toward boys than toward girls. Hypotheses eight and eleven were rejected for the father sample. Neither

main effects nor an interaction effect on permissive parenting were found. The fathers were equally permissive toward their children in the both the low and high SES families. Hypothesis nine was supported.

In summary, the above results suggested the main and interaction effects of child sex and family SES was not consistent across the mother and father samples. In general, the parents treated the boys and girls in similar ways. However, the parents in the low SES families were likely to be more authoritarian and less authoritative toward their children than the parents with high SES. The fathers were more likely to be authoritarian toward their sons than toward their daughters. Family SES seemed to be a more important factor than child sex in differentiating parenting styles.

Table 4.12
Means and Standard Deviations of Parenting Scores by Child Sex and SES

Parenting styles	Low SES						High SES					
	Girls			Boys			Girls			Boys		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Mothers												
Authoritative	122	3.70	.53	148	3.55	.58	132	3.76	.51	146	3.78	.52
Authoritarian	122	2.31	.60	148	2.38	.57	132	2.20	.50	146	2.24	.52
Permissive	122	2.15	.44	148	2.21	.46	132	2.21	.43	146	2.16	.44
Fathers												
Authoritative	120	3.46	.54	146	3.34	.58	128	3.49	.54	137	3.58	.49
Authoritarian	120	2.09	.50	146	2.18	.50	128	2.05	.55	137	2.18	.48
Permissive	120	2.11	.46	146	2.05	.42	128	2.10	.46	137	2.09	.40

Table 4.13
ANOVA Tables for Mothers' Parenting Styles on Boys and Girls

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Authoritative						
Child sex	.63	1	.63	2.22	.137	.00
Family SES	2.81	1	2.81	9.84	.002	.02
Child sex x Family SES	.94	1	.94	3.30	.070	.01
Error	155.25	544	.29			
Total	159.92	547				
Authoritarian						
Child sex	.380	1	.38	1.26	.262	.00
Family SES	2.189	1	2.19	7.26	.007	.01
Child Sex x Family SES	.013	1	.01	.04	.833	.00
Error	163.93	544	.30			
Total	166.59	547				
Permissive						
Child sex	.04	1	.04	.22	.643	.00
Family SES	.02	1	.02	.08	.772	.00
Child sex x Family SES	.79	1	.79	4.20	.041	.01
Error	103.02	544	.19			
Total	103.89	547				

Table 4.14
ANOVA Tables for Fathers' Parenting Styles on Boys and Girls

Parenting styles	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Authoritative						
Child sex	.02	1	.02	.06	.812	.00
Family SES	2.45	1	2.45	8.35	.004	.02
Child sex x Family SES	1.37	1	1.37	4.66	.031	.01
Error	154.35	527	.29			
Total	158.46	530				
Authoritarian						
Child sex	1.559	1	1.56	6.10	.014	.01
Family SES	.055	1	.06	.22	.642	.00
Child Sex x Family SES	.064	1	.06	.25	.616	.00
Error	134.74	527	.26			
Total	136.43	530				
Permissive						
Child sex	.20	1	.20	1.04	.309	.00
Family SES	.04	1	.04	.20	.652	.00
Child sex x Family SES	.10	1	.10	.52	.469	.00
Error	99.70	527	.19			
Total	100.05	530				

Child Temperament

Assessment of Psychometric Properties

Table 4.15 showed the alpha coefficients for the nine dimensions of DOTS-R were from .51 to .72, somewhat below those in the range of .54 to .81 with a sample of 224 American elementary school students (Windle & Lerner, 1986). Given the few number of items comprising each dimension and the fact that these alphas were close to Windle and Lerner's, the reliability coefficients were considered acceptable although a few were slightly below .60. Table 4.16 listed the interrelations among the nine dimensions. The coefficients varied from .04 to .40. Although most of these correlations were statistically significant, the strengths of the associations were small. They did not suggest higher order factors as in Windle (1992a). Therefore, the claimed structure of the DOTS-R in nine separate dimensions (Windle & Lerner) appeared to be held in this sample.

Table 4.15
Alpha Coefficients on DOTS-R

Dimensions	Number of items	Sample size	α
Activity level-general	7	621	.72
	7	224 ^a	.75 ^b
Activity level-sleep	3	621	.72
	4	224	.81
Approach/withdrawal	6	621	.51
	7	224	.77
Flexibility/rigidity	4	621	.52
	5	224	.62
Mood	7	621	.67
	7	224	.80
Rhythmicity-sleep	5	621	.59
	6	224	.69
Rhythmicity-eating	5	621	.71
	5	224	.75
Rhythmicity-habits	5	621	.51
	5	224	.54
Task orientation	8	621	.72
	8	224	.70

Note: a. Numbers in the second row were those reported in the test manual.

b. The coefficients were in Windle & Lerner (1986) for a sample of 224 U. S. sixth graders.

Table 4.16
Correlation Matrix of the DOTS-R

Traits of temperament	1	2	3	4	5	6	7	8	9
1. Activity level-general	-								
2. Activity level-sleep	.29 ^b	-							
3. Approach/withdrawal	.18 ^b	.05	-						
4. Flexibility/rigidity	-.35 ^b	-.26 ^b	.00	-					
5. Mood	-.07	.04	.22 ^b	.10 ^a	-				
6. Rhythmicity-sleep	-.07	-.08 ^a	.10 ^a	.08 ^a	.11 ^a	-			
7. Rhythmicity-eating	-.09 ^a	-.09 ^a	.22 ^b	.11 ^b	.19 ^b	.42 ^b	-		
8. Rhythmicity-habits	-.13 ^b	-.06	.15 ^b	.14 ^b	.20 ^b	.39 ^b	.38 ^b	-	
9. Task orientation	-.40 ^b	-.14 ^b	.04	.16 ^b	.13 ^b	.24 ^b	.24 ^b	.22 ^b	-

Note: $N = 621$; $a = p < .05$, $b = p < .01$.

Descriptive Statistics

Table 4.17 listed the means and standard deviations on all of the nine temperament dimensions and the derived DTI score for the Chinese children. In order to compare with American samples, the means and standard deviations were based on the total raw score for all of the items in each factor, including the four items excluded for the SEM model testing. The Chinese children as a whole had a DTI value of 1.74 and a standard deviation 1.30, implying they had somewhat difficult temperament, but with a large variation. Interpretations of the descriptive statistics on other temperament variables were omitted as they were not used in the SEM model testing.

Group Differences

The central interests in the group difference on temperament were (a) whether the Chinese girls and boys had similar temperament profiles, and (b) whether the Chinese children as a whole were similar to their American counterparts on temperament. For the within-culture differences, a set of independent-sample t-test were conducted on the total raw score for each temperament dimension without excluding any items, to be consistent with the later cross-cultural comparison. The results in Table 4.17 showed that the Chinese boys and girls did not differ from each other on five out of nine temperament traits. But the girls were less active than the boys with a small effect size: $t(619) = -3.89, p < .001, d = -.31$. The girls were also found to be less rhythmic than the boys with small effect sizes: $t(619) = -2.32, p < .05, d = -.20$ for rhythmicity-sleep; $t(619) = -2.02, p < .05, d = -.16$ for rhythmicity-eating; and $t(619) = -2.07, p < .05, d = -.17$ for rhythmicity-daily habits. These results seemed to indicate the boys have more regularity of sleeping behaviors, eating behaviors, and daily habits than girls. Due to the small practical differences on these four temperament dimensions with statistical difference and no differences on other five dimensions, Hypothesis 12 was considered supported, that is, the Chinese boys and girls had similar temperament profiles. On the global measure of the difficult temperament (DTI), no difference was found either. Both the boys and girls had similar degrees of difficult temperament. Hypothesis 13 was supported.

For the cross-cultural comparison, whereas it was desirable to have comparable samples, however, such samples were unavailable to be located. Nevertheless, the DOTS-R has the advantage of continuity of cross-ages (Windle & Lerner, 1986), and some researchers used the statistics from Windle's (1992a) sample on the high school students (predominantly White adolescents) as the population parameters. For instance, Chang, Blasey, Ketter, and Steiner

(2003) compared their teenage sample (mean age, 10.7 ± 3.3 years) with Windle's sample (mean age, $15.54 \pm .66$ years). This study adopted the same approach and compared the current Chinese sample with Windle's sample on the nine dimension of the DOTS-R.

As seen in Table 4.17, the standard deviations for the American sample seemed to be larger than those for the current sample. The tests on the homogeneity of variances showed the assumption was violated on all of the nine temperament dimensions. Accordingly, the t values were manually calculated and compared with the critical values for the adjusted degrees of freedom (Hinkle et al., 2003). The results in Table 4.17 indicated the Chinese sample differed from the American sample on all dimensions except for task orientation. Chinese children were less active: $t(756) = -9.29, p < .001$; had lower sleep activity levels: $t(786) = -10.95, p < .001$; were less likely to approach novelty: $t(752) = -9.41, p < .001$; were less flexible in behavior style: $t(751) = -2.63, p < .01$; and had a less positive quality of mood: $t(760) = -17.52, p < .001$. The practical significances of the differences ranged from small to large with the mood dimension having the largest gap ($d = .85$) followed by activity-sleep ($d = .52$), approach ($d = .46$), and activity-general ($d = .45$). However, the Chinese children had higher regularity in sleeping behaviors: $t(774) = 16.88, p < .001, d = .81$, eating behavior: $t(776) = 7.36, p < .001, d = .35$; and daily habit: $t(739) = 9.81, p < .001, d = .49$. Hypothesis 14 was rejected.

For the DTI, no studies were found reporting the DTI values for the typically developing American children. To get an approximation about how the typically developing Chinese children were different from the American children, Sterry's (2003) sample with two hundred seventy five 8-16-year-old American children (mean age = 11.9 years) was used for the cross-cultural comparison on the DTI. Sterry stated that the American children in her sample had been treated for cancer, sickle cell disease, hemophilia, migraine disorder, or juvenile rheumatoid

arthritis but attending schools regularly and not enrolling in the full time special education classes. It was not surprising to find the Chinese sample had an easier temperament than this group of atypically developing American children: $t(318) = -7.02, p < .001, d = -.54$. It should be cautioned, however, these cultural-cross differences on child temperament were based on the Chinese and American children with some dramatic differences on sample characteristics. When more equivalent samples become available, the new comparisons may be more meaningful.

Table 4.17
Descriptive Statistics of Temperament and the Group Differences

Temperament traits	Chinese			Americans	$t1^e$	$p1^e$	$d1^e$	$t2^f$	$df^{f,g}$	$p2^f$	$d2^f$
	Girls ($n = 294$)	Boys ($n = 327$)	All ($N = 621$)	All							
1. Activity level-general	16.85(3.55) ^a	18.00(3.77)	17.46(3.71)	19.4(4.6) ^c	-3.89	<.001	-.31	-9.29	756	<.001	-0.45
2. Activity level-sleep	9.40(2.41)	9.29(2.47)	9.34(2.44)	11.0(3.6)	.54	<i>ns</i>	.02	-10.95	786	<.001	-0.52
3. Approach /withdrawal	18.09(3.02)	18.45(2.76)	18.28(2.89)	19.8(3.5)	-1.56	<i>ns</i>	-.07	-9.41	752	<.001	-0.46
4. Flexibility/rigidity	14.31(2.20)	14.61(2.27)	14.47(2.24)	14.8(2.7)	-1.76	<i>ns</i>	-.06	-2.63	751	<.01	-0.13
5. Mood	20.49(3.35)	20.68(3.27)	20.59(3.31)	23.9(4.2)	-.69	<i>ns</i>	-.06	-17.52	760	<.001	-0.85
6. Rhythmicity-sleep	17.17(2.53)	17.66(2.66)	17.43(2.61)	14.8(3.6)	-2.32	<.05	-.20	16.88	774	<.001	0.81
7. Rhythmicity-eating	14.32(2.66)	14.74(2.49)	14.54(2.58)	13.4(3.6)	-2.02	<.05	-.16	7.36	776	<.001	0.35
8. Rhythmicity-habits	13.36(2.40)	13.76(2.42)	13.58(2.42)	12.3(2.7)	-2.07	<.05	-.17	9.81	739	<.001	0.49
9. Task orientation	19.81(3.82)	19.99(3.74)	19.90(3.77)	19.6(5.1)	-.61	<i>ns</i>	-.05	1.36	770	<i>ns</i>	0.07
10. DTI	1.80(1.32) ^b	1.70(1.27)	1.74(1.30)	2.48(1.52) ^d	.95	<i>ns</i>	.08	-7.02	318	<.001	-0.54

Note: *a.* Standard deviations in parentheses. The total factor scores on all of the items were used for the cross-cultural comparisons; *b.* Derived from the scores excluding the four low reliable items; *c.* From Windle (1992a), $N = 975$; *d.* from Sterry (2003), $N = 275$; *e.* $t1$, $p1$, and $d1$ were for the gender difference in the Chinese sample; *f.* $t2$, $p2$, $d2$ were for the cross-cultural differences between the Chinese sample and American sample; *g.* The df and t values were manually calculated based on Hinkle et al. (2003) as the assumption of homogeneity of variance was violated on every variable. The significance was determined against the critical value for the computed df .

Parent-Child Relationship

Assessment of the Psychometric Properties

Table 4.18 listed the alpha coefficients on the *Parent-Child Relationship Questionnaire* (PCRQ) for the four different views: the mother's view of mother-child relationship, the father's view of father-child relationship, the child's view of child-mother relationship, and the child's view of child-father relationship. The alphas ranged from .56 to .82 (mean = .74) for the mothers, from .59 to .84 (mean = .76) for the fathers, from .47 to .84 (mean = .69) for the child's view of child-mother relationship, and from .49 to .81 (mean = .69) for the child's view on child-father relationship. The parent groups had similar alphas. Children also demonstrated similar alphas in evaluating their relationships with their parents, but the alphas were somewhat lower than those for the parent groups. As the alphas on possessiveness were low across the board and below .60, the minimum acceptable threshold (Devillis, 1991), possessiveness was excluded in the model testing, but still retained in the univariate analysis. Overall, these alphas were equally acceptable as in other studies with American samples (e.g., Feinfield & Baker, 2004; Gerdes et al., 2003).

Table 4.18
Alpha Coefficients on Parent-Child Relation Questionnaire (PCRQ)

Subscales	Number of items	Alpha Coefficients			
		<u>Mother→Child</u> (N = 550)	<u>Father→Child</u> (N=538)	<u>Child→Mother</u> (N = 632)	<u>Child→Father</u> (N = 631)
Possessiveness	5	.56	.59	.47	.49
Power assertion	11	.82	.84	.84	.81
Warmth	6	.77	.79	.74	.76
Personal relations	10	.80	.82	.77	.79
Discipline warmth	6	.76	.78	.64	.62

Table 4.19 showed the inter-factor correlations on the PCRQ. Similar patterns were found in all of the four views. The three positive dimensions of parent-child relationship (i.e., warmth involvement, personal relationship, and disciplinary warmth) were highly correlated to one another (mean $r = .68$ in the mother's view, $.69$ in the father's view, $.64$ in the child's view of child-mother relationship, and $.68$ in the child's view of child-father relationship). The high interdependence of these three positive factors may suggest that they all tap a higher order construct such as positive parent-child relationship. Power assertion negatively related to the three positive dimensions of parent-child relationship at a moderate degree in all of the four views. The relatively high alphas on power assertion and the small common variances between power assertion and other four factors suggested it was an independent quality of parent-child relationship. Possessiveness exhibited complex correlation patterns in the four views. Whereas it was positively correlated to power assertion in both parents at a low degree ($r = .13$ for the mothers and $.23$ for the fathers), surprisingly, it was positively correlated with the three positive dimensions as well, even at moderate degrees in both of the parent groups ($r = .26, .31,$ and $.23$ for the mothers, and $r = .36, .37,$ and $.35$ for the fathers).

In the child sample, the small significant positive link between possessiveness and power assertion disappeared in the two views ($r = .07$ for child-mother relationship and $.01$ for child-father relationship). However, the positive associations between possessiveness and the three positive dimensions of parent-child relationship were again appearing, even at larger degrees in the child's views of child-mother relationship ($r_s = .46, .50,$ and $.43,$ respectively) and child-father relationship ($r_s = .51, .53,$ and $.45,$ respectively) than those in the parent samples. These results on possessiveness seemed to suggest the Chinese children perceived their parents' protections and possessiveness as positive. Although possessiveness was originally designed as a

negative quality of parent-child relationship in the American culture (Furman & Giberson, 1995), this study found it was less distinct and yielded less clear relationships with other variables than the other four factors on the PCRQ in the Chinese culture, just as in other studies with American samples (e.g., Furman & Giberson). Overall, possessiveness might be considered as a positive construct of parent-child relationships in this Chinese sample due to its moderate associations with the other three positive dimensions in all of the four views.

In summary, the PCRQ had acceptable or satisfactory reliability after excluding possessiveness. The analysis of the factor structure on the PCRQ seemed to suggest that: (a) Warmth involvement, personal relations, and disciplinary warmth are highly correlated to one another, possibly tapping on a higher-order positive parent-child relationship; (b) power assertion is independent of the other three highly correlated positive factors of parent-child relationship, implying it is a unique construct targeting on the negative quality of parent-child relationship; and (c) possessiveness is a troublesome construct, deserving further investigation.

Descriptive Statistics

Table 4.20 listed the means and standard deviations on the five dimensions of the PCRQ in the four views. Overall, these four views revealed similar patterns. The mean scores for power assertion ranged from 2.41 to 2.53, indicating the Chinese parents and children felt they had somewhat power struggling in their relationships. The mean scores for other four dimensions were all between 3 and 4, implying somewhere between *somewhat* and *very much*. Warmth involvement had the highest scores (mean = 3.75 for both parents, 3.91 for child rating with mother, 3.77 for child rating with father), followed by personal relationship (mean = 3.50, 3.39, 3.61, and 3.46 in the four views, respectively), disciplinary warmth (mean = 3.42, 3.34, 3.23, and 3.10, respectively), and possessives (mean = 3.26, 3.30, 3.56, and 3.42, respectively).

Table 4.19
Intercorrelations among the Subscales of the PCRQ in Four Different Views

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. PO - M	-																			
2. PA - M	.13 ^a	-																		
3. WI - M	.26 ^b	-.33 ^b	-																	
4. PCR - M	.31 ^b	-.18 ^b	.69 ^b	-																
5. DW - M	.23 ^b	-.17 ^b	.64 ^b	.72 ^b	-															
6. PO - F						-														
7. PA - F						.23 ^b	-													
8. WI - F						.36 ^b	-.20 ^b	-												
9. PCR - F						.37 ^b	-.03	.72 ^b	-											
10. DW - F						.35 ^b	.05	.63 ^b	.73 ^b	-										
11. PO - CM											-									
12. PA - CM											.07	-								
13. WI - CM											.46 ^b	-.25 ^b	-							
14. PCR - CM											.50 ^b	-.18 ^b	.70 ^b	-						
15. DW - CM											.43 ^b	-.05	.58 ^b	.64 ^b	-					
16. PO - CF																-				
17. PA - CF																.01	-			
18. WI - CF																.51 ^b	-.25 ^b	-		
19. PCR - CF																.53 ^b	-.19 ^b	.72 ^b	-	
20. DW - CF																.45 ^b	-.07	.64 ^b	.67 ^b	-

Note: PO – Possessiveness, PA – Power assertion, WI – Warmth involvement, PCR – Personal relationship, DW – Disciplinary warmth.
M – Mother’s view ($N = 550$), F – Father’s view ($N = 538$), CM – Child’s view with mother ($N=632$), CF - Child’s view with father ($N = 631$).
 $a = p < .01$; $b = p < .001$

Table 4.20
Descriptive Statistics of Parent-child Relationship in the Four Views

Subscale	Mother→Child (<i>N</i> = 550)		Father→Child (<i>N</i> = 538)		Child→Mother (<i>N</i> = 632)		Child→Father (<i>N</i> = 631)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Possessiveness	3.26	0.57	3.30	0.57	3.56	0.83	3.42	0.85
Power assertion	2.55	0.52	2.41	0.54	2.53	0.93	2.44	0.89
Warmth involvement	3.75	0.56	3.75	0.58	3.91	0.85	3.77	0.91
Personal relationship	3.50	0.49	3.39	0.52	3.61	0.81	3.46	0.85
Disciplinary warmth	3.42	0.58	3.34	0.60	3.23	0.89	3.10	0.88

Group Differences

The group differences on parent-child relationship focused on four comparisons: (a) the difference between the mother's view and the father's view of parent-child relationship, (b) the difference between the child's views on child-mother relationship and child-father relationship, (c) the difference between the mother's view and the child's view on mother-child relationship, and (d) the difference between the father's view and the child's view on father-child relationship. For the first comparison, although both parents rated their relationships with their child similarly at a moderate degree on all dimensions ($r = .21, .30, .34, .34, \text{ and } .41$, respectively) as shown in Table 4.21, the mothers reported more power assertion: $t(489) = 4.61, p < .001$; more personal relationships; $t(489) = 4.27, p < .001$; and more disciplinary warmth: $t(489) = 2.71, p < .01$. Hypothesis 15 was rejected. But the practical significances were small with the effect sizes of .25, .22, and .13, respectively.

Children perceived their relationships with their parents very similarly in every aspect ($r = .72, .76, .71, .72, \text{ and } .75$, respectively). Even so, children expressed their relationships with

their mothers were more intensive than with their fathers on every dimension: $t(629) = 5.57, p < .001, d = .17$ for possessiveness; $t(629) = 3.33, p = .001, d = .09$ for power assertion; $t(629) = 5.19, p < .001, d = .16$ for warmth involvement; $t(629) = 5.95, p < .001, d = .18$ for personal relationship; and $t(629) = 4.76, p < .001, d = .13$ for disciplinary warmth. Hypothesis 16 was rejected.

When comparing mother's view with child's view on mother-child relationship, both parties' views were positively correlated with each other on power assertion, warmth involvement, and disciplinary warmth at low degrees ($r = .24, .11, \text{ and } .12$, respectively). The children perceived their mothers had more possessiveness and protections: $t(544) = 7.12, p < .001, d = .42$; more warm involvement: $t(544) = 4.66, p < .001, d = .27$; and more companionate and intimate behaviors: $t(544) = 3.15, p < .01, d = .19$ than the mothers did. However, the mothers thought they had more disciplinary warmth: $t(544) = 4.37, p < .001, d = .25$ than their children reported. Hypothesis 17 was rejected.

Similar small positive correlations were found between fathers' view and children's view on father-child relationship. The two parties' views on the father-child relationships were similar on power assertion, warmth involvement, and personal relationship ($r = .17, .18, \text{ and } .11$, respectively). But the children perceived their fathers had higher possessiveness than did the fathers: $t(532) = 3.18, p < .01, d = .19$; and the fathers reported more disciplinary warmth than their children perceived: $t(532) = 5.88, p < .01, d = .34$. Hypothesis 18 was rejected.

In summary, all of the four separate views on the parent-child relationships were positively correlated with one another in general with the correlation coefficients ranging from very small to large. However, there were many small practical differences on the perceived parent-child relationships among the four different views. The null hypothesis was statistically

rejected in most of the cases on the four pairs of comparisons. The mothers seemed to engage deeper into the parent-child relationship than the fathers, which was demonstrated in both the parents' and child's views. Whereas both the parents and the child perceived parents' power assertion similarly, the perception discrepancy existed on other aspects of the parent-child relationship between the two parties. The parents reported more disciplinary warmth, less possessiveness, less warmth involvement, and less personal relation in the parent-child relationship than the child did, this was especially true for the mothers.

Table 4.21
Differences on the Parent-child Relationship among the Four Views

Variable	Mother's vs. Father's (N = 490)				Child's on Mother vs. on Father (N = 630)				Mother's vs. Child's (N = 545)				Father's vs. Child's (N = 533)			
	<i>r</i>	<i>t</i>	<i>p</i>	<i>d</i>	<i>r</i>	<i>t</i>	<i>p</i>	<i>d</i>	<i>r</i>	<i>t</i>	<i>p</i>	<i>d</i>	<i>r</i>	<i>t</i>	<i>p</i>	<i>d</i>
PO	.21**	-1.36	.174	-.08	.72**	5.57	.000	.17	.07	-7.12	.000	-.42	.08	-3.18	.002	-.19
PA	.30**	4.61	.000	.25	.76**	3.33	.001	.09	.24**	1.08	.280	.06	.17**	-1.10	.273	-.06
WI	.34**	-.10	.917	-.01	.71**	5.19	.000	.16	.11*	-4.66	.000	-.27	.18**	-.66	.509	-.04
PCR	.34**	4.27	.000	.22	.72**	5.95	.000	.18	.06	-3.15	.002	-.19	.04	-1.48	.138	-.09
DW	.41**	2.71	.007	.13	.75**	4.76	.000	.13	.12**	4.37	.000	.25	.11*	5.88	.000	.34

Note: PO – Possessiveness, PA – Power Assertion, WI – Warmth Involvement, PCR – Personal Relations, DW – Discipline Warmth
 * $p < .05$; ** $p < .01$

Family Functioning

Assessment of the Psychometric Properties

Table 4.22 showed the alpha coefficients ranging from .50 to .76 for the mothers and from .53 to .80 for the fathers on the six FACES IV scales, noticeably below .77 to .89 reported in the manual for a sample of 469 American adults (Olsen et al., 2004). The alphas for communication and satisfaction were .89 and .92 for the Chinese parents, comparable to .88 in 1,841 Americans and .92 in 1,253 adult family members in the United States (Olsen, 2004 in Olsen et al.). Whereas the relatively low alphas may suggest further investigation needed in the future to examine the factors which may influence the low response consistency such as the sample characteristics, the cultural validity of the intrinsic meaning of the items, or the literal meaning of the items, these coefficients were marginally acceptable for the present study.

Table 4.22

Alpha Coefficients for Family Adaptability and Cohesion Scales (FACES IV)

FACES IV subscales	No. of Items	Mothers		Fathers	
		<i>N</i>	α	<i>N</i>	α
Balanced cohesion	7	546	.76	538	.80
Balanced flexibility	7	546	.63	538	.68
Disengaged	7	546	.58	538	.61
Enmeshed	7	546	.50	538	.53
Rigid	7	546	.65	538	.67
Chaotic	7	546	.51	538	.65
Communication	10	545	.89	538	.90
Satisfaction	10	545	.91	538	.92

Tables 4.23 showed that most of the correlations between the six scales were significant and they all were in the desired directions for both the mothers and fathers as in Olsen et al. (2004). Also similar to Olsen et al.'s study, small significant correlations of Disengaged/Enmeshed and Rigid/Chaotic were found: .20 and .16 for the mothers, and .23 and .25 for the fathers. The correlations between the two balanced scales were .48 for the mothers and .51 for the fathers, desirably smaller than .60 in Olsen et al.'s study. But these moderate correlations may still suggest somewhat lack of independence between the balanced cohesion and balanced flexibility. Nevertheless, Doherty and Hovander (1990) argued it may be unrealistic to expect independence of the two significant aspects of family functioning. Olsen et al. claimed moderate association would be acceptable as long as the "discriminant validity value is less than convergent validity values representing correlations of scales purported to measure the same concept" (p.25). In summary, the magnitudes of associations between the six scales in the current sample were weaker than those in Olsen et al.'s, implying a stronger evidence of the Circumplex Model's structure with two balanced and four unbalanced factor scales. Therefore, although the six scales on FACES IV were inter-related, the small or medium coefficients indicated the six scales measuring separate key aspects of family functioning.

As few concise scales have been available to assess family communication and family satisfaction, FACES IV included these two scales as auxiliaries of the six scales in the Circumplex Model. Olson (2004, in Olsen et al., 2004) hypothesized these two scales are positively correlated to each other and positively correlated to the balanced cohesion and balanced flexibility, and negatively related to the unbalanced family systems. These hypotheses were supported in the present study for both the mother and father samples as shown in Table 4.23. In summary, the above analyses demonstrated FACES IV had marginally acceptable alpha

coefficients and its factor structure was supported in the current sample. Therefore, the cohesion ratio, flexibility ratio, communication, and satisfaction were used to represent the family functioning in the model testing.

Table 4.23
Correlation Matrix of the FACES Scales

Subscales	1	2	3	4	5	6	7	8
1. Balanced cohesion	-	.51 ^{b,c}	-.40 ^b	-.11 ^a	-.06	-.26 ^b	.71 ^b	.64 ^b
2. Balanced flexibility	.48 ^{b,d}	-	-.19 ^b	.05	.07	-.12 ^b	.47 ^b	.45 ^b
3. Disengaged	-.41 ^b	-.21 ^b	-	.23 ^b	.30 ^b	.37 ^b	-.39 ^b	-.35 ^b
4. Enmeshed	.03	.07	.20 ^b	-	.37 ^b	.39 ^b	-.11 ^a	-.06
5. Rigid	-.06	.06	.32 ^b	.38 ^b	-	.25 ^b	-.09 ^a	-.12 ^b
6. Chaotic	-.21 ^b	-.11 ^b	.37 ^b	.24 ^b	.16 ^b	-	-.30 ^b	-.29 ^b
7. Satisfaction	.64 ^b	.47 ^b	-.34 ^b	-.04	-.10 ^a	-.25 ^b	-	.74 ^b
8. Communication	.64 ^b	.46 ^b	-.35 ^b	-.05	-.12 ^b	-.26 ^b	.73 ^b	-

Note: $a = p < .05$; $b = p < .01$.

c = The numbers above the diagonal were for the fathers ($N = 538$).

d = The numbers below the diagonal were for the mothers ($N = 546$).

Descriptive statistics

Table 4.24 listed the descriptive statistics for the mother and father samples and the U. S. norm data. It showed the Chinese mothers and fathers had similar scores on all of the five variables: cohesion ratio, flexibility ratio, total ratio, communication, and satisfaction. The mean total circumplex ratio was .93 for the mothers and .90 for fathers, comparing to 1.2 for the American families. Both the Chinese mothers and fathers reported the family cohesion was lower

than the family flexibility (.76 vs. 1.19 for the mothers and .73 vs. 1.17 for the fathers), whereas the two ratios were close to each other in the American norm group (1.4 vs. 1.3). Although the Chinese sample scored lower than the American norm group on the three circumplex ratios, they reported higher quality of family communication and satisfaction than the Americans did. The Chinese sample also had noticeably narrower standard deviations than the American groups on all of the variables, which may suggest the Chinese parents were more homogenous than the Americans or the Chinese parents did not evaluate their families widely.

Table 4.24
Descriptive Statistics on FACES IV

Samples / Dimensions	<i>N</i>	Min	Max	Median	Mean	<i>SD</i>
Mothers						
Cohesion ratio	546	.04	3.06	.69	.76	.43
Flexibility ratio	546	.09	4.58	1.10	1.19	.64
Total ratio	546	.07	3.03	.88	.93	.43
Communication	545	12	50	39.00	38.35	6.34
Satisfaction	545	10	50	35.00	35.04	6.53
Fathers						
Cohesion ratio	538	.04	4.75	.67	.73	.45
Flexibility ratio	538	.04	8.18	1.06	1.17	.75
Total ratio	538	.07	5.01	.83	.90	.46
Communication	538	12	50	39.00	38.06	6.42
Satisfaction	538	10	50	37.00	36.00	6.70
U. S. Norms						
Cohesion ratio	444 ^a	0	5.7	1.1	1.4	1.3
Flexibility ratio	444 ^a	0	5.8	1.0	1.3	1.3
Total ratio	444 ^a	0	5.3	1.0	1.2	1.1
Communication	1,841 ^a				31.0	9.0
Satisfaction	1,253 ^a				33.4	7.5

Note: *a* = the sample sizes in the FACES IV manual.

Group Differences

The main interests for the group differences on FACES IV were if the mother's view differed from the father's and if the Chinese parents reported their families functioning similar to the American's. Five separate paired-sample *t*-test were conducted on the five indices of family functioning to examine the differences between the Chinese mothers and fathers. Table 4.25 showed that the Chinese couples' independent self-evaluations of their family functioning were moderately correlated to each other at the .001 level, suggesting the married couple tend to give similar ratings on family cohesion, flexibility, communication, and satisfaction. The paired-sample *t*-test only found the fathers had higher family satisfaction than their spouses with a small effect size: $t(483) = 2.70, p < .01, d = .14$. Hypothesis 19 was considered supported.

In comparing with the American norm group, as the raw data for the Americans were unavailable, five one-sample *t*-test were performed. As the standard deviations for the American group were larger than those for the Chinese sample, the weighted standard deviations (Hunter et al., 1982) was used to compute the effect size in Cohen's *d*. Because there were no differences between the Chinese mothers and fathers on most of the indices of family functioning, only the mother sample was used for the cross-cultural comparisons. The results in Table 4.26 showed that the Chinese mothers had significantly lower scores than the Americans on family cohesion: $t(545) = 34.28, p < .001, d = .69$; family flexibility: $t(545) = 4.04, p < .001, d = .11$; and the overall family functioning: $t(545) = 14.71, p < .001, d = .34$. Hypothesis 20 was supported. For the auxiliary family satisfaction and communication, the Chinese mothers reported higher scores on family satisfaction than did the Americans with a small effect size: $t(544) = 5.87, p < .001, d = .23$. However, the practical difference between the Chinese mothers and the American norm group on family communication was large: $t(544) = 27.07, p < .001; d = .87$.

Table 4.25

Paired-sample t-test between the Mothers and Fathers on Family Functioning

Family functioning dimensions	<i>N</i>	Paired-sample Correlation	<i>t</i>	<i>p</i>	<i>d</i>
Cohesion ratio	485	.40***	1.71	<i>ns</i>	.08
Flexibility ration	485	.34***	.71	<i>ns</i>	.04
Total ratio	485	.44***	1.73	<i>ns</i>	.08
Communication	484	.27***	.47	<i>ns</i>	.02
Satisfaction	484	.38***	-2.70	.007	-.14

Note: 1. *ns* = not statistically significant at the .05 level.

2. *** $p < .001$

Table 4.26

Differences between Chinese Mothers and the US norm on Family Functioning

Family functioning dimensions	<i>t</i>	<i>p</i>	<i>d</i>
Cohesion ratio (<i>N</i> = 485)	-34.28	< .001	-0.69
Flexibility ration (<i>N</i> = 485)	-4.04	< .001	-0.11
Total ratio (<i>N</i> = 485)	-14.71	< .001	-0.34
Communication (<i>N</i> = 484)	27.07	< .001	0.87
Satisfaction (<i>N</i> = 484)	5.87	< .001	0.23

Model Testing

Direct Model between Parenting Style and Child Social Competence

Maternal Parenting Style and Child Social Competence

The first model tested was the direct model between maternal parenting style and child social competence. Parenting style was presented by authoritative, authoritarian, and permissive parenting styles on the PSDQ. Child social competence was indicated by peer relationships, self management/compliance, disruptive/defiant behavior, and antisocial/aggressive behavior on the HCSBS. Before the model testing, four multivariate outliers on maternal parenting style were detected using the Mahalanonis Distance ($p < .001$) and were eliminated. There were no further outliers, resulting in a sample size of 544. Tables B.1-B.2 presented the correlation and variance-covariance matrices for this sample (see Appendix B¹). In the initial model as in Figure 10, all of the observed variables significantly loaded to their respective factors in the measurement model in the desired directions and the reliability for the factor model was acceptable (Raykov's $\rho = .770^2$). However, the initial model showed a poor fit: $\chi^2(13, N = 544) = 431.52, p < .001$; GFI = .81; AGFI = .60; CFI = .63; NFI = .63; NNFI = .41; SRMR = .14; and RMSEA = .24.

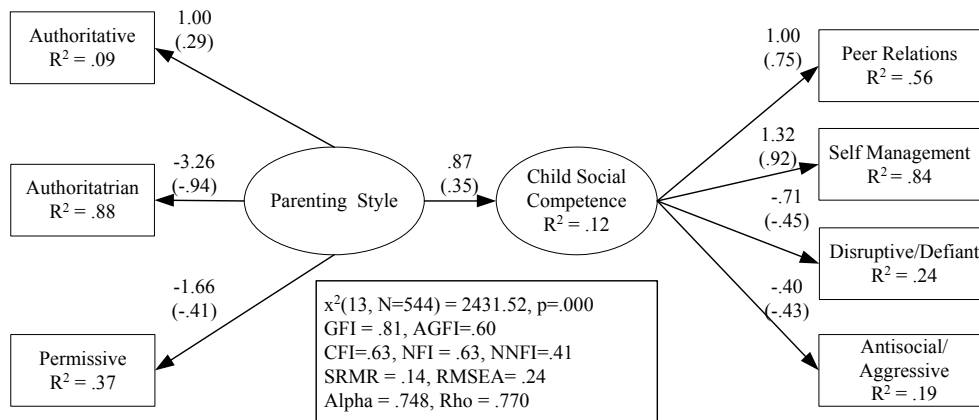


Figure 10. The direct model of maternal parenting and child social competence (initial). [Numbers in a parenthesis in all models were standardized coefficients unless specified.]

The modification index values suggested adding eleven pairs of residual covariance, six pairs among the four components on social competence, one pair between authoritarian and permissive parenting, and four pairs of inter-scale (henceforth referred to as interfactor) correlated errors between the observed variables on child social competence and parenting style. These correlated errors implied that there may be shared variances among the observed variables not captured by the present model. Although it is generally not recommended to improve the model fit by taking the modification suggestions from the software program without discretions, however, it was acceptable and practical to respecify the model with correlated interfactor and/or intrafactor error variances if such an action was justifiable (Byrne, 2006). Furthermore, researchers have found the model modification by adding correlated error variances did not change the fundamental associations among the latent constructs (Fan & Hancock, 2006; Newcomb & Bentler, 1988).

In the present study, the intrafactor correlated residuals on the PSDQ and the HCSBS might be attributed to the person/measurement factor (Newcomb & Bentler, 1988) as each questionnaire was completed by one parent. The interfactor correlated error variances between parenting style and child social competence were less straightforward than the intrafactor correlated measurement errors as the two questionnaires were not always completed by the same parent. The interfactor correlated residuals deserved a further examination to determine if they were appropriate in the case of the two questionnaires completed by two parents. Although this study kept the goal of minimizing the interfactor correlated residuals in seeking a better model, sometimes such interfactor correlation was the only option for yielding acceptable fitting statistics, especially in multigroup testing. Although the later analyses demonstrated the fitting statistics for a model with interfactor correlated error variances on the two questionnaires

completed by two parents were not different from the statistics completed by the same parent, interfactor correlated errors were only used if they were definitely necessary in this study. Most likely, such correlated residuals were due to the measurement factor, possibly suggesting some common constructs across the factors not captured by the current measurement model.

With multiple modification suggestions, Schumacker and Lomax (2004) recommended refining the model by adding or deleting one modification with the largest modification index at one time. By using this strategy, the final model in Figure 11 was achieved after correlating the five pairs of error variances in the sequence of antisocial/aggressive and defiant/disruptive behavior, peer relationship and self-management, authoritative parenting and peer relations, authoritative parenting and self-management, and authoritarian parenting and permissive parenting. The correlated residual at each step resulted in a significant improvement. This final model fitted to the data well: $\chi^2(8, N = 544) = 19.27, p = .013$; GFI = .99; AGFI = .96; CFI = .99; NFI = .99; NNFI = .98; SRMR = .025; RMSEA = .051; Alpha = .748; and Rho = .582. In this model, all of the paths were statistically significant and all of the observed variables were in the desired directions. Hypothesis 21 was supported in the mother sample. Mother's parenting style could predict 36% of the variance in child social competence.

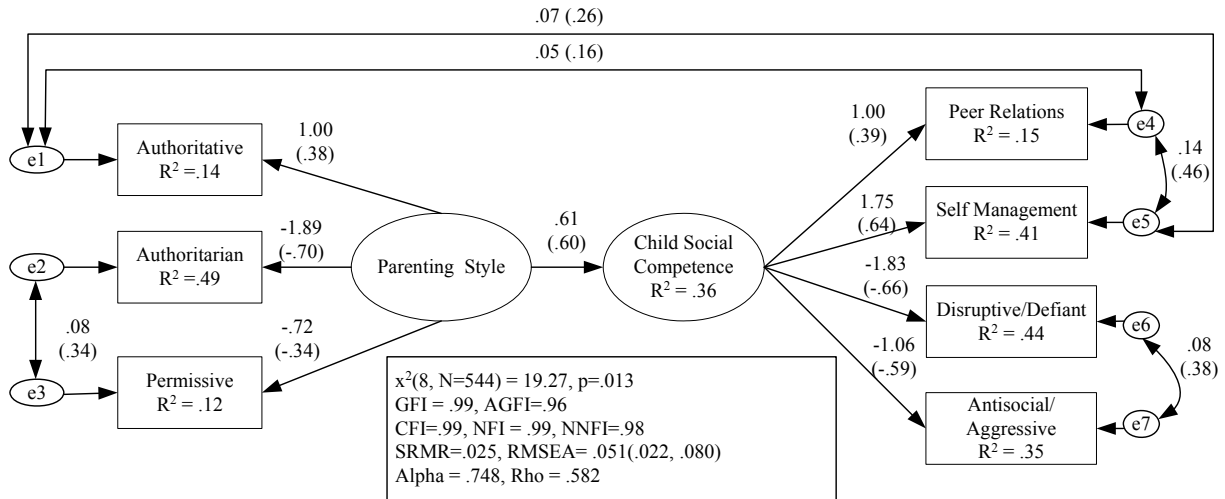


Figure 11. The direct model of maternal parenting and child social competence (final).

However, an obvious challenge in this final model was whether the two pairs of correlated interfactor residuals were justifiable as authoritative parenting was reported by the mother whereas child social competence possibly was rated by the father. Therefore, this study decided to test the measurement and structural invariance between all mothers and only those mothers who completed the HCSBS questionnaire. As the correlated interfactor error variances in the second group might be easily contributed to person/instrument factor, the interfactor residual correlations in the first group would be possibly acceptable if there were no differences between the groups. Therefore, the above final model for all of the mothers was validated in the group of mothers who completed the HCSBS. Tables B.3-B.4 listed the correlation and variance-covariance matrices for this sample (in Appendix B) and Table 4.27 listed the loadings and fit indices for the two groups.

Table 4.27
Measurement Model of Parenting on Child Social Competence in Mothers

Variables / Fitting statistics	All Mothers (N = 544)		HCSBS Respondents (N = 227)	
	Loading	R ²	Loading	R ²
Authoritative parenting	.379	.143	.306	.094
Authoritarian parenting	-.699	.489	-.661	.437
Permissive parenting	-.339	.115	-.407	.166
Peer relationship	.392	.154	.347	.120
Self-management/compliance	.637	.406	.577	.333
Disruptive/defiant behavior	-.664	.440	-.616	.380
Antisocial /aggressive behavior	-.594	.352	-.656	.430
χ^2 (df, p)	19.27 (8; .013)		14.91 (8; .061)	
Reliability Rho	.582		.572	
NFI, GFI, CFI	.99; .99; .99		.99; .99; .99	
RMSEA (90% CI)	.051(.022, .080)		.053(.000, .093)	

The final model obtained from the entire mother sample fitted to the second sample as well as shown in Table 4.27. Therefore, measurement invariance was tested between those two groups. The model fit indices demonstrated that the sample data fitted the combined measurement model well: $\chi^2(19) = 38.194, p = .006$; GFI = .988; AGFI = .964, CFI = .991, NFI = .983, NNFI = .980; SRMR = .029 and RMSEA = .049 (.026, .071). The Lagrange multiplier (LM) test showed equal factor loadings on the two measurement models in the two samples.

Structural invariance was also obtained in a well-fitted model: $\chi^2(20) = 40.196, p = .005$; GFI = .987; AGFI = .964, CFI = .991, NFI = .982, NNFI = .980; SRMR = .032; and RMSEA = .049 (.026, .070). The factor correlation between maternal parenting and child social competence was .72 for the sample of the mothers answering the HCSBS and .65 for the sample of all mothers. Since there were no measurement and structural differences between the two groups, it might be reasonable to attribute the correlated errors between the mother-completed PSDQ and the father-finished HCSBS to the measurement factor. Accordingly, the entire mother sample was utilized for further testing on the complex models in order to maintain a big sample size.

Paternal Parenting and Child Social Competence

The obtained mother model was then validated in the entire father sample after one multivariate outlier on paternal parenting style was removed. Tables B.5-B.6 presented the correlation and variance-covariance matrices. Figure 12 showed the mother's model was validated in the father sample as well: $\chi^2(8, N = 529) = 20.21, p = .009$; GFI = .99; AGFI = .96; CFI = .99; NFI = .98; NNFI = .97; SRMR = .032; RMSEA = .054; Alpha = .724; Rho = .587. All of the paths except for the correlated errors between DD and AA were significant. Removing the insignificant correlated residuals between DD and AA did not significantly improve the model ($\Delta\chi^2 = .11, p > .05$). Therefore, this path was retained for the purpose of testing measurement and structural invariance between the mother and father samples with the same constraints. As in the model for the mother sample, all of the loadings and the structural coefficient between paternal parenting style and child social competence were significant in the expected directions. Hypothesis 20 was supported in the father sample as well. Father's parenting style could account for about 19% of the variance in child social competence.

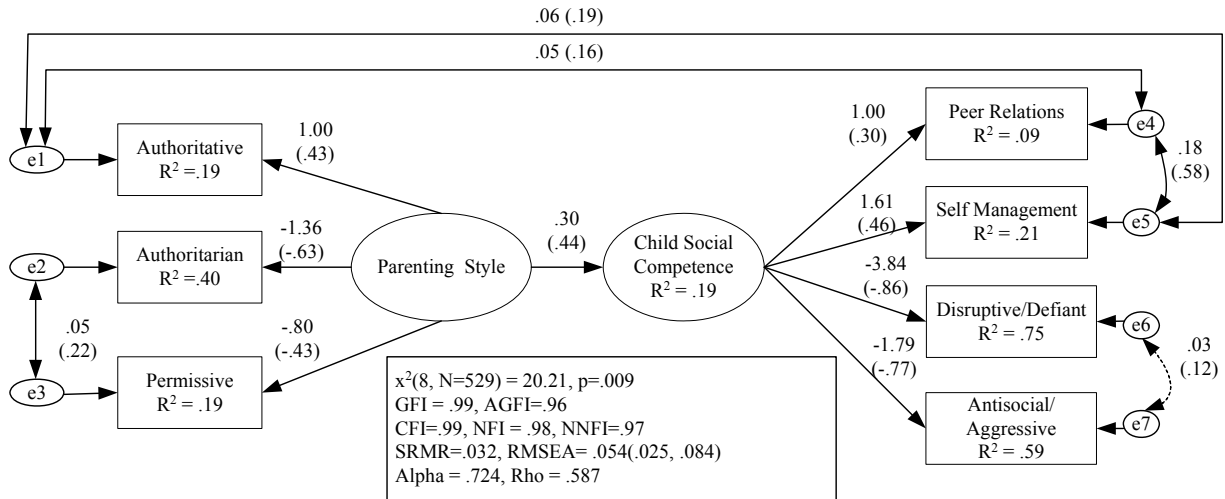


Figure 12. The direct model of father's parenting and child social competence. [The dash line indicated the path was insignificant.]

Although it had been demonstrated that there were no differences between all mothers and the HCSBS-respondent mothers on the final model, this may not necessarily be the case in the father sample. Hence, the next step was to examine if there were differences between the sample of all fathers and the sample of the fathers who answered HCSBS. Tables B.7 and B.8 showed the correlation and variances-covariance matrices for the second father sample and Table 4.28 listed the loadings and fit indices for the two father samples. The results showed measurement invariance in the two father samples: $\chi^2(19) = 38.974, p = .004$; $GFI = .986$; $AGFI = .958$; $CFI = .989$; $NFI = .980$; $NNFI = .977$; $SRMR = .037$; and $RMSEA = .052$. Structural invariance for testing the equal factor correlations between paternal parenting and child social competence for the entire father sample ($\gamma = .466$) and the HCSBS-responded father sample ($\gamma = .469$) were also found in a well-fitted model: $\chi^2(20) = 39.869, p = .005$; $GFI = .985$; $AGFI = .959$; $CFI = .990$; $NFI = .979$; $NNFI = .978$; $SRMR = .039$; and $RMSEA = .051$. Therefore, it could be concluded there were no differences between the entire father sample and the HCSBS-

responded father sample on the measurement and factor model. Accordingly, the entire father sample was used in the further model testing.

Table 4.28
Measurement Model of Parenting on Child Social Competence in the Fathers

Variables / Fitting statistics	All Fathers (<i>N</i> = 529)		Responded Fathers (<i>n</i> = 247)	
	Loading	<i>R</i> ²	Loading	<i>R</i> ²
Authoritative parenting	.431	.186	.434	.189
Authoritarian parenting	-.630	.397	-.614	.377
Permissive parenting	-.431	.186	-.528	.278
Peer relationships	.296	.087	.332	.110
Self-Management/compliance	.455	.207	.491	.241
Disruptive/defiant behavior	-.864	.746	-.965	.931
Antisocial /aggressive behavior	-.766	.587	-.784	.615
χ^2 (<i>df</i> , <i>p</i>)	20.21 (8; .001)		17.40 (8; .026)	
Reliability Rho	.587		.649	
NFI, GFI, CFI	.98; .99; .99		.98; .98; .99	
RMSEA (90% CI)	.054(.025, .084)		.069(.023, .110)	

In summary, the final model obtained from the entire mother sample was validated in three different samples: the HCSBS-responding mothers, all fathers, and the HCSBS-responding fathers. All of the loadings on the two latent constructs were significant. As expected, authoritative parenting positively, whereas authoritarian and permissive parenting negatively,

contributed to the latent independent variable- parenting style. Similarly, peer relationships and self-management/compliance positively, whereas disruptive/defiant and antisocial/aggressive negatively, loaded on the latent dependent variable, child social competence as expected. The structural model showed that parenting style positively related to child social competence at the .001 level for both parents. A significant, direct effect of parenting style on child social competence, Hypothesis 21, was supported. Maternal parenting style directly related to child social competence with a multiple R^2 of .36, whereas it was .19 for all fathers. The next step was naturally to examine whether measurement and structural invariance existed in the mother and father samples, and whether the values of the multiple R^2 for the two groups were statistically different if the invariance held.

Sex Difference on the Direct Model of Parenting and Child Social Competence

The measurement invariance between all the mothers and fathers was first tested. The factor loadings and fit indices for the two samples were acceptable, as already presented in Table 4.27 and Table 4.28. The initial measurement invariance test showed that the overall fitting indices were acceptable: $\chi^2(19) = 48.60, p = .0002$; GFI = .987; AGFI = .963, CFI = .989, NFI = .975, NNFI = .982; SRMR = .035; and RMSEA = .054. However, the factor loading of authoritarian parenting on parenting style was significantly different between the two groups as shown in the Lagrange multiplier (LM) test: $\chi^2(1) = 5.12, p = .024$.

In the case of overall measurement invariance with certain factor loadings noninvariant across the groups, Schumacker and Lomax (2004) stated that separate factor loadings need to be set for those variables for testing the between-group differences on parameters in the structural model. Byrne (2006) further proposed that the partial measurement invariance approach can be used to test for invariance of the structural model under two conditions: (a) if multiple indicators

are used in measuring each latent construct, and (b) there is at least one invariant measure. As these two requirements for partial measurement invariance were met in the present case, partial measurement invariance was used to test for invariance related to the structural model. This was done by allowing free estimates of factor loadings for authoritarian parenting in the two groups, or technically by removing the equal loading constraint on authoritarian parenting in the program while keeping the other equality constraints on factor loadings.

The partial measurement invariance was found to be acceptable with equal loadings: $\chi^2(18) = 43.507, p = .001$; GFI = .989; AGFI = .965, CFI = .989, NFI = .984, NNFI = .977; SRMR = .029; and RMSEA = .051. The subsequent structural invariance was also obtained in a well-fitted model: $\chi^2(19) = 46.273, p = .0005$; GFI = .988; AGFI = .965, CFI = .990, NFI = .983, NNFI = .974; SRMR = .036; and RMSEA = .052. The LM test indicated a nonstatistical difference for the structural correlation coefficients ($\gamma = .515$ for the mothers and $\gamma = .570$ for the fathers) between parenting style and child social competence in the two groups: $\chi^2(5) = 6.545, p = .257$. In other words, parenting style predicted 26.5% of the variances in child social competence for the mothers and 32.5% for the fathers in the composite sample. Hypothesis 22 was supported.

Parenting style may influence boys and girls differently. Therefore, mothers' parenting influence on their sons' and daughters' social competence was examined next. Two multivariate outliers on maternal parenting style were removed from the mother-son sample and two from the mother-daughter sample. The correlation and variance-covariance matrices were in Table B.9-B.12. Table 4.29 listed the factor loadings, reliability, and fit indices for the two samples on the previously obtained final model. The model fitted to the data in the two samples well. Hence, measurement invariance was tested next. The model fit indices demonstrated that the sample data

fitted the combined measurement model well: $\chi^2(19) = 28.335, p = .077$; GFI = .986; AGFI = .959, CFI = .993, NFI = .980, NNFI = .985; SRMR = .033; and RMSEA = .043. The LM test for equal factor loading also showed the chi-square value for each constraint was not significant. The model fit indices also indicated the structural model for the two groups was not statistically significant: $\chi^2(20) = 28.391, p = .100$; GFI = .986; AGFI = .960, CFI = .994, NFI = .980, NNFI = .987; SRMR = .032; and RMSEA = .039. At the last step, the between-group difference on the structural coefficients between the mother-son and mother-daughter groups was tested. The LM test showed the χ^2 values for all of the constraints including the incremental χ^2 values were insignificant, suggesting no differences between the two groups. In other words, maternal parenting operated equivalently on boys' and girls' social competence. Hypothesis 23 was supported in the mother sample. Maternal parenting style was significantly related to children's social competence with a value of .587 for the boys and .590 for the girls, implying maternal parenting style could predict about 34.4% and 34.8% of the variances in child social competence for the boys and girls, respectively.

Table 4.29
Measurement Model of Maternal Parenting on CSC (Boys vs. Girls)

Variables / Fitting statistics	Mother-Son (<i>n</i> = 292)		Mother-Daughter (<i>n</i> = 252)	
	Loading	<i>R</i> ²	Loading	<i>R</i> ²
Authoritative parenting	.346	.120	.410	.168
Authoritarian parenting	-.734	.539	-.682	.465
Permissive parenting	-.392	.154	-.239	.086
Peer relations	.385	.149	.421	.177
Self-Management/compliance	.636	.404	.647	.418
Disruptive/defiant behavior	-.677	.459	-.619	.384
Antisocial /aggressive behavior	-.597	.356	-.536	.287
χ^2 (<i>df</i> , <i>p</i>)	9.01 (8; .34)		17.33 (8; .027)	
Reliability Rho	.588		.565	
NFI, GFI, CFI	.99; .99; 1.00		.97; .98; .98	
RMSEA (90% CI)	.024(.000, .074)		.068(.022, .110)	

Finally, paternal parenting influence on son or daughter was examined. There were none multivariate outliers detected in the two samples. The correlation and variance-covariance matrices for the two samples were in Tables B.13-B.16. When the above final model in Figure 11 was applied to the father-daughter sample, a Heywood case (i.e., variance less than zero) occurred on defiant/disruptive behavior. Further investigation found the correlated residuals between DD and AA was insignificant. Therefore, this path was removed and the modified model was tested in the two samples. Both showed good fits as shown in Table 4.30.

Table 4.30
Measurement Model of Paternal Parenting on CSC (Boys vs. Girls)

Variables / Fitting statistics	Father-Son (<i>n</i> = 282)		Father-Daughter (<i>n</i> = 247)	
	Loading	<i>R</i> ²	Loading	<i>R</i> ²
Authoritative parenting	.427	.182	.431	.186
Authoritarian parenting	-.623	.389	-.613	.376
Permissive parenting	-.403	.163	-.453	.206
Peer relations	.263	.069	.270	.073
Self-Management/compliance	.427	.182	.393	.154
Disruptive/defiant behavior	-.977	.954	-.909	.826
Antisocial /aggressive behavior	-.828	.685	-.830	.690
χ^2 (<i>df</i> , <i>p</i>)	14.27 (9; .11)		10.93 (9; .28)	
Reliability Rho	.596		.584	
NFI, GFI, CFI	.98; .99; .99		.99; .99; 1.00	
MSEA (90% CI)	.046(.000, .088)		.029(.000, .081)	

The combined measurement model also demonstrated a good fit for measurement invariance: χ^2 (21) = 26.468, *p* = .190; GFI = .986; AGFI = .963, CFI = .9996, NFI = .979, NNFI = .991; SRMR = .040; and RMSEA = .031. The LM test for equal factor loadings showed no chi-square values were significant. Structural invariance was also held in the well-fitted model: χ^2 (22) = 26.503, *p* = .231; GFI = .986; AGFI = .965, CFI = .996, NFI = .979, NNFI = .993; SRMR = .040; and RMSEA = .028. No incremental χ^2 values were significant in the LM test; suggesting the structural model for the two groups was not statistically significant. These results

indicated that paternal parenting had equivalent impact on boys' or girls' social competence. Therefore, Hypothesis 23 was supported in the father sample as well. Father's parenting was significantly related to children's social competence at .382 for boys and .405 for girls, implying paternal parenting style could account for 14.6% and 16.4% of the variances in social competence for boys and girls, respectively.

In summary, the above results demonstrated that all of the three parenting styles significantly contributed to the latent parenting construct with authoritative parenting in the positive direction and the other two in the negative direction. All of the four observed variables on the HCSBS also significantly loaded on child social competence with DD and AA in the expected negative direction. In all of the cases with different subsamples, parenting style was found to be significantly related to child social competence directly. The coefficients varied from .382 (for fathers on sons) to .60 (for mothers on both boys and girls). In other words, parenting style could predict the variances in child social competence from 14.6% to 36% in these models. In testing for the three between-group differences (i.e., all mothers vs. all fathers, mothers on sons vs. mothers on daughters, and fathers on sons vs. fathers on daughters), neither parent nor child sex effect were found. Maternal and paternal parenting had similar influences on both boys' and girls' social competence.

Moderational Model: Child Temperament as a Moderator

“A moderator means that the relationship between two variables changes with the level of another variable/construct” (Hair et al., 2006, p. 870). A moderator can be either categorical or continuous. Categorical moderator in SEM is often tested using the multigroup approach (Hair et al.) whereas the continuous moderator is often handling by the interaction SEM model, that is, by creating an interaction between the moderator and the predictor (Hair et al.; Kline, 1998;

Schumacker & Lomax, 2004). Hair et al. suggested using the categorical multigroup analysis for the continuous moderator unless the grouping cannot be justified, because such an approach shows moderation intuitively. One way to create the groups on the continuous moderator is based on the data distribution. Natural bimodality or artificial bimodality by removing some observations around the median could be used to create groups (Hair et al.).

In the present study, child temperament in terms of the Difficult Temperament Index (DTI) on the DOTS-R was explored as a possible moderator. The DTI is an ordinal data in nature and has six discrete integer values, from zero to five. To simplify the testing, two groups rather than the original six groups were created. Following Hair et al.'s (2006) and Kenny's (2004) guidelines, children with a DTI value one standard deviation ($SD = 1.3$) below the mean ($M = 1.7$) were classified into the "Easy Temperament" group (henceforth referred to as the easy child group). This approach resulted in 114 children in the easy child group with the DTI value of zero. Children with a DTI value one standard deviation above the mean were categorized into the "Difficult Temperament" group (henceforth referred to as the difficult child group), which included 148 children with the DTI values of three, four, and five. Children with a DTI value of one or two were excluded for the moderation testing.

After the two groups were created, the multigroup approach was used to test the moderating role of the DTI. This was done first by allowing all parameters to be freely estimated in the both groups and then by constraining the relationship between parenting and child social competence to be equal in the both groups. If the constraint of the equal relationship between the two latent constructs in the both groups worsens the model fit (i.e., significant increase of χ^2), it means "the model has better fit when the relationship is allowed to different based on the moderator variable" (Hair et al., 2006, p. 871). Then, moderation would be supported.

The DTI Moderating Maternal Parenting on Child Social Competence

One multivariate outlier on maternal parenting for the easy child group was detected and removed. The correlation and variance-covariance matrices for the two groups were in Tables B.17-B.20. The two-group model with no constraints on parameter estimates initially showed a poor fit: $\chi^2(28) = 227.73, p = .000$; CFI = .56, NFI = .55, NNFI = .35; and RMSEA = .23. Five pairs of correlated residuals for the easy child group and four pairs of residuals for the difficult child group were suggested to be added to the model. By taking the same strategy of adding one pair with the largest index change at one time, a fitted model with three pairs of intrafactor correlated residuals for the two groups (i.e., authoritarian and permissive, SMC and DD, and DD and AA) was obtained as shown in Figure 13: $\chi^2(22, N = 273) = 36.01, p = .03$; CFI = .98; NFI = .94; NNFI = .95; and RMSEA = .069. In this model, maternal parenting significantly related to easy child social competence with a structural coefficient of .65 ($t = 3.85, p < .05; R^2 = .35$), whereas it was .28 ($t = 2.12, p < .05; R^2 = .09$) for the difficult child group.

When the correlation between maternal parenting and social competence was constrained to be equal for the two groups, the model fitted to the data as well as shown in Figure 14: $\chi^2(23, N = 273) = 39.62, p = .02$; CFI = .97; NFI = .94; NNFI = .95; and RMSEA = .073. The structural coefficient was also significant ($\gamma = .47, t = 3.33, p < .05; R^2 = .22$). Nevertheless, the chi-square change between the two conditions was not big enough to be significant: $\Delta \chi^2_{(1)} = 3.61, p > .05$. Therefore, the DTI seemed not strong enough to moderate the relationship between maternal parenting and child social competence although approaching the critical value of 3.84.

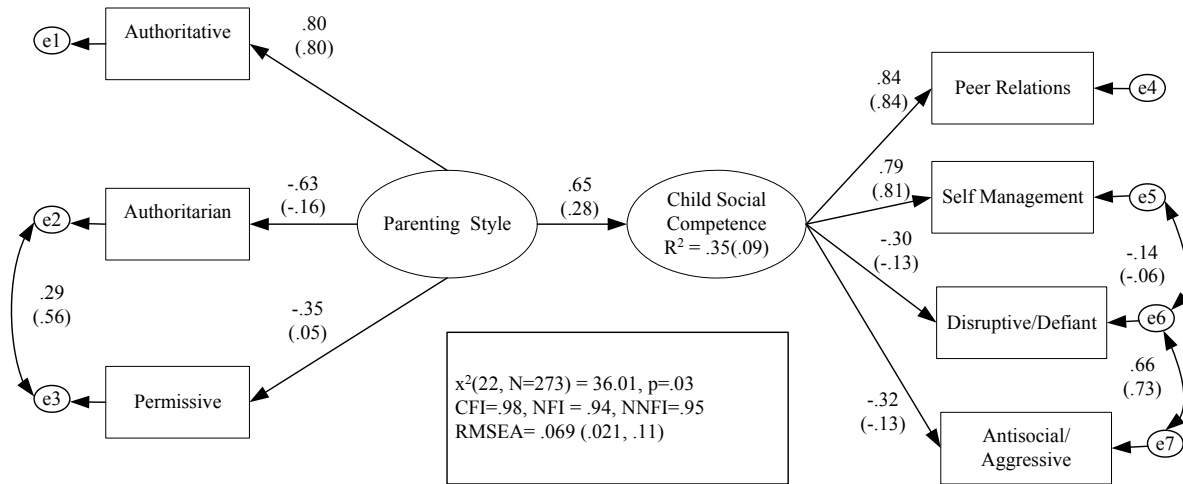


Figure 13. Maternal parenting on easy and difficult child without a constraint (3-pair errors). [Numbers in parentheses were the standardized coefficients for the difficult child group and those without a parenthesis were for the easy child group.]

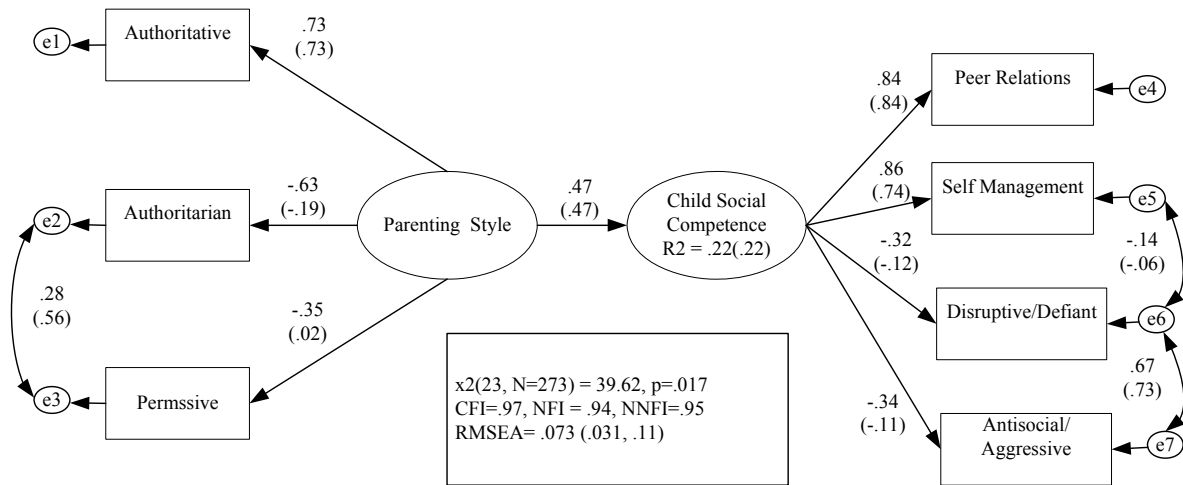


Figure 14. Maternal parenting on easy and difficult child with the constraint (3-pair errors). [Numbers in parentheses were the standardized coefficients for the difficult child group and those without a parenthesis were for the easy child group.]

However, when the same model with the above three pairs of correlated residuals was applied to the father sample, Heywood cases appeared on authoritative parenting and self-management. In order to make the model consistent across the four groups (i.e., mother and easy child, mother and difficult child, father and easy child, and father and difficult child), an additional pair of correlated residual between authoritative and authoritarian parenting was found to be able to resolve the Heywood cases and make the models fit to the data for the four independent groups. Therefore, a model with the four pairs of correlated measurement errors was adopted. The mother sample was re-tested.

Without the constraint of equal structural coefficient for the easy and difficult child groups, the model reasonable fitted to the two group data as shown in Figure 15: $\chi^2(20, N = 273) = 36.06, p = .02$; CFI = .97; NFI = .94; NNFI = .94; SRMR = .078; and RMSEA = .077. The structural coefficients for the easy child group was significant ($\gamma = .64, t = 2.52, p < .05; R^2 = .34$), but insignificant for the difficult child group ($\gamma = .28, t = 1.80, p > .05; R^2 = .09$). When the structural coefficients were constrained to be equal for the two groups, the model barely fitted to the two group data as in Figure 16: $\chi^2(21, N = 273) = 39.65, p = .01$; CFI = .97; NFI = .94; NNFI = .94; SRMR = .084; and RMSEA = .081. Maternal parenting significantly related to child social competence for the two groups: $\gamma = .50, t = 2.09, p < .05; R^2 = .25$. The chi-square change between Figures 15 and 16 were again not big enough to be significant: $\Delta \chi^2_{(1)} = 3.59, p > .05$. Therefore, DTI did not moderate maternal parenting on child social competence. Hypothesis 24 was rejected.

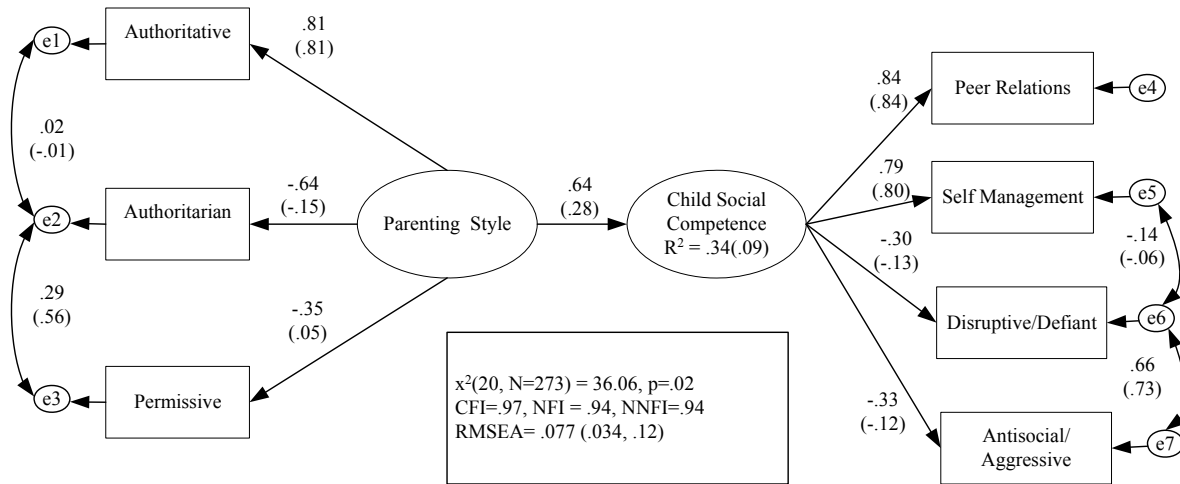


Figure 15. Maternal parenting on easy and difficult child without a constraint (4-pair errors). [Numbers in parentheses were the standardized coefficients for the difficult child group and those without a parenthesis were for the easy child group.]

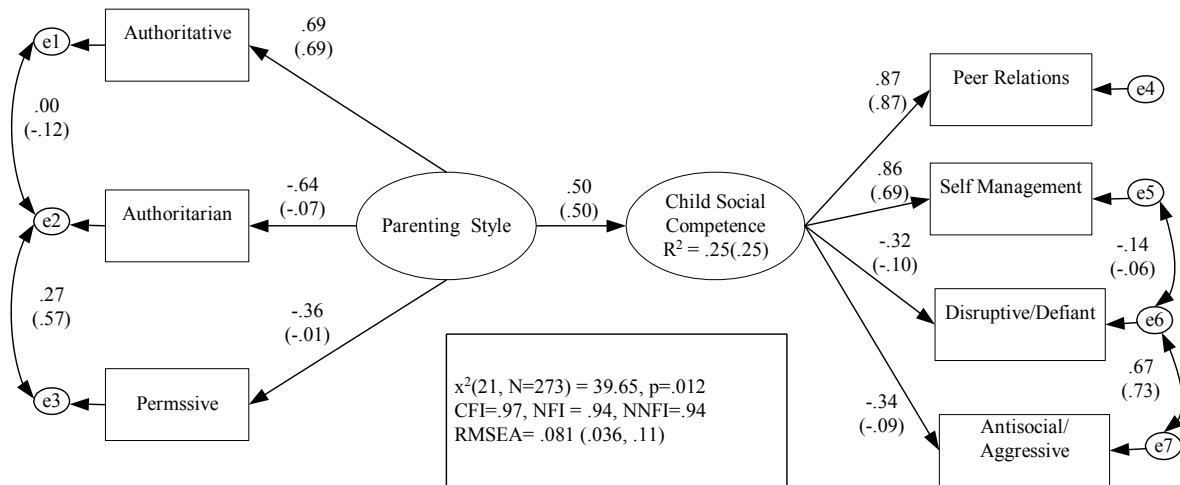


Figure 16. Maternal parenting on easy and difficult child with the constraint (4-pair errors). [Numbers in parentheses were the standardized coefficients for the difficult child group and those without a parenthesis were for the easy child group.]

The DTI Moderating Paternal Parenting on Child Social Competence

No multivariate outliers were detected on paternal parenting and child social competence for the easy and difficult child groups. The correlation and variance-covariance matrices for the two groups were presented in Tables B.21-B.24. The two-group model with no constraints on parameter estimates had a bad fit initially: $\chi^2(28) = 211.60, p = .000$; CFI = .56, NFI = .54, NNFI = .34; and RMSEA = .22. The model in Figure 17 with four pairs of intrafactor correlated residuals, as for the mother sample, was found to fit the two-group data well: $\chi^2(20, N = 268) = 21.88, p = .35$; CFI = 1.00, NFI = .96, NNFI = .99; and RMSEA = .027. The structural coefficients between paternal parenting and child social competence was .51 ($t = 2.63, p < .05$) for the easy child group and .63 ($t = 2.46, p < .05$) for the difficult child group. When the correlation between paternal parenting and social competence was constrained to be equal for the two groups (i.e., $\gamma = .59, p < .05, R^2 = .35$) as in Figure 18, the global model fit statistics did not worsen and the chi-square change was insignificant: $\Delta \chi^2_{(1)} = .22, p > .05$. Therefore, the DTI did not moderate the relationship between paternal parenting and child social competence either. In other words, paternal parenting significantly related to child social competence similarly for children with an easy or difficult temperament. Hypothesis 25 was rejected.

Table 4.31 further summarized the results of child temperament in DTI as a possible moderator between parenting style and child social competence. In short, the moderational effect of child temperament was not found. But it seemed maternal parenting had a larger impact on children with easy temperament than on difficult children, whereas paternal parenting significantly influenced child social competence for the two types of children equivalently.

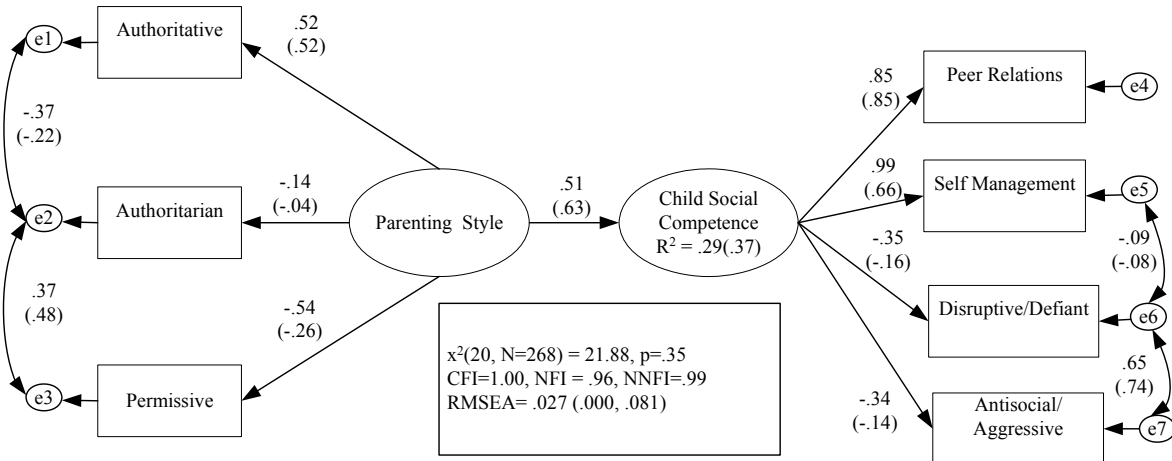


Figure 17. Paternal parenting on easy and difficult child without a constraint (4-pair errors) [Numbers in parentheses were the standardized coefficients for the difficult child group and those without a parenthesis were for the easy child group.]

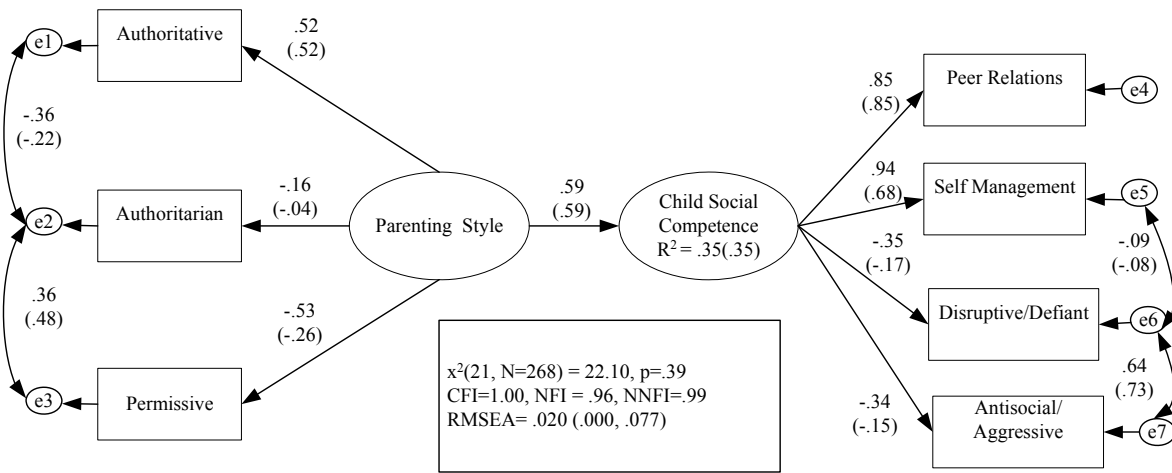


Figure 18. Paternal parenting on easy and difficult child with the constraint (4-pair errors). [Numbers in parentheses were the standardized coefficients for the difficult child group and those without a parenthesis were for the easy child group.]

Table 4.31
Summary of Child Temperament as a Moderator

Model Description	<i>df</i>	χ^2	<i>CFI</i>	<i>NFI</i>	<i>NNFI</i>	<i>RMSEA</i>	Comments	Moderator
Maternal parenting								
Factor structure equivalence	20	36.06	.97	.94	.94	.077	Reasonable fit	
Interfactor correlation equivalence	21	39.65	.97	.94	.94	.081	$\Delta\chi^2_{(1)} = 3.59$, insignificant	No, but approaching
Paternal parenting								
Factor structure equivalence	20	21.88	1.00	.96	.99	.027	Exceptional fit	
Interfactor correlation equivalence	21	22.10	1.00	.96	.99	.020	$\Delta\chi^2_{(1)} = .22$, insignificant	No

Mediational Model: Parent-Child Relationship as a Mediator

Holmbeck (1997) proposed a three-step SEM approach to test the mediation effect by extending Baron and Kenny's (1986) approach, which has been largely applied to the multiple regression studies. The first step is to assess the fit of the direct effect of the predictor variable (A) on the latent outcome variable (C) (i.e., $A \rightarrow C$). If an adequate fit is obtained, the second step is to test the fit of the overall model with the mediator variable (B) included. If the model fit is acceptable and all of the path coefficients (i.e., $A \rightarrow B$, $B \rightarrow C$, and $A \rightarrow C$) are significant in the predicted directions, the final step is to assess the mediational effect by comparing the fit of the overall model under two conditions: (a) the $A \rightarrow C$ is constrained to zero (i.e., not-existent), and (b) the $A \rightarrow C$ is not constrained. If the addition of the $A \rightarrow C$ path does not improve the model fit, then B is a mediator. Holmbeck also stated at this point it was meaningful to compare the $A \rightarrow C$ path coefficients for when B is, versus B is not included.

Whereas Holmbeck's (1997) approach usually results in a yes or no conclusion for the mediational effect, Hair et al. (2006) proposed a two-step approach, which is able to evaluate a partial mediation. In the first step, significant relationships between pairs of the three variables should be established in good fit models. Next, the $A \rightarrow C$ path coefficient with B and that without B are compared in the fitted models. If the coefficient remain significant and unchanged with B included, then mediation is not supported. If the coefficient is reduced but remains significant, a partial mediation is supported. If it reduces to nonsignificant with B included, then the full mediation is found. For the present study, in assessing the mediation effect of parent-child relationship on parenting style predicting child social competence, Holmbeck's (1997) approach was applied first. If there was no full mediation, then Hair et al's method was used to identify if there was a partial mediation. In this study, A was parenting style, C was child social

competence, and B was parent-child relationship. The first tested mediation model was whether maternal parenting style on child social competence was mediated by mother's perception of parent-child relationship or mother-child relationship (MCR).

MCR Mediating Maternal Parenting on Child Social Competence

Four multivariate outliers on maternal parenting and one on mother-child relationship were detected and excluded. The correlation and covariance matrices were in Tables B.25-B.26. When the variance-covariance matrix including the four observed variables on mother-child relationship submitted to LISREL for testing the direct A → C path, the initial model showed a significant direct effect ($\gamma = .64$) in a poor fit: $\chi^2(42) = 981.23, p = .000$; CFI = .66; GFI = .74; AGFI = .60; NFI = .65; NNFI = .55; SRMR = .13; and RMSEA = .22. LISREL suggested adding twenty-four pairs of correlated residuals and five pairs of cross-loadings to improve the fit. By taking the same strategy as before, a model with eleven pairs of correlated variances of errors fitted to the data well as shown in Figure 19: $\chi^2(31, N = 521) = 80.25, p = .00$; GFI = .97; AGFI = .94; CFI = .98; NFI = .97; NNFI = .97; SRMR = .56; and RMSEA = .055. In this model, maternal parenting style significantly predicted child social competence with a structural coefficient of .64 ($R^2 = .41$), not much different from .60 in the direct model for the mothers in Figure 11.

Due to the inclusion of MCR as another latent variable in the model, more correlated error variances were included than those in Figure 11. An effort was made to maintain the same pairs of the correlated residuals in testing the mediational role of parent-child relationship in the four different views. However, it was not possible to find the same set of correlated residuals across the four views. Hence, a common set of correlated residuals across the three models in Holmbeck's (1997) approach in each of the four views were sought instead. These intrafactor

and interfactor correlated errors were possibly due to the common person and/or method factors as explained before.

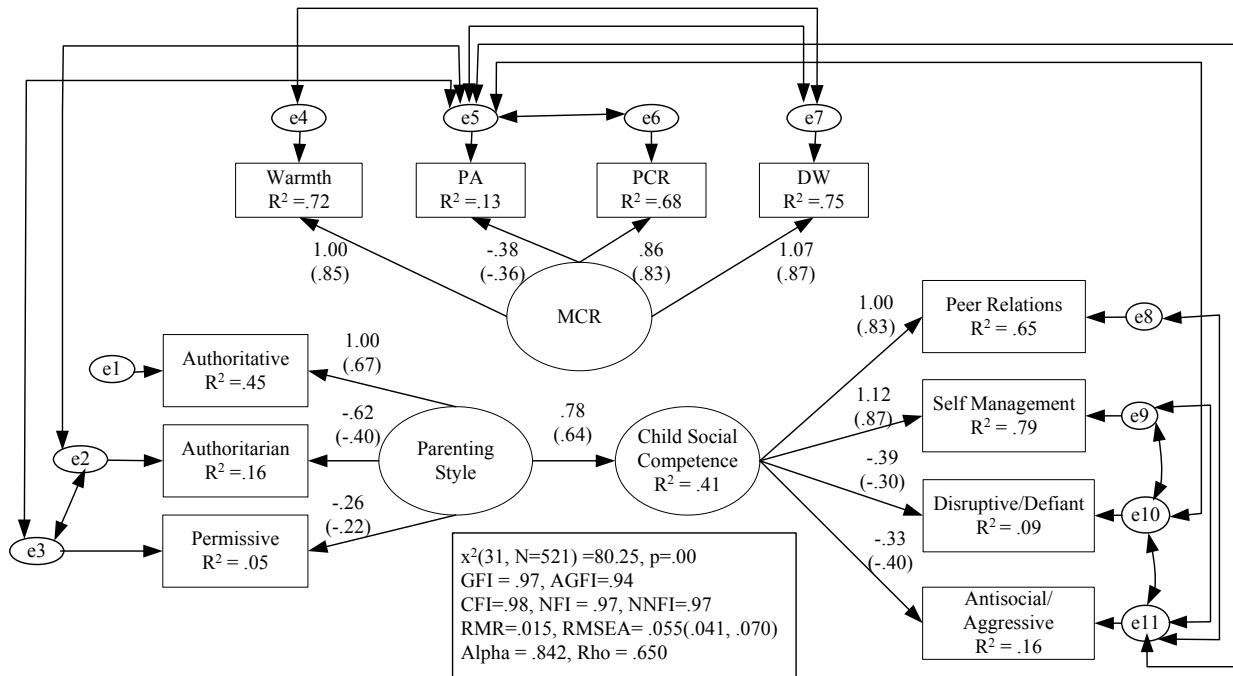


Figure 19. The direct model of mother's parenting and child social competence with MCR.

When MCR was included without the direct $A \rightarrow C$ path, the $A \rightarrow B$ and $B \rightarrow C$ paths were also significant in a well-fitted model as shown in Figure 20. Maternal parenting predicted 81% of the variance in mother-child relationship, which, in turn, predicted 34% of the variance in child social competence. The indirect effect of maternal parenting on child social competence through mother-child relationship was .53. When the direct $A \rightarrow C$ path was added as in Figure 21, its structural coefficient remained significant at .61, not much less than .64 for the direct model in Figure 19, and the $B \rightarrow C$ path coefficient reduced from the significant .59 to the insignificant .03. The indirect effect of $A \rightarrow B \rightarrow C$ was .027, much less than .61 for the direct effect. The prediction of child social competence was largely from the direct contribution of maternal parenting styles. Therefore, mother-child relationship was not a mediator in this model.

Hypothesis 26 was rejected. The total effect of parenting on child social competence was .637 (i.e., the sum of the direct and indirect paths), corresponding to a multiple R^2 of .41, not much different from .36 for the direct model without mother-child relationship considered as shown in Figure 11.

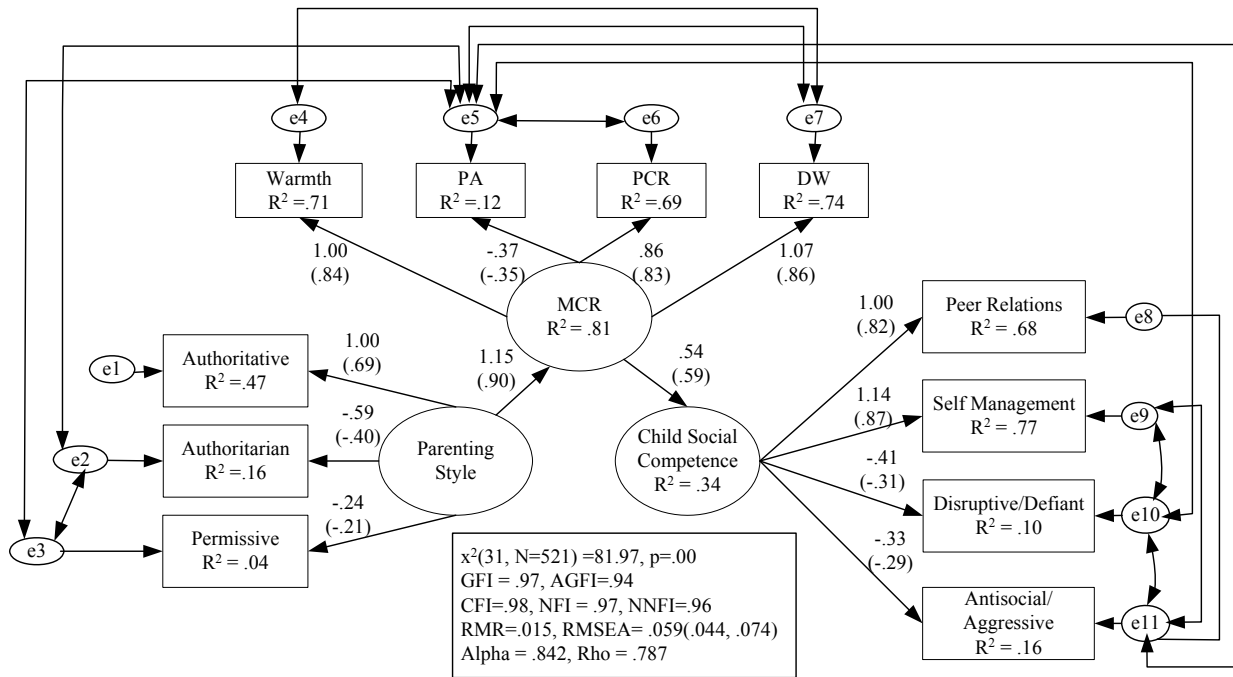


Figure 20. No direct link between mother's parenting and child social competence.

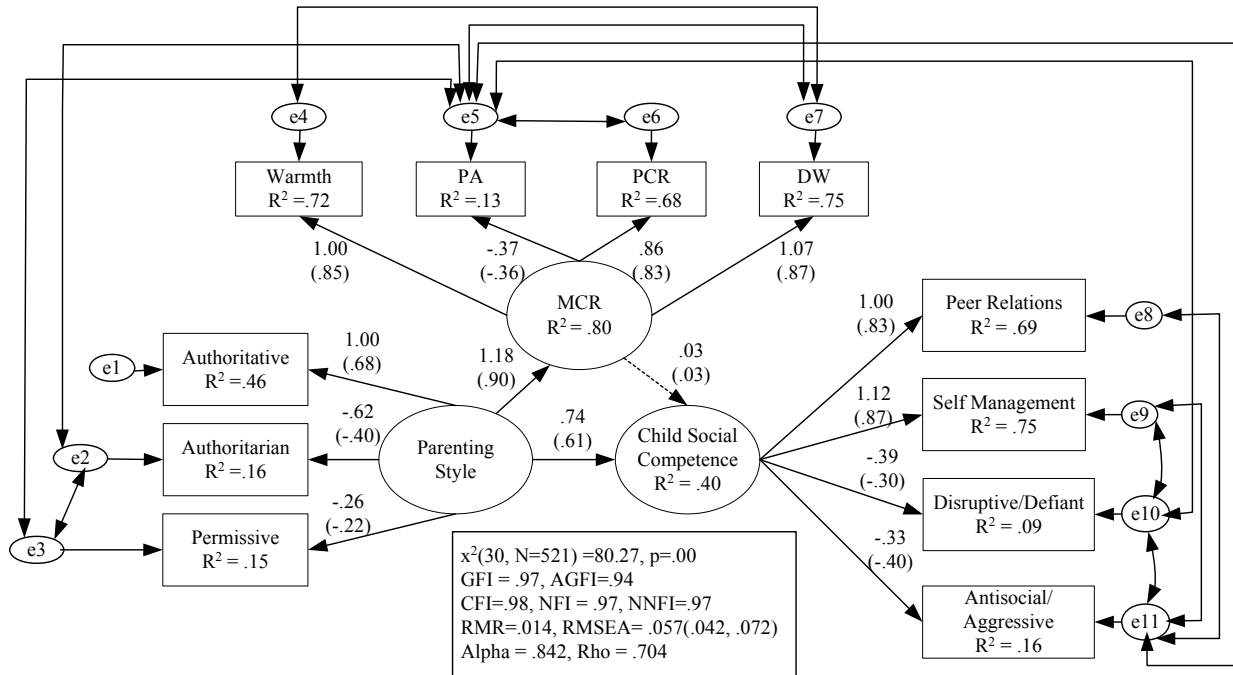


Figure 21. MCR as a mediator of maternal parenting on child social competence
 [The dash line indicated the path was insignificant.]

In fact, the changes of the structural coefficients in the above three models in Figures 19-21 signaled another model among these three variables, that is, maternal parenting was a mediator of mother-child relationship on child social competence, rather than the originally hypothesized mother-child relationship as a mediator of maternal parenting on child social competence. Figures 22-24 further demonstrated the mediational effect of maternal parenting on mother-child relationship in predicting child social competence. Figure 22 showed initially mother-child relationship (A) significantly related to child social competence (C) in a fitted model.

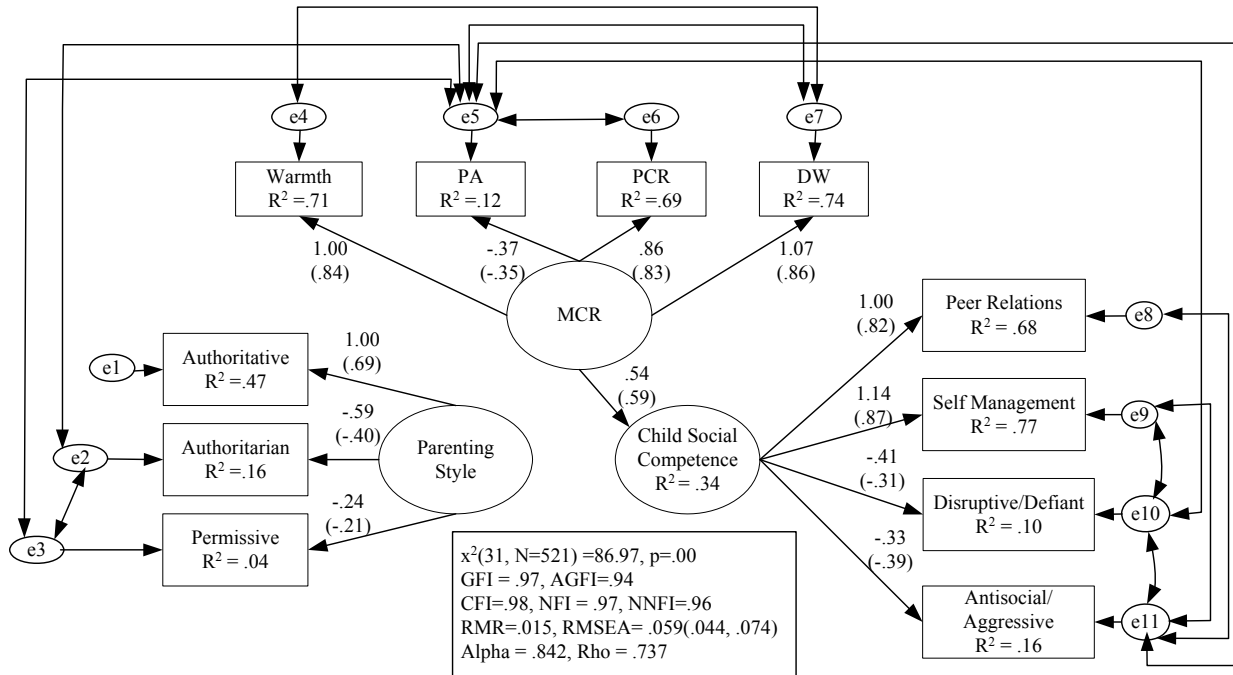


Figure 22. The direct model of MCR on child social competence with maternal parenting.

Figure 23 indicated mother-child relationship (A) significantly related to maternal parenting style (B), which significantly related to child social competence (C) in a fitted model. When the $A \rightarrow C$ path was added as in Figure 24, its correlation coefficient became insignificant whereas the $A \rightarrow B$ and $B \rightarrow C$ paths remained significant. The chi-square change between Figures 23 and 24 was insignificant: $\Delta\chi^2(1) = .02, p > .05$, indicating the addition of the $A \rightarrow C$ path did not improve the model fit. Hence, the full mediational effect of maternal parenting on mother-child relationship in the prediction of child social competence was supported. In other words, the direct link between mother-child relationship and child social competence was largely explained by maternal parenting. When maternal parenting was taken into consideration, the effect of mother-child relationship disappeared. Maternal parenting appeared to be more important than mother-child relationship on child social competence when these three factors were considered.

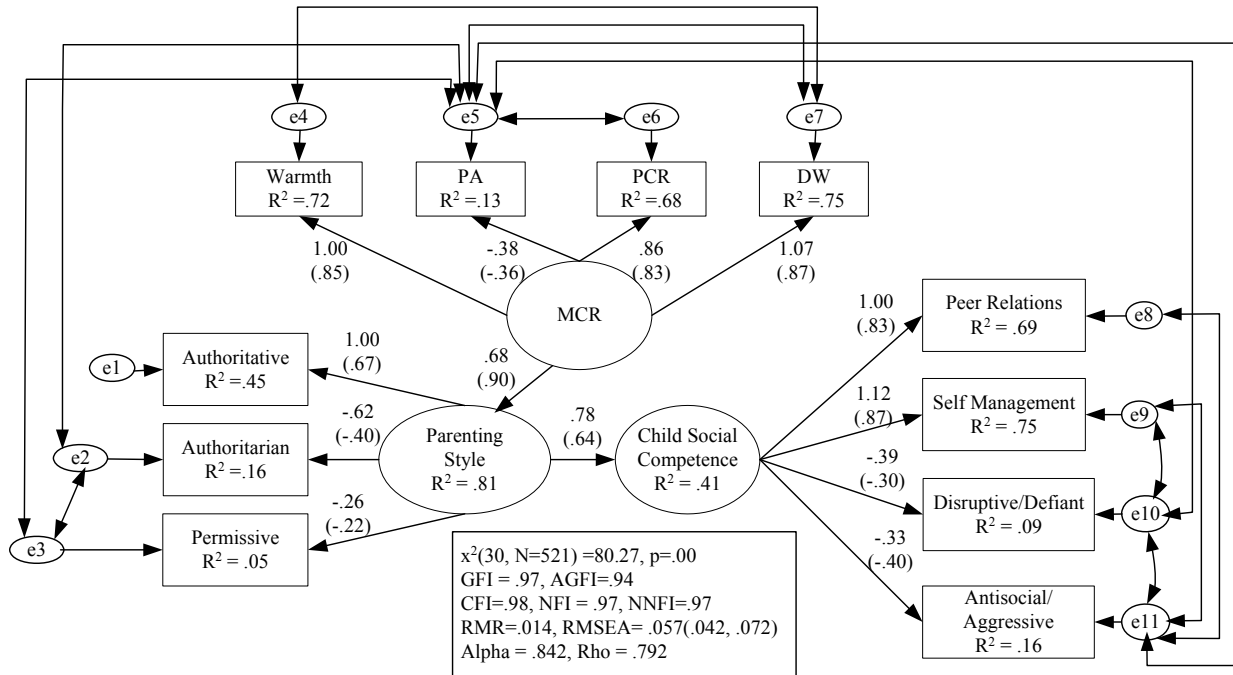


Figure 23. No direct link between mother-child relationship and child social competence.

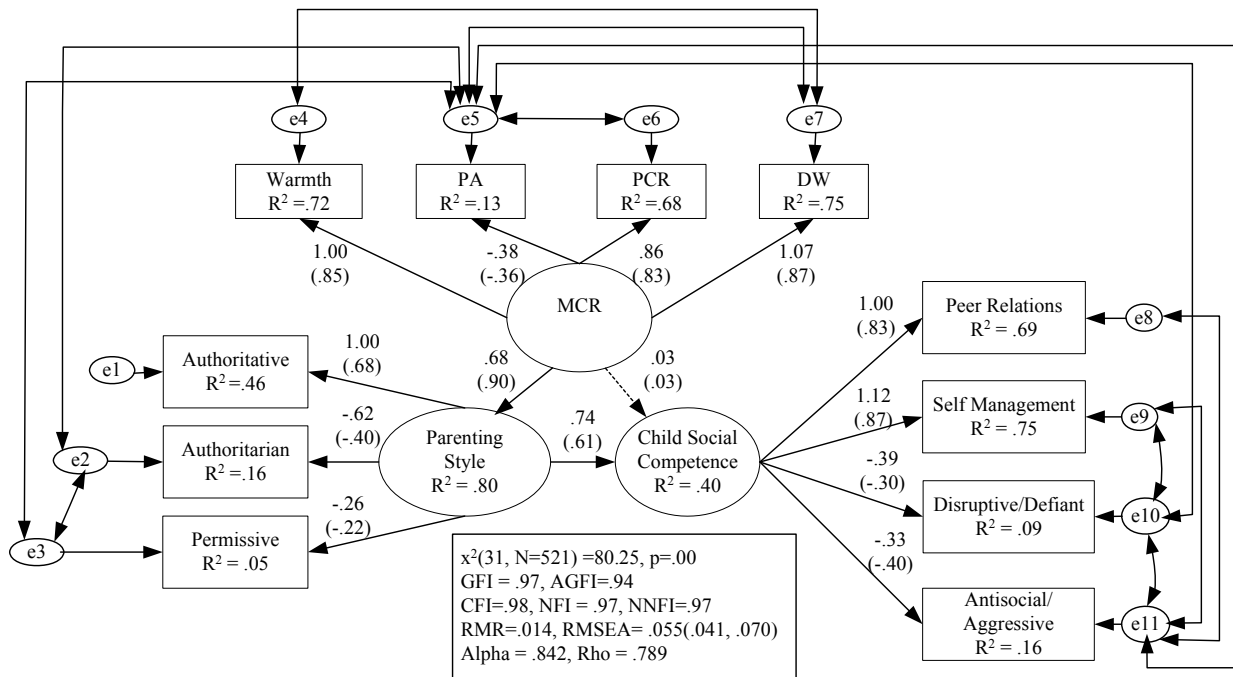


Figure 24. Maternal parenting mediated MCR on child social competence. [The dash line indicated the path was insignificant.]

FCR Mediating Paternal Parenting on Child Social Competence

Two multivariate outliers, one on paternal parenting and one on father-child relationship, were detected and excluded. The correlation and variance-covariance matrices were in Tables B.27–B.28. The initial direct path between paternal parenting and child social competence was significant ($\gamma = .47, p < .05, R^2 = .22$) in the presence of father-child relationship in a poorly fitted model: $\chi^2(42) = 911.05, p = .000$; CFI = .65; GFI = .75; AGFI = .61; NFI = .64; NNFI = .54; SRMR = .14; and RMSEA = .20. With eleven pairs of correlated measurement errors as shown in Figure 25, this model fitted to the data well: $\chi^2(31, N = 521) = 73.05, p = .00$; GFI = .97; AGFI = .95; CFI = .98; NFI = .97; NNFI = .97; RMR = .015; and RMSEA = .052.

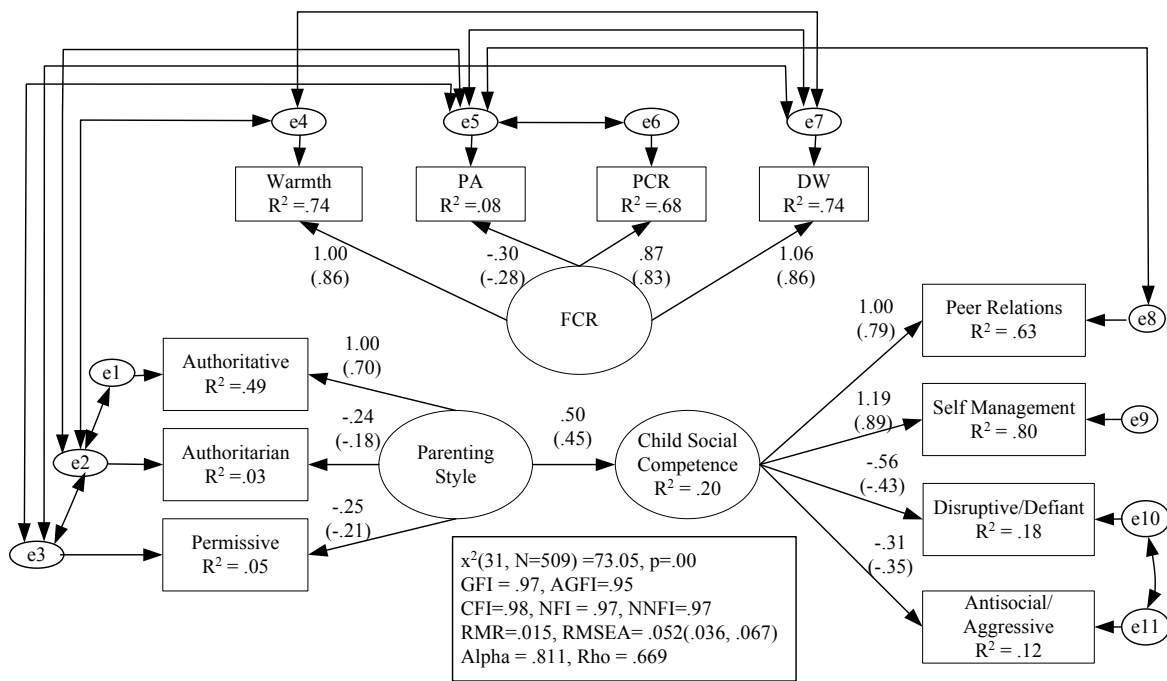


Figure 25. The direct model of paternal parenting and child social competence with FCR.

In this model, paternal parenting style significantly predicted child social competence with a structural coefficient of .45 ($R^2 = .20$), similar to .47 in the initial model without any correlated errors and similar to .44 in Figure 12 for the direct model without father-child

relationship considered. When father-child relationship was included without the direct A → C path, the A → B and B → C paths were also significant in a well-fitted model as in Figure 26:

$\chi^2(31, N = 509) = 72.76, p = .00$; GFI = .97; AGFI = .95; CFI = .98; NFI = .97; NNFI = .97; RMR = .016, and RMSEA = .051.

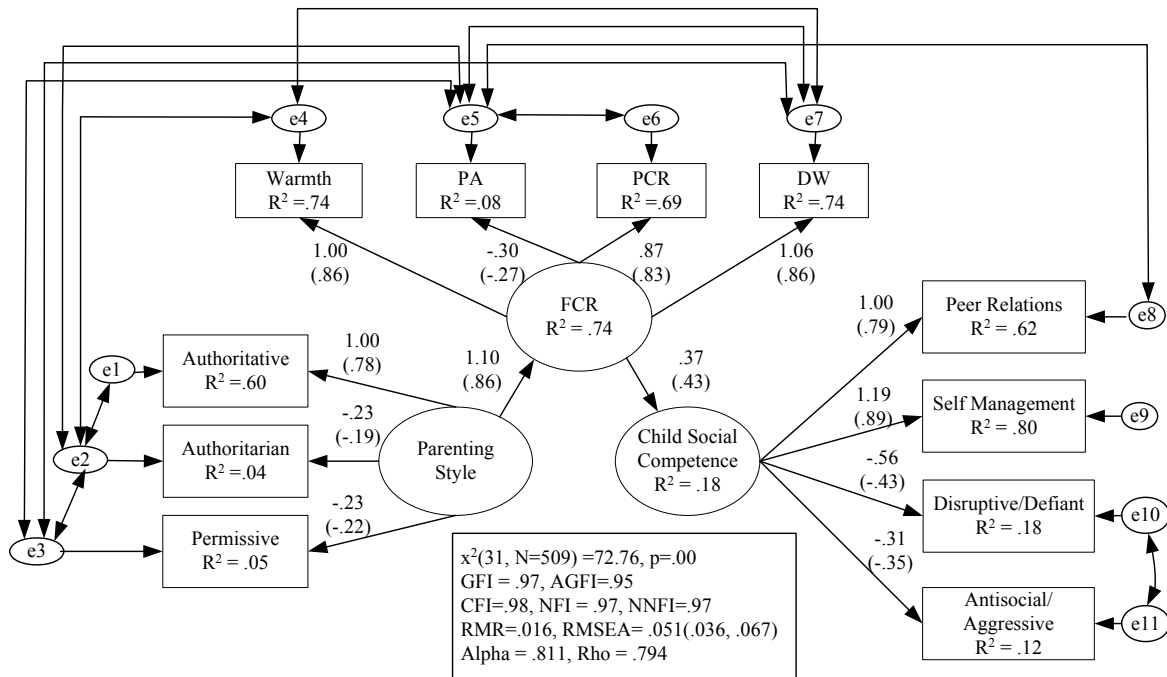


Figure 26. No direct link between paternal parenting and child social competence.

Paternal parenting predicted 74% of the variance in father-child relationship and the later predicted 18% of the variance in child social competence. The indirect A → B → C path had a coefficient of .37 ($R^2 = .14$). When the direct A → C path was added as in Figure 27, its structural coefficient reduced to the insignificant .08 from the significant .45 in Figure 25, whereas the A → B and B → C paths remained significant. The chi-square change between Figure 26 and Figure 27 also indicated the addition of the A → C path did not improve the model fit: $\Delta\chi^2(1) = .26, p > .05$. The indirect effect was .30, much larger than .08 for the direct path in Figure 27. Therefore, the full mediational effect of father-child relationship, Hypothesis 27, was

supported. The influence of paternal parenting on child social competence was primarily explained by father-child relationship.

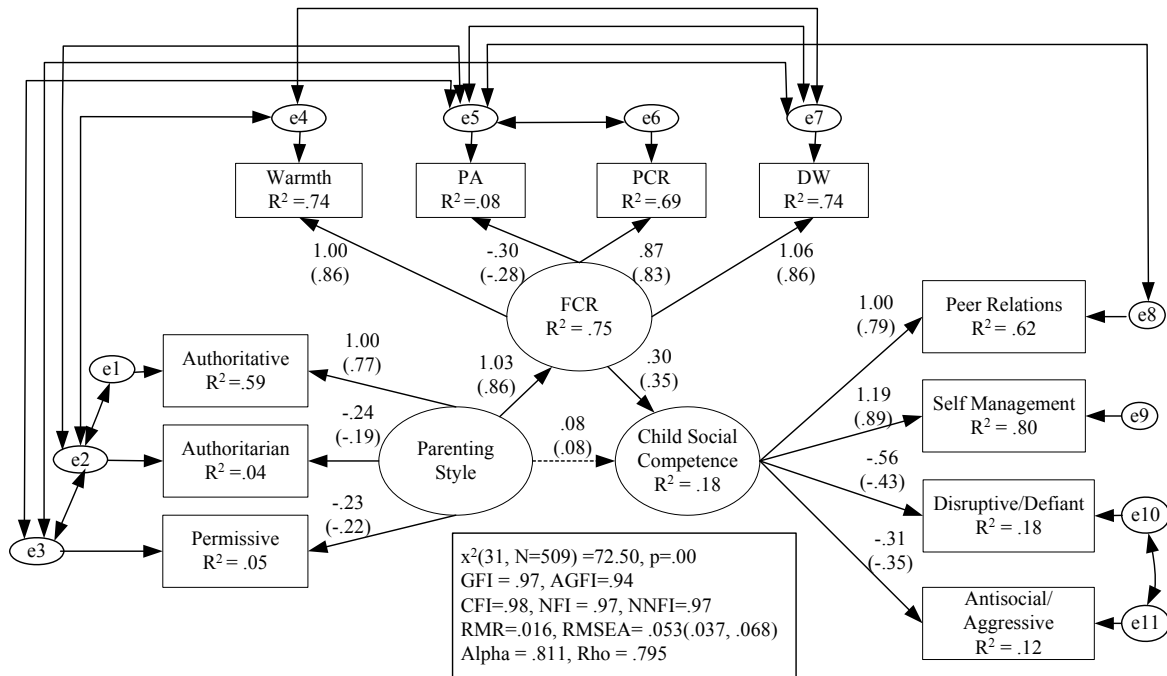


Figure 27. FCR as a mediator of paternal parenting on child social competence. [The dash line indicated the path was insignificant.]

CMR Mediating Maternal Parenting on Child Social Competence

Four multivariate outliers on maternal parenting and one on child-mother relationship were detected and excluded. The correlation and covariance matrices were presented in Tables B.29-B.30. Initially, maternal parenting significantly related to child social competence in the presence of child-mother relationship ($\gamma = .35, t = 4.90, p < .01; R^2 = .12$) in a poorly fitted model: $\chi^2(42) = 507.22, p = .000$; CFI = .74; GFI = .85; AGFI = .77; NFI = .73; NNFI = .66; SRMR = .10; and RMSEA = .14. A model with nine pairs of correlated residuals as in Figure 28 yielded an optimal fit: $\chi^2(34, N = 538) = 55.82, p = .011$; GFI = .98; AGFI = .96; CFI = .99; NFI = .97; NNFI = .98; RMR = .015; and RMSEA = .035.

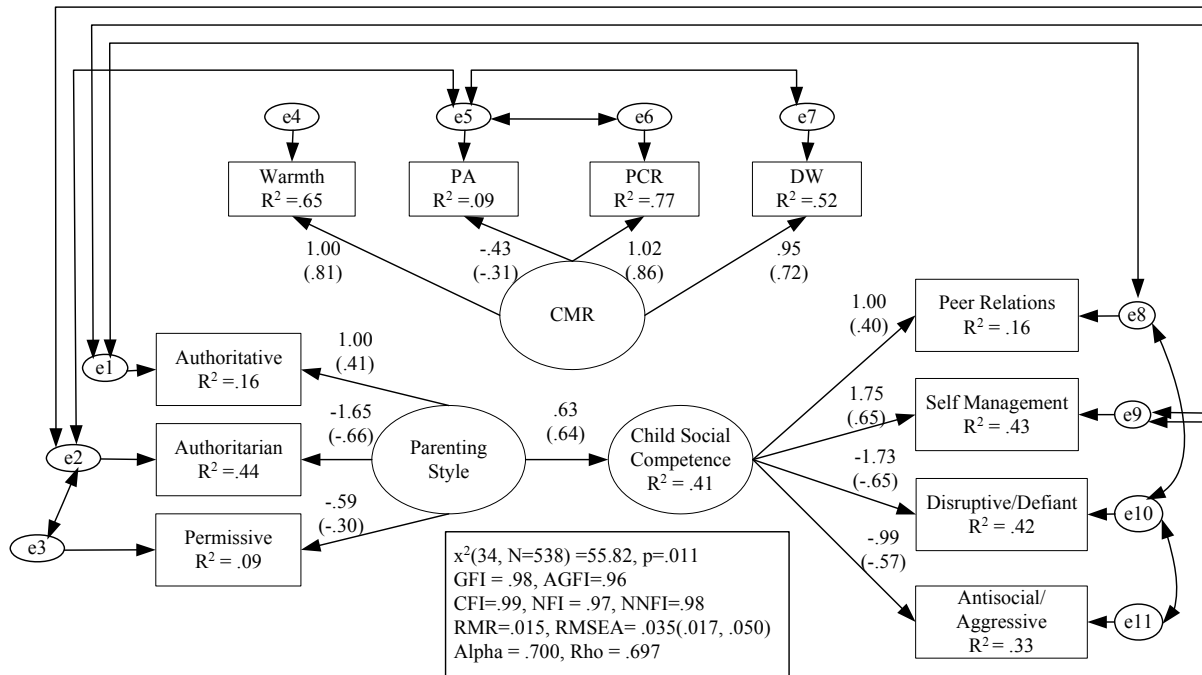


Figure 28. The direct model of mother's parenting and child social competence with CMR.

In this model, maternal parenting style significantly predicted child social competence: $\gamma = .64, t = 4.41, p < .01; R^2 = .41$, the same as in Figure 19 with mother-child relationship presented. When child-mother relationship (CMR) was included, without the direct $A \rightarrow C$ path, the $A \rightarrow B$ and $B \rightarrow C$ paths were insignificant in a reasonably fitted model as shown in Figure 29: $\chi^2(34, N = 538) = 104.13, p = .000; GFI = .97; AGFI = .93; CFI = .97; NFI = .95; NNFI = .94; RMR = .024$, and $RMSEA = .062$. Maternal parenting predicted 4% of the variance in child-mother relationship, and the later predicted only 2% of the variance in child social competence. The indirect effect was very small, with a value of .028.

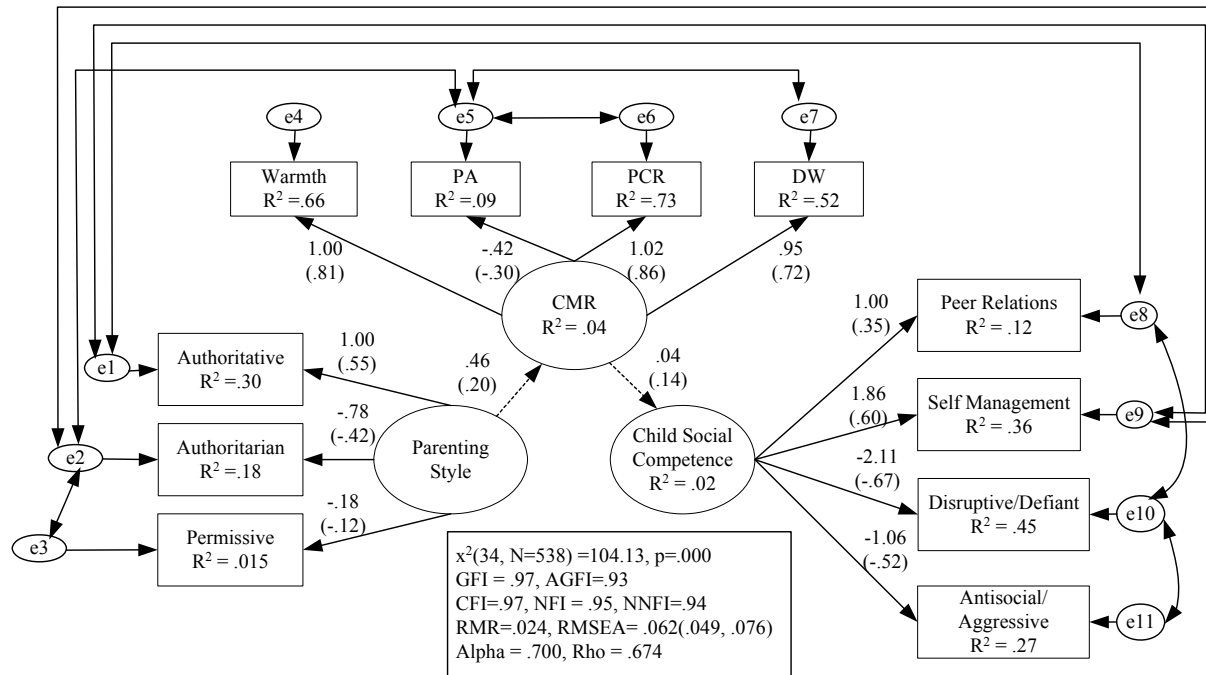


Figure 29. No direct link between maternal parenting and child social competence with CMR. [The dash line indicated the path was insignificant.]

When the direct $A \rightarrow C$ path was added as in Figure 30, the model fitted to the data well: $\chi^2(33, N = 538) = 55.40, p = .009$; $GFI = .98$; $AGFI = .96$; $CFI = .99$; $NFI = .97$; $NNFI = .98$; $RMR = .014$; $SRMR = .036$; and $RMSEA = .036(.018, .051)$. The structural coefficient for the direct $A \rightarrow C$ path was .61, the same as in Figure 24 with mother-child relationship included and not much less than .64 for the direct model in Figure 28. The $A \rightarrow B$ and $B \rightarrow C$ paths remained insignificant. The indirect effect, .006, was much less than .61 for the direct effect. The prediction of child social competence was mainly from the direct contribution of maternal parenting style. The chi-square change between Figure 30 and Figure 31 also indicated the addition of the $A \rightarrow C$ path significantly improved the model fit: $\Delta\chi^2(1) = 48.73, p < .001$. The mediational role of child-mother relationship between maternal parenting and child social competence was not supported. Hypothesis 28 was rejected. The insignificant relationship

between CMR and maternal parenting and that between CMR and child social competence indicated child's perception of child-mother relationship was unimportant in these models.

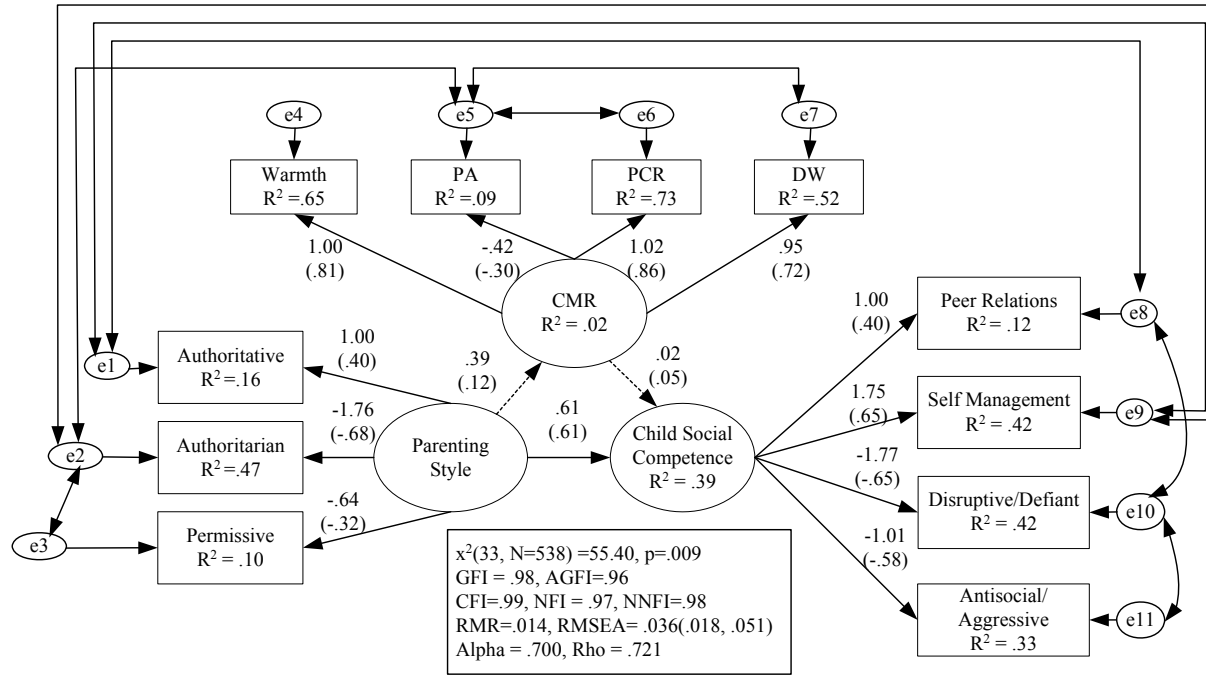


Figure 30. CMR as a mediator of maternal parenting on child social competence. [The dash line indicated the path was insignificant.]

CFR Mediating Paternal Parenting on Child Social Competence

One multivariate outlier on paternal parenting was detected and removed. The correlation and variance-covariance matrices for this sample of fathers and children were presented in Tables B.31-B.32. Initially, paternal parenting style significantly predicted child social competence ($\gamma = .29, t = 4.20, p < .01; R^2 = .09$) in a poorly fitted model: $\chi^2(42) = 502.24, p = .000; CFI = .73; GFI = .85; AGFI = .77; NFI = .71; NNFI = .64; SRMR = .11; and RMSEA = .14$. By taking the modification strategy, one at a time with the largest change on the chi-square statistic, the data fitted to the model with six pairs of correlated residuals as shown in Figure 31:

$\chi^2(35, N = 523) = 80.87, p = .000$; GFI = .97; AGFI = .95; MFI = .95; CFI = .97; NFI = .96; NNFI = .96; RMR = .024; SRMR = .057; and RMSEA = .050.

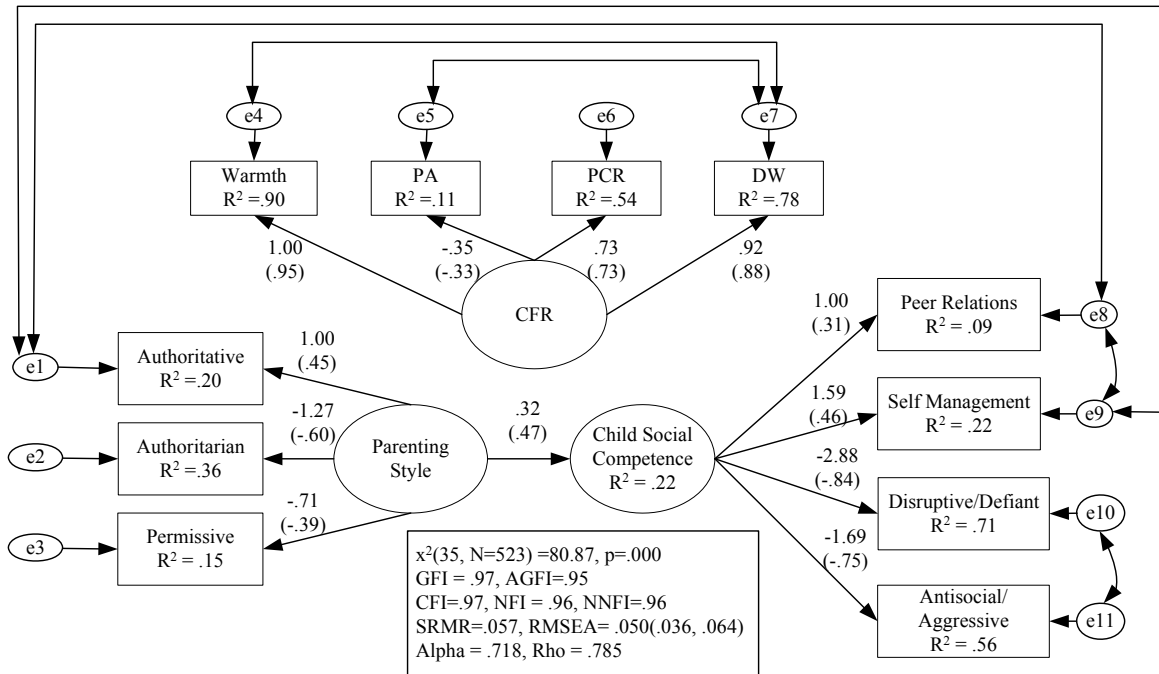


Figure 31. The direct model of father’s parenting and child social competence with CFR.

Although this model for the child-father sample was not significantly better than the one with the nine pairs of correlated errors as in Figure 28 for the child-mother sample: $\Delta \chi^2(1) = 3.53, p > .05$; it was used as it had fewer interfactor correlated residuals. In this model, the structural coefficient between paternal parenting and child social competence in the presence of child-father relationship was .47, similar to .45 as in Figure 25 with father-child relationship considered. When child-father relationship (CFR) was included without the direct A → C path as in Figure 32, the data fitted to the model fairly well: $\chi^2(35, N = 523) = 110.21, p = .000$; GFI = .96; AGFI = .93; CFI = .96; NFI = .94; NNFI = .94; RMR = .022, SRMR = .076; and RMSEA = .064.

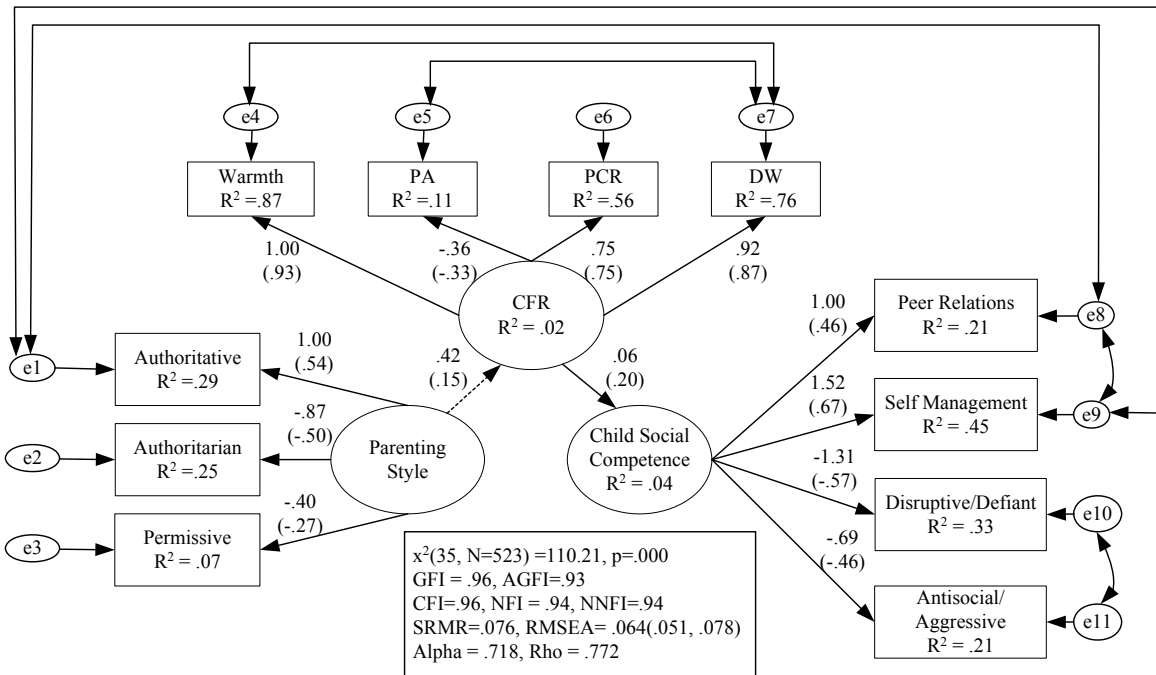


Figure 32. No direct link between father’s parenting and child social competence with CFR. [The dash line indicated the path was insignificant.]

In this model, the A → B path was insignificant. For the B → C path, although it was significant, child-father relationship predicted only 4% of the variance in child social competence, much less than the value of 18% in Figure 26. The total indirect effect was very small in a value of .03. When the direct A → C path was added as shown in Figure 33, its structural coefficient was .46 in a well-fitted model, not much less than .47 for the direct model in Figure 31. The A → B and B → C paths became insignificant. The indirect effect was .012, much less than .46 for the direct effect. Therefore, the prediction of child social competence was largely from the direct contribution of paternal parenting style. The chi-square change between Figure 32 and Figure 33 also indicated the addition of the A → C path significantly improved the model fit: $\Delta\chi^2(1) = 31.71, p < .001$. The mediational role of child-father relationship between paternal parenting and child social competence was not supported. Hypothesis 29 was rejected.

The above results suggested that the child's perception of the relationship with the father was unimportant in these models. It did not relate to paternal parenting, barely related to child social competence, and had no mediation effect in changing the relationship between paternal parenting style and child social competence.

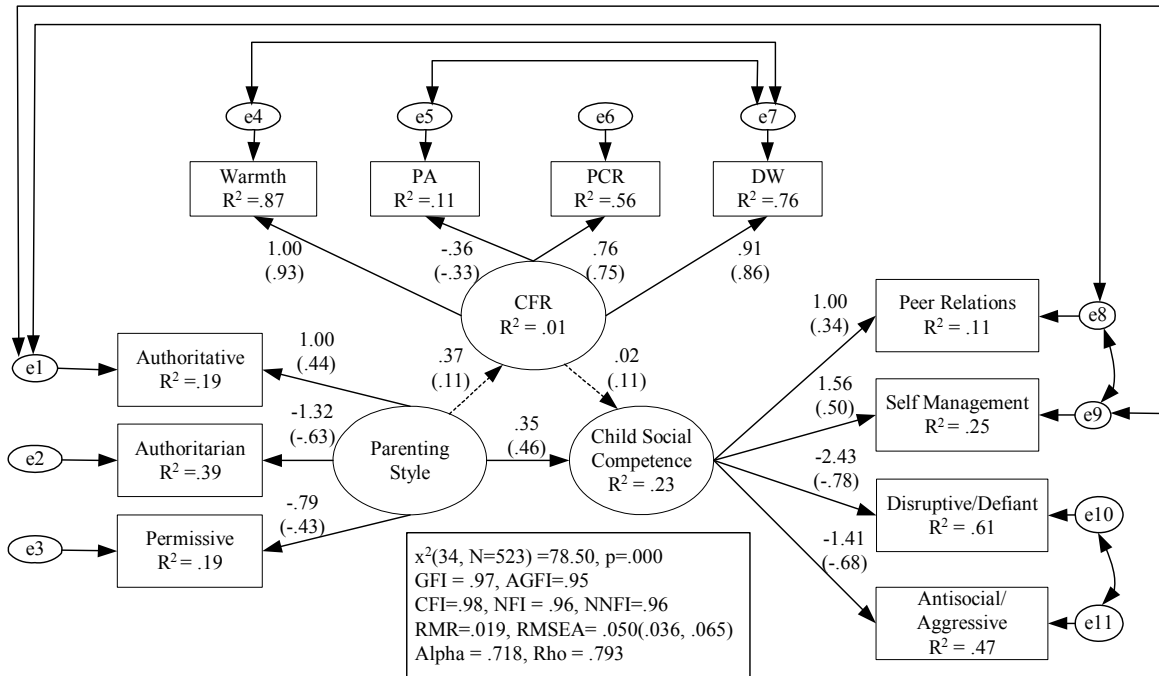


Figure 33. CFR as a mediator of paternal parenting on child social competence. [The dash line indicated the path was insignificant.]

Summary of Parent-Child Relationship as a Possible Mediator

Table 4.32 further summarized the mediational effects of the four different views of parent-child relationship between parenting style and child social competence. Children's views of child-parent relationship (i.e., CMR or CFR) consistently contributed little to the prediction of children's social competence. Full mediation effect was only found for father-child relationship. In addition, maternal parenting mediated mother-child relationship on child social competence as demonstrated in Figures 22-24. Taking together, these findings seemed to suggest that: (a)

maternal parenting style significantly related to child social competence in a direct way, (b) father-child relationship played a more important role than paternal parenting style in predicting child social competence, and (c) children’s perceptions of the relationships with their parents did not contribute to the prediction of their social competence.

Table 4.32
Summary of Parent-Child Relationship as Mediator

	Mother-Child Relationship	Father-Child Relationship	Child-Mother Relationship	Child-Father Relationship
Mediation	No*	Yes	No	No
Best Model	Direct model (Figure 19)	Indirect model (Figure 26)	Direct model (Figure 28)	Direct model (Figure 31)

Note: *Although mother-child relationship did not mediate maternal parenting on child social competence, the latter was a mediator of the former on child social competence. The best model was the full mediation model in Figure 23, which was equivalent to the direct model in Figure 19 in terms of prediction on child social competence.

Interactional Model: Family Functioning and Parenting Style

Family Functioning Moderating Parenting Style on Child Social Competence

An interaction effect was hypothesized between family functioning and parenting style influencing child social competence in the present study. Family functioning was represented with four observed variables on FACES IV: family communication, family satisfaction, and the derived cohesion and flexibility ratios. All were treated as continuous variables. Therefore, family functioning in this study, the same as parenting style, was a metric latent variable. Kenny and Judd's (1984) proposed indicant product analysis procedure to model the interaction between two continuous variables. However, this approach has been criticized for: (a) the introduction of the non-normality of the product indicators, making the ML estimation inappropriate; (b) no estimations on the intercepts due to the variables in the derived form; and (c) introductions of many new product terms and corresponding nonlinear constraint (Bollen & Paxton, 1998; Li & Harmer, 1998). The last limitation made SEM software packages hard to implement the analytic technique, consequently requiring tedious and error-prone manual calculations (Bollen & Paxton).

Several extensions of Kenny and Judd's approach have been proposed (e.g., Jöreskog & Yang, 1996; Ping, 1996) and various other procedures have been developed for estimating and testing interaction models in different situations (Jöreskog, 1998). Among them, Schumacker (2002) proposed the latent variable score approach based on Jöreskog's (2000, in Mels, 2005) technique for testing latent variable interaction in SEM. This approach does not require "the multiplying of observed variables, the use of derived scores, or the specification of nonlinear constraints in several matrices" (Schumacker, p. 41). Schumacker further found that the product indicant and latent variable score approaches produced similar parameter estimates with

reasonably close standard errors. The present study used Schumacker's latent variable score approach to test the interaction between parenting style and family functioning.

The first step for the application was to import the SPSS file into LISREL after the listwise deletion of missing cases and the multivariate outliers removed and to save the raw data in a PRELIS system file. The second step was to create the dependent latent variable and two independent latent variables and add them to the PRELIS system file using a LISREL-SIMPLIS program (see Appendix H). The third step was to use a PRELIS program (see Appendix I) to multiply the two independent latent variables to create the interaction latent variable and add it to the PRELIS system file. The RG (regression) command in the program estimated three structural coefficients: two main effects and one interaction effect. The two main effects would be interpreted only if the interaction effect was not significant. These procedures were followed to test the interaction effect between parenting style and parent's perception of family functioning in both the mothers and fathers.

Tables B.33-B.36 presented the correlation and variance-covariance matrices for the two samples. Table 4.33 listed the skewness and kurtosis of the two latent predictors (i.e., parenting style and family functioning) and the interaction predictor derived from the latent variable score approach. Table 4.34 showed the structural coefficients for the two latent independent variables and the interaction variable. The results in Table 4.33 showed that, whereas the two latent independent variables were normally distributed, the interaction latent variable had statistically significant chi-square values. Theoretically, the robustness of the standard error and bootstrap estimate for the interaction coefficient (i.e., γ_3 in Table 4.34) might be desirable in this case (Schumacker & Lomax, 2004). However, as the t values for the two interaction coefficients in Table 4.34 were far below 1.96, the critical value for a significance at the .05 level, it was

unlikely to find significant interaction effects by bootstrapping. Consequently, the bootstrap estimates were not conducted in the present study. Table 4.34 clearly demonstrated the interaction effect was insignificant while the two main effects were significant in both parents. These results suggest both parenting style and parent's perception of family functioning significantly related to child social competence, separately but not interactively. The moderational role of family functioning was not found in both parents. Hypotheses 30 and 31 were rejected.

Table 4.33
 χ^2 for Skewness and Kurtosis of the Independent and Interaction Variables

Samples	Parenting style	Family functioning	Interaction (Parenting x family functioning)
Mother sample			
χ^2 for skewness and kurtosis	.480	.852	273.669
<i>p</i> values	.787	.653	.000
Father sample			
χ^2 for skewness and kurtosis	.049	.732	390.339
<i>p</i> values	.976	.693	.000

Table 4.34
Gamma Coefficients for Parenting and Family Functioning and the Interaction

Statistics	$\gamma 1$	$\gamma 2$	$\gamma 3$
Maternal parenting ($N = 518, R^2 = .233$)			
Parameter estimates	.656	.234	-.041
Standard errors	.101	.032	.158
<i>T</i> values	6.507	7.392	.261
Paternal parenting ($N = 508, R^2 = .153$)			
Parameter estimates	.320	.181	.0132
Standard errors	.078	.037	.102
<i>T</i> values	4.102	4.958	.129

Note: $\gamma 1$ for parenting style, $\gamma 2$ for family functioning, and $\gamma 3$ for the interaction

Although the interaction effect or moderational effect was not found for the parents' perception of family functioning on the relationship between parenting style and child social competence, there may be a mediated effect. Therefore, the mediational role of family functioning was examined below.

Family Functioning Mediating Maternal Parenting on Child Social Competence

For the mother sample, the correlation and variance-covariance matrices were in Tables B.33-B.34 after five multivariate outliers, four on maternal parenting and one on mother's perception of family functioning were removed. The initial direct model between maternal parenting style and child social competence in the presence of mother's perception of family functioning was significant ($\gamma = .44, t = 5.48, p < .001$) in a poorly fitted model: $\chi^2(42) = 563.92,$

$p = .000$; CFI = .75; GFI = .83; AGFI = .74; NFI = .74; NNFI = .68; SRMR = .12; and RMSEA = .16(.14, .17). LISREL suggested adding eighteen pairs of correlated residuals and four pairs of cross-factor loadings to improve the fit. By taking the modification suggestions with the largest chi-square decrease one at a time, the direct model with eight pairs of correlated residuals as shown in Figure 34 fitted to the data well: $\chi^2(34, N = 518) = 61.57, p = .003$; GFI = .98; AGFI = .96; CFI = .99; NFI = .97; NNFI = .98; SRMR = .033; and RMSEA = .040.

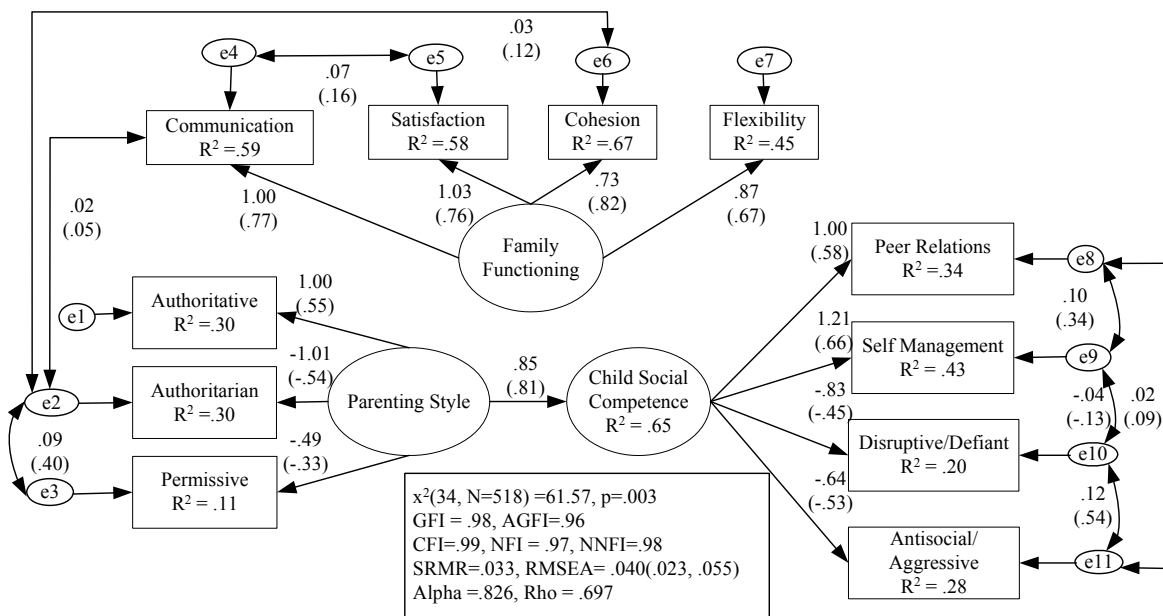


Figure 34. Parenting on child social competence with family functioning in mother.

In this model, the structural coefficient for the direct A \rightarrow C path was significant ($\gamma = .81, t = 7.19, p < .001; R^2 = .65$), much larger than .44 in the initial model without any correlated errors. In fact, LISREL suggested adding another pair of correlated errors between authoritative parenting and peer relations to improve the model fit, which would result in a significant improvement with a new structural coefficient .79: $\Delta\chi(1) = 10.66, p < .001$. However, this pair was not included in the model for four reasons: (a) the peer relationship rating on HCSBS was

not necessarily completed by the mother, (b) the change of the structural coefficients was small, (c) a good model fit had been already achieved without it, and (d) the eight pairs of correlated residuals could be easily attributed to the person/measurement factor relatively. When mother's view of family functioning was included without the direct A → C path, the A → B and B → C paths were significant ($\gamma_1 = .84, t_1 = 5.89, p < .01; \gamma_2 = .60, t_2 = 4.77, p < .01$) in a fitted model as shown in Figure 35: $\chi^2(34, N = 518) = 97.97, p = .003; GFI = .97; AGFI = .94; CFI = .97; NFI = .96; NNFI = .96; SRMR = .057; and RMSEA = .060$.

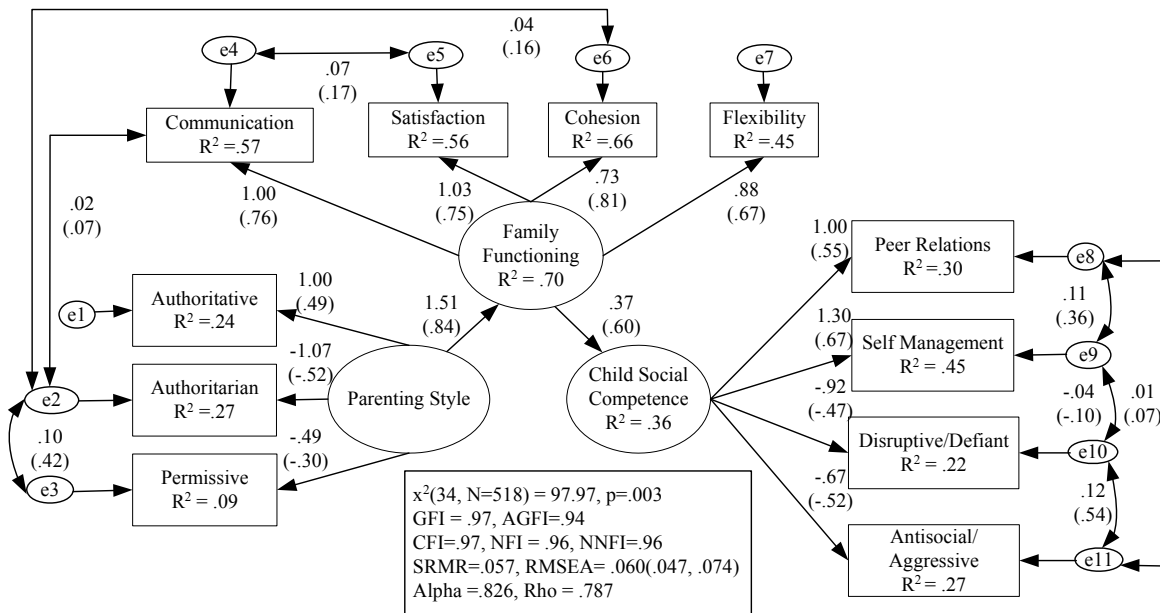


Figure 35. Maternal parenting on child social competence through family functioning.

The influence of maternal parenting on child social competence through family functioning was .50 (i.e., $.84 \times .60$), corresponding to a multiple R^2 of .25. When the direct A → C path was added as shown in Figure 36, its structural coefficient changed to 1.18 ($t = 2.81, p < .05$) in the well-fitted model while the B → C path became insignificant ($\gamma = -.38, t = -1.13, p > .05$). The coefficient larger than one between maternal parenting and child social competence

in this model may be due to multicollinearity (Jöreskog & Sörbom, 2002) as shown in the high correlation of .84 in Figure 35 and .77 in Figure 36 between the two variables. This greater-than-one coefficient was offset by the negative association between family functioning and child social competence, which was contrary to intuition. However, the total effect of maternal parenting on child social competence was less than one at a value of .89, corresponding to a multiple R^2 of .79, noticeably larger than .65 in the direct model in Figure 34. If this model was accepted, the results indicated the addition of the $A \rightarrow C$ path was necessary. The chi-square change between Figure 35 and Figure 36 also indicated the inclusion of the $A \rightarrow C$ path significantly improved the model fit: $\Delta\chi^2(1) = 39.69, p < .01$. Therefore, the mediational role of family functioning in the mother sample was not supported.

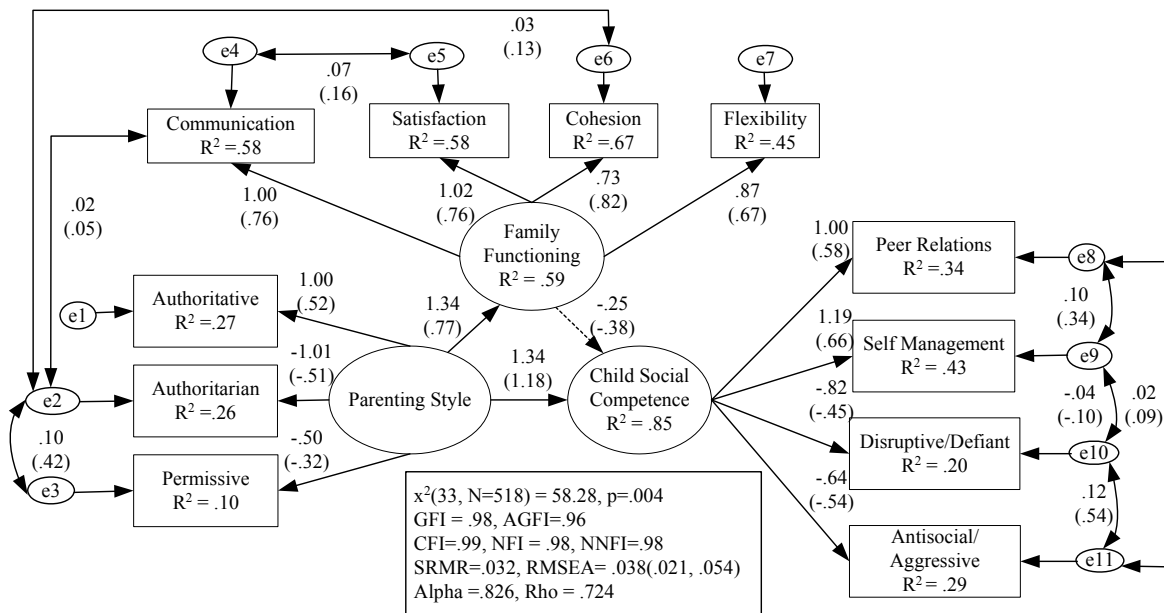


Figure 36. Family functioning mediating maternal parenting on child social competence. [The dash line indicated the path was insignificant.]

In fact, the changes of the path coefficients in Figures 34-36 suggested that maternal parenting mediated the relationship between family functioning and child social competence as

demonstrated below. First, mother's perception of family functioning alone significant predicted child social competence in a well-fitted model: $\gamma = .60, t = 7.23, p < .01$. The fitting statistics were identical to those in Figure 35. Then the paths from family functioning to parenting style and from parenting style to child social competence were also significant ($\gamma_1 = .69, t_1 = 8.43, p < .00; \gamma_2 = .81, t_2 = 7.19, p < .01$) in a well-fitted model as shown in Figure 37.

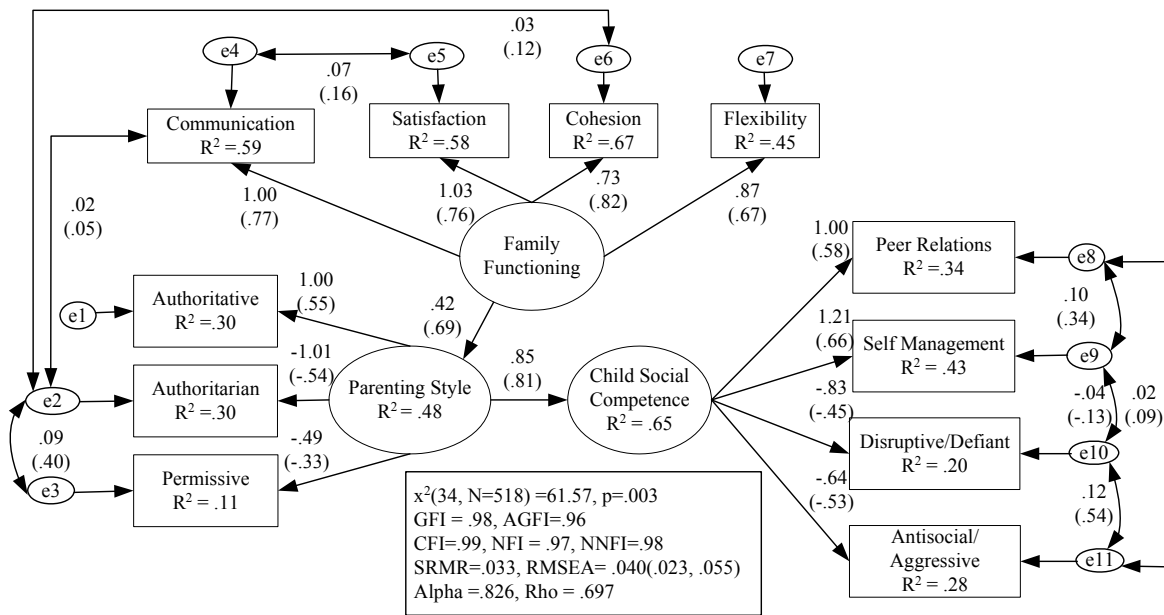


Figure 37. Family functioning on child social competence through parenting in mother.

Figure 38 showed the path from family functioning to child social competence became insignificant ($\gamma = -.38, t = -1.13, p > .05$) after the path from parenting style to child social competence was added. The chi-square change between Figures 37 and 38 also indicated the addition of the path from family functioning to social competence did not improve the model fit: $\Delta\chi^2(1) = 3.29, p > .05$. Therefore, maternal parenting mediated the relationship between mother's perception of family functioning and child social competence. The significant relationship between family functioning and child social competence disappeared if maternal parenting style

was included into the equation. The prediction on child social competence was primarily from maternal parenting. In other words, mother's perception of family function was not an important variable and could be dropped in predicting child social competence if maternal parenting style was presenting. Hypothesis 32 was rejected. The best prediction model among these variables was the mediation model in Figure 37, which was equivalent to the direct model in Figure 34 statistically. The exclusion of family functioning in the parsimonious model in Figure 34 may be desirable as it eliminated the multicollinearity problem.

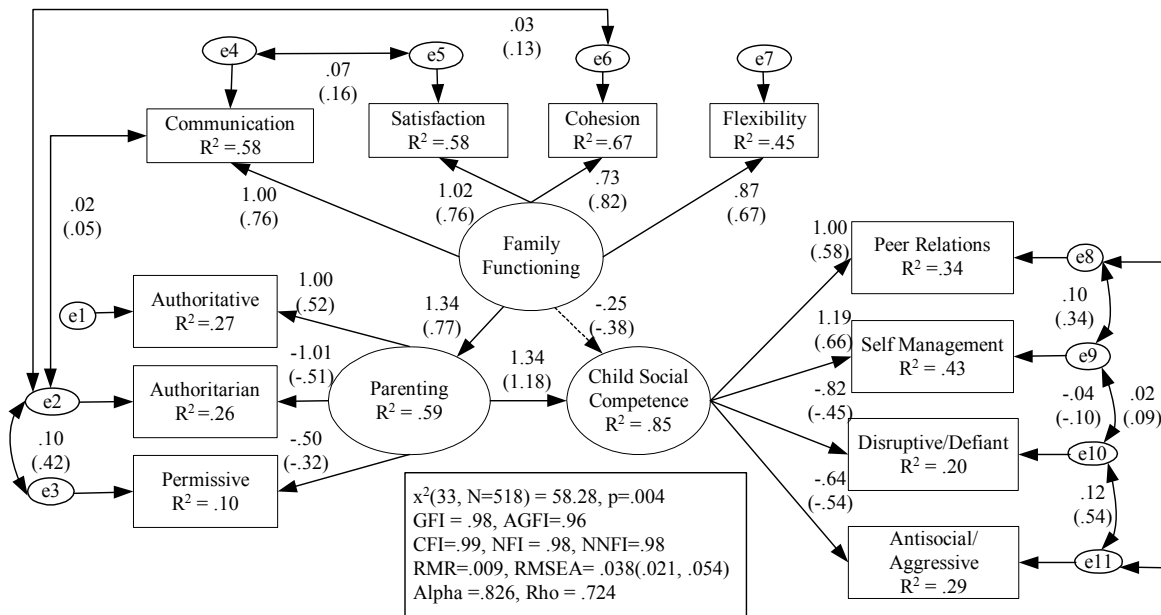


Figure 38. Maternal parenting mediated family functioning on child social competence. [The dash line indicated the path was insignificant.]

Family Functioning Mediating Paternal Parenting on Child Social Competence

The correlation and variance-covariance matrices for the father sample were in Tables B.35-B.36 after three multivariate outliers, one on paternal parenting and two on father's perception of family functioning, were removed. The initial direct model between paternal parenting style and child social competence in the presence of father's perception of family

functioning was significant ($\gamma = .45, t = 6.52, p < .001$) in a poorly fitted model: $\chi^2(42) = 547.67, p = .000$; CFI = .76; GFI = .84; AGFI = .74; NFI = .75; NNFI = .68; SRMR = .10; and RMSEA = .15. LISREL suggested adding seventeen pairs of correlated residuals and four pairs of cross-factor loadings to improve the model fit. By using the strategy for correlating measurement errors as before, father's parenting style significantly predicted child social competence ($\gamma = .54, t = 5.71, p < .01$) in a well-fitted model with six pairs of intrafactor correlated residuals as shown in Figure 39: $\chi^2(36, N = 508) = 69.92, p = .000$; GFI = .98; AGFI = .96; CFI = .99; NFI = .97; NNFI = .98; SRMR = .039; and RMSEA = .043.

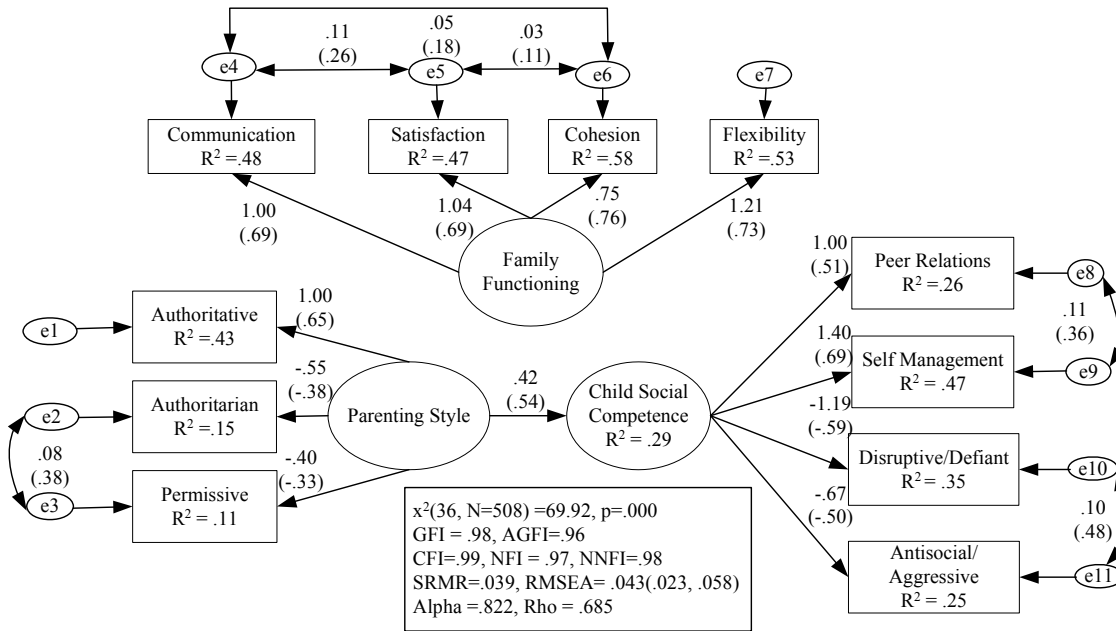


Figure 39. Parenting on child social competence with family functioning in father.

The structural coefficient .54 was not much different from .44 in the direct model in Figure 14 and .45 for the direct model without any correlated residuals in the presence of family functioning. When father's view of family functioning was included without the direct A → C path, the A → B and B → C paths were significant ($\gamma_1 = .90, t_1 = 6.27, p < .01$; $\gamma_2 = .50, t_2 = 5.68,$

$p < .01$) in a well fitted model as in Figure 40: $\chi^2(36, N = 508) = 71.66, p = .000$; GFI = .97; AGFI = .95; CFI = .98; NFI = .97; NNFI = .98; RMR = .011; SRMR = .043; and RMSEA = .044.

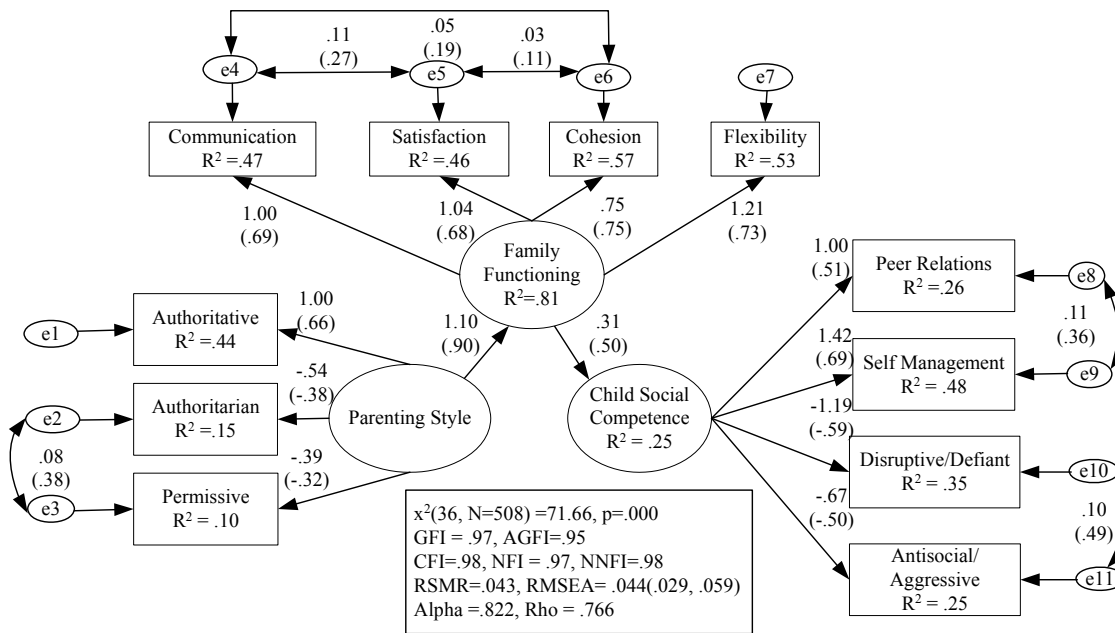


Figure 40. Parenting on child social competence through family functioning in the fathers.

When the direct $A \rightarrow C$ path was added as shown in Figure 41, its structural coefficient became insignificant ($\gamma = .56, t = 1.16, p > .05$) in the well-fitted model: $\chi^2(35, N = 508) = 69.91, p = .000$; GFI = .98; AGFI = .95; CFI = .99; NFI = .97; NNFI = .98; SRMR = .039; RMSEA = .044. However, the $B \rightarrow C$ path was no longer significant ($\gamma = -.02, t = -.05, p > .05$) whereas the $A \rightarrow B$ path remained significant ($\gamma = .89, t = 6.27, p < .02$). Although the chi-square change between Figure 40 and Figure 41 indicated the addition of the $A \rightarrow C$ path did not improve the model fit: $\Delta\chi^2(1) = 1.75, p > .05$; the conclusion of the full mediational role of family functioning could not be made in the father sample due to the insignificant $B \rightarrow C$ path. The total effect of paternal parenting on child social competence in this model was .542 ($R^2 = .29$), similar to .540 in the direct model in Figure 39. Both of the values were larger than .450 for the mediation

model in Figure 40. Therefore, the parsimonious direct model in Figure 39 seemed to be the best. Family functioning could be dropped from the equation without much influence on the prediction of child social competence. Therefore, the mediation role of family functioning in father was not supported. Hypothesis 33 was rejected.

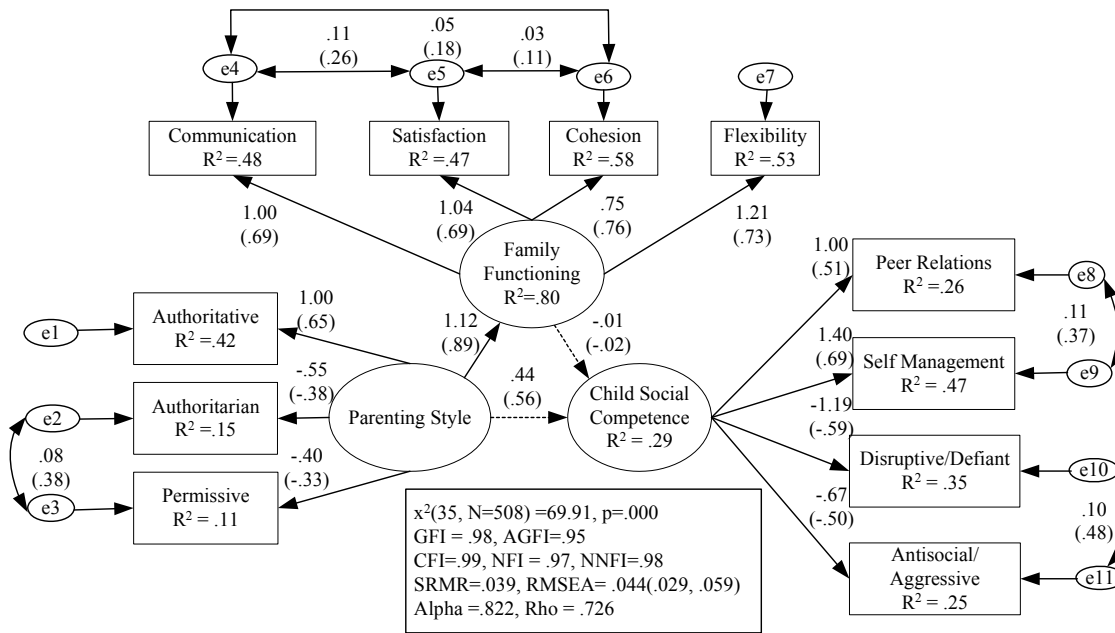


Figure 41. Family functioning mediated parenting on child social competence in father. [The dash line indicated the paths were insignificant.]

The above results on testing the moderational and mediational roles of family functioning between parenting style and child social competence were further summarized in Table 4.35. The findings indicated that parent's perception of family functioning was neither a moderator nor a mediator on the relationship between parenting style and child social competence in both parents. The direct model between parenting style and child social competence without family functioning worked well in predicting child social competence for both the mothers and fathers.

Table 4.35
Summary of Family Functioning as a Moderator or a Mediator

	Family functioning in mother	Family Functioning in father
Moderation	No	No
Mediation	No*	No
Best Model	Direct model (Figure 34)	Direct model (Figure 39)

Note: * However, maternal parenting mediated mother’s perception of family functioning on child social competence. The best model was the full mediation model in Figure 37, equivalent to the direct model in Figure 34.

The Best “Bidirectional” Models Predicting Child Social Competence

This section intended to test the bidirectional models with all of the three “middle players” (i.e., child temperament, parent-child relationship, and family functioning) considered in predicting child social competence with parenting style. However, a few adjustments were made before testing the bidirectional models based on the previous testing results. Findings from the three-factor models showed: (a) child temperament was not a moderator, (b) child’s views of child-parent relationship did not have any prediction power, (c) power assertion in the measurement model of parent-child relationship consistently was not a salient contributor, and (d) the interaction model between family functioning and parenting style was not found. Therefore, these factors were excluded for further considerations. Accordingly, the interaction variable of family function and parenting style in the hypothesized bidirectional model in Figure 8 was removed, resulting in the three variables predicting child social competence as in Figure 42. Also because child temperament was unlikely to be a moderator, there were no more examinations on

the group difference between the easy and difficult child groups. Hypothesis 36 was presumably rejected. All children were treated together in one group in the model testing below.

In Figure 42, child social competence was the latent dependent variable and the other three variables were the latent predictors. Each of the predictors could directly and/or indirectly predict child social competence. The model was further elaborated with the observed variables and measurement errors in Figure 43. This bidirectional model indeed is nonrecursive, that is, the latent variables have either direct or indirect feedback loops (Kline, 1998). Although nonrecursive models are usually complex and not recommended for cross-sectional studies (Hair et al., 2006), all of the paths between the latent variables in Figure 43 were designated as optional as there were no rationales to claim any one was mandatory, which may produce recursive models eventually.

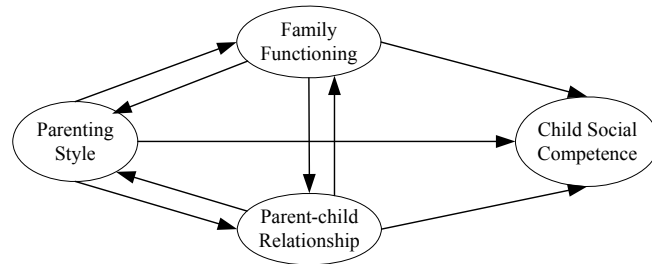


Figure 42. The generic bidirectional model predicting child social competence.

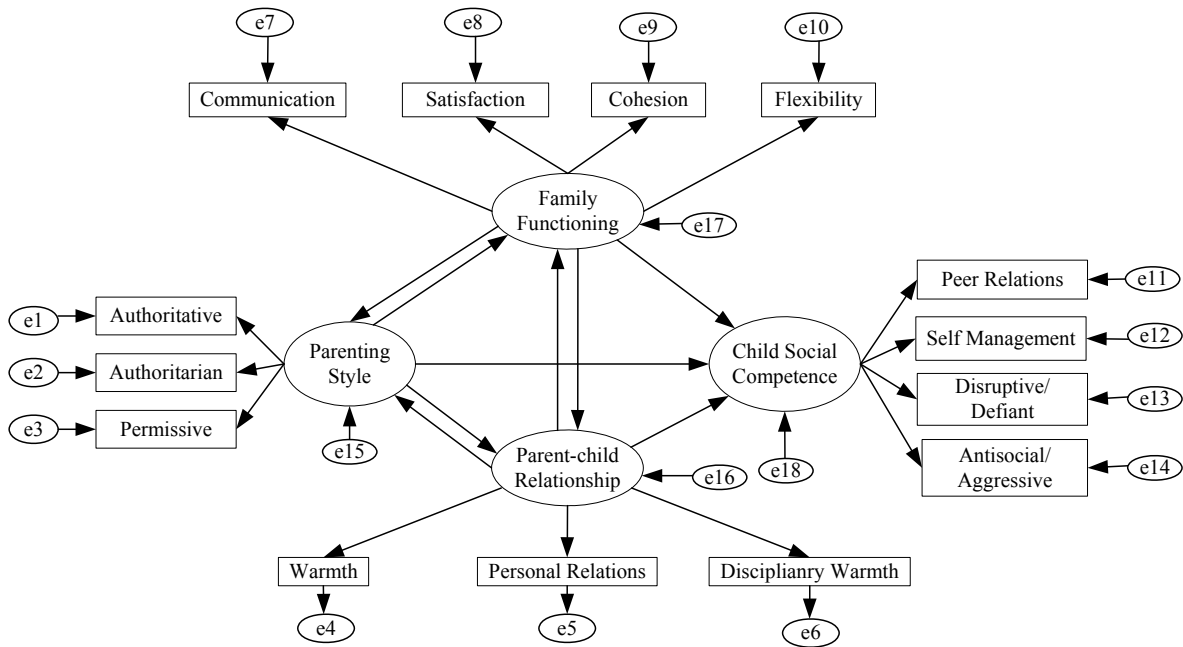


Figure 43. The bidirectional model with the observed variables.

In searching the best model, it was found measurement errors again played a vital role for the model fit. Without correlating the measurement errors, model fitting indices were not acceptable. The following six pairs of correlated intrafactor residuals were found to be consistent across the mother and father samples and provided satisfactory fitting statistics: authoritarian and permissive parenting, warmth and disciplinary warmth, communication and satisfaction, DD and AA, SMC and DD, and PR and AA. These correlated intrafactor measurement errors were likely to be contributed to the person/measurement factors as each pair was on the similar or opposite constructs on a questionnaire. More pairs of correlated residuals could be added to improve the model fit. However, the more the correlated residuals were, the less likely the models were to be validated in different samples. As these six pairs of correlated residuals could be easily explained and yield acceptable model fits in the mother and father samples, they were included in the

model as mandatory paths for the specification search in AMOS 6.0 as shown in Figure 44, whereas all of the other paths between the latent variables were optional (in yellow in AMOS).

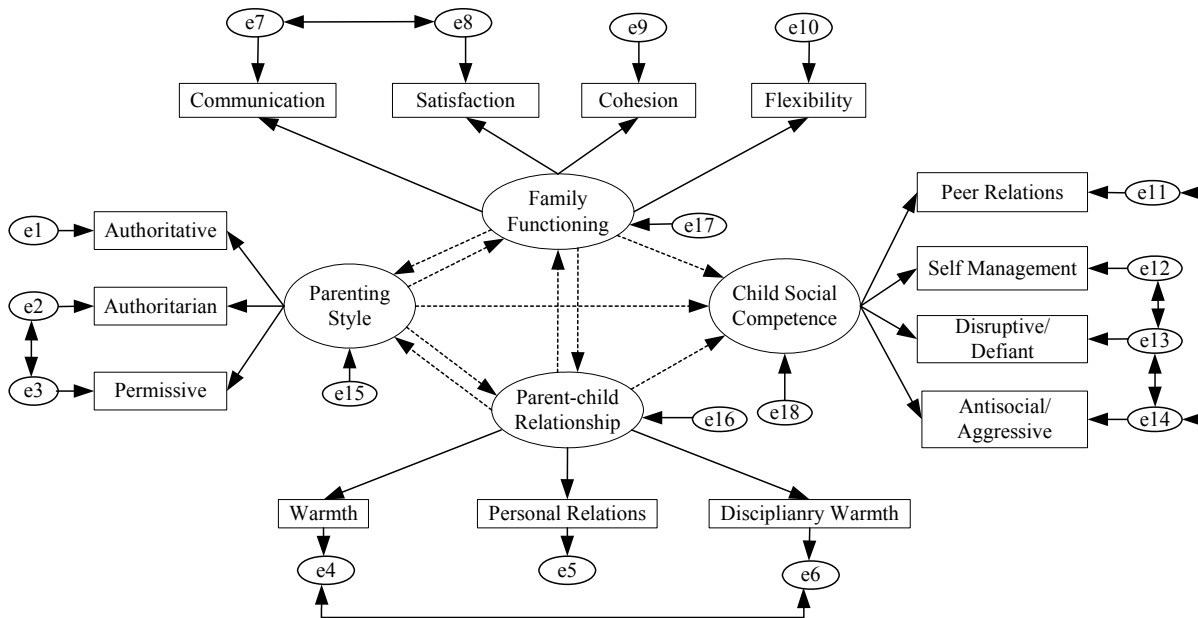


Figure 44. The bidirectional model used for specification search in AMOS 6.0 [The dash line indicated the paths were insignificant.]

Maternal Parenting, MCR, Family Functioning, and Child Social Competence

After six multivariate outliers, four on maternal parenting, one on mother-child relationship, and one on family functioning were removed, the correlation and variance-covariance were presented in Tables B.37-B.38. AMOS listed three equivalent best models as in Figure 45 after specification search.

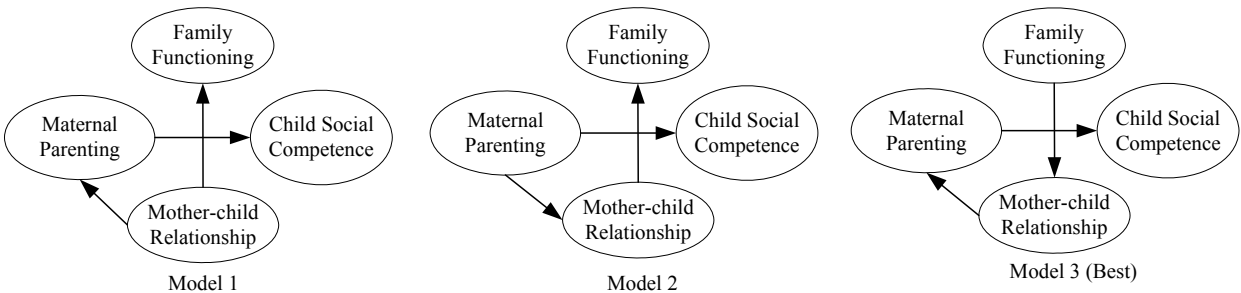


Figure 45. Equivalent “best” bidirectional models in mothers.

As noted by Raykov and Penev (2001): “For essential any structural equation model there exist potentially many models equivalent to it” (p.298) and “Equivalent models cannot be differentiated between using overall fit measures because the models are typically associated with identical goodness-of-fit indexes...” (p.297). This was indeed the case in Figure 45. All of the three models had the same fitting statistics. In Model 1, maternal parenting style directly related to child social competence and mother-child relationship had an indirect effect through maternal parenting style, whereas family functioning was not related to child social competence at all. In Model 2, maternal parenting directly related to child social competence and mother-child relationship, whereas the other two variables had no associations with child social competence although mother-child relationship related to family functioning directly. In Model 3, maternal parenting style directly related to child social competence whereas the other two variables had indirect effects.

As this study focused on prediction of child social competence by the three variables with an interest of exploring the “adjustment” power of parent-child relationship and family functioning on the direct relationship between parenting style and child social competence, the following guideline was established in seeking the “best” model: All of three variables had to link to child social competence either directly or indirectly, or both. Raykov and Penov’s once proposed to select the “best” models from the equivalent ones by examining individual case residuals. This approach was not applied due to its complexity.

Based on the above rule, only Model 3 showed the three predictors linking to child social competence in one way or another, hence, it was considered as the best model. Contrary to the expected bidirectional model, this model actually had a unidirectional relationship chain from

family functioning, to mother-child relationship, to maternal parenting style, and finally to child social competence in a sequence.

Figure 46 showed this model reasonably fitted to the mother sample data with a satisfactory reliability: $\chi^2(68, N = 512) = 161.00, p = .000$; GFI = .956; AGFI = .932; CFI = .974; NFI = .957; NNFI = .97; SRMR = .055; RMSEA = .052; Alpha = .728; and $\rho = .809$. On the measurement model of maternal parenting style, all three components were significant in the expected directions. Authoritative parenting had the highest loading ($\lambda_1 = .666$), followed by authoritarian parenting ($\lambda_2 = -.405$) and permissive parenting ($\lambda_3 = -.222$). In mother-child relationship, all of the three observed variables heavily loaded onto the latent variable in the desired positive direction. So did the four observed variables load onto family functioning. For child social competence, all of the four observed variables significantly loaded onto the latent variable in the expected directions. The two positive scores had much more contribution than the two negative scores. For the structural model, it revealed the structural coefficients for the relationship chain from family functioning to mother-child relationship, to parenting style, and to child social competence were all significant at .663 ($t = 12.529, p < .001$), .905 ($t = 14.054, p < .001$), and .641 ($t = 10.522, p < .001$), respectively. These coefficients and the associated paths indicated that maternal parenting style directly predicted about 41% of the variances in child social competence, whereas mother-child relationship and family functioning indirectly predicted about 34% (i.e., the square of .905 x .641) and 15% (i.e., the square of .663 x .905 x .641) of the variance in child social competence, respectively.

In comparing with the structural coefficient of .60 for the direct model between maternal parenting style and child social competence in Figure 11, the structural coefficient .641 in this model was not much larger. The inclusion of the two additional variables did not improve much

on the prediction of child social competence. These results seemed to suggest maternal parenting style was the most important factor in predicting child social competence. It not only directly related to child social competence significantly, it also served as a transmission variable for the influences of family functioning and mother-child relationship on child social competence as well. Hypothesis 34 was rejected.

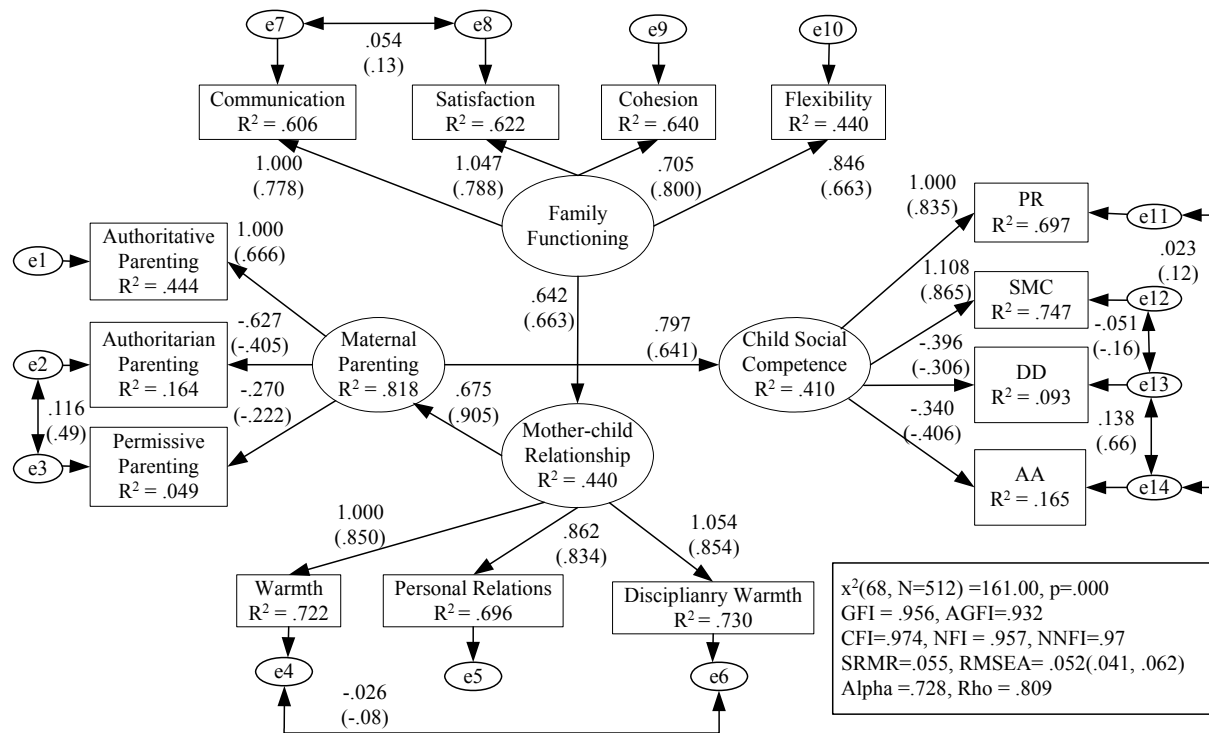


Figure 46. The best bidirectional model on predicting child social competence in mothers. [The Alpha and Rho were obtained without reversely coding the four observed variables with negative loadings. They would be .876 and .873 if they were reversely coded in the positive direction.]

Paternal Parenting, FCR, Family Functioning, and Child Social Competence

After two multivariate outliers, one on paternal parenting and one on father's perception of family functioning, were removed, the correlation and variance-covariance for the father sample were presented in Tables B.39-B.40. AMOS listed two equivalent best models as shown in Figure 47. In Model 1, paternal parenting style and family functioning did not relate to child

social competence and this model was eliminated. This left Model 2 as the only option for the possible best model for the father sample. In fact, similar to the best the best model for the mother sample, Model 2 for the father sample also showed a linear relationship chain. In this model, however, father-child relationship directly related to child social competence, whereas the other two variables had indirect influences.

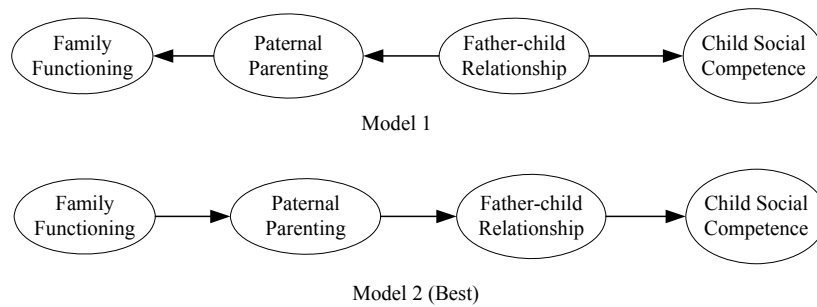


Figure 47. Equivalent bidirectional best models in fathers.

Figure 48 showed the factor model reasonably and reliably fitted to the father sample data: $\chi^2(68, N = 502) = 180.234, p = .000$; GFI = .949; AGFI = .922; CFI = .968; NFI = .950; NNFI = .96; SRMR = .063; RMSEA = .057; and $\rho = .824$. The factor loadings on the three latent variables were similar to those in the mother sample. The structural model showed the structural coefficients in the chain were all significant at .768 ($t = 12.593, p < .001$), .864 ($t = 13.836, p < .001$), and .438 ($t = 8.673, p < .001$). These numbers and the associated paths indicated that father-child relationship significantly influenced child social competence at a multiple R^2 of .192, whereas paternal parenting indirectly predicted about 14.2% (i.e., the square of .864 x .438) of the variance in child social competence through father-child relationship. Father's perception of family functioning could also account for about 8.5% (i.e., the square of .768 x .864 x .438) of the variance in child social competence. Although the multiple R^2 of .192 in this model was

similar to .19 in the direct model between paternal parenting and child social competence in Figure 12, the influence mechanism was quite different. In this model, paternal parenting did not directly relate to child social competence anymore. Father-child relationship was accounted for the prediction. Additionally, father-child relationship served as the transmission variable for paternal parenting and family functioning. Hence, father-child relationship seemed to be the most important predictor in this model. Hypothesis 35 was considered supported.

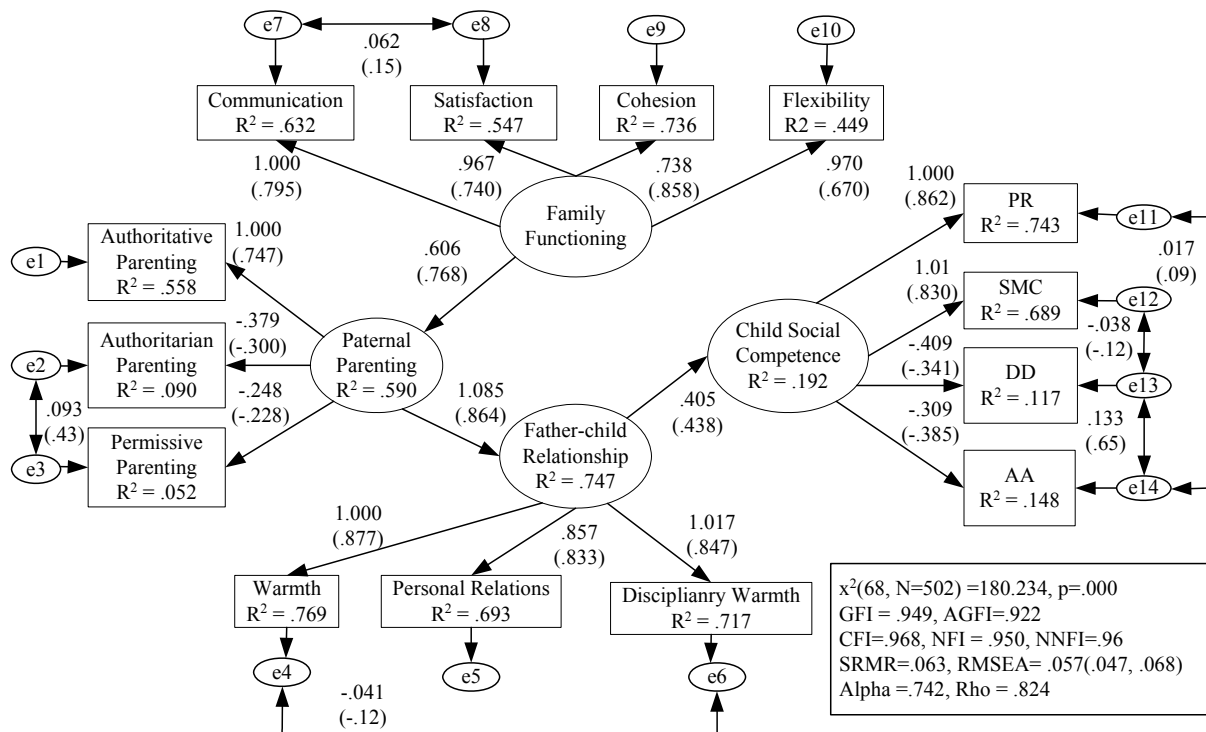


Figure 48. The best bidirectional model on predicting child social competence in fathers. [The Alpha and Rho would be .870 and .875 if the four negatively loaded variables were reversely coded in the positive direction.]

Summary of the Bidirectional Models

When parent-child relationship and family functioning were included with parenting style in predicting child social competence, although the values of the multiple R^2 did not increase much, the results showed the four-factor model had some advantages over the two-factor direct

model. First, the factor model reliability coefficients had increased to .809 and .824 in Figure 46 and Figure 48 from .582 and .587 in Figures 11 and 12 for the mothers and fathers, respectively, possibly due to the solid loadings in the measurement model of the two additional variables. The higher reliability made the findings from these models more likely to be validated in new samples. Second, the relationships among the four latent variables provided a deeper understanding on the relation mechanism than the two-factor direct model. For instance, whereas maternal parenting remained as a paramount direct predictor in the four-factor model as in the two-factor model, paternal parenting's role on child social competence became distant in the four-factor model. Furthermore, the four-factor model revealed the information about how and how much for each of the three predictors contributed to the prediction of child social competence.

Table 4.46 showed the direct, indirect, and total effects for the three latent predictors in the mother and father samples, along with the multiple R^2 in the two-factor direct model. In the mother sample, maternal parenting was the most salient predictor ($\gamma = .641$, $R^2 = .411$), followed by mother-child relationship ($\gamma = .58$, $R^2 = .336$) and mother's perception of family functioning ($\gamma = .384$, $R^2 = .147$). In the father sample, father-child relationship was the most important factor ($\gamma = .438$, $R^2 = .192$), followed by paternal parenting ($\gamma = .378$, $R^2 = .143$), and then father's view of family functioning ($\gamma = .291$, $R^2 = .085$). In both samples, family functioning did not directly relate to child social competence. Its influence on children was primarily through parenting style and parent-child relationship, which was consistent with its presumed contextual function.

Table 4.36
Standardized Direct, Indirect, and Total Effects of the Three Predictors

Samples	R^2_{Direct}	$R^2_{Bidirectional}$	<u>Parenting style</u>			<u>Parent-child relationship</u>			<u>Family Functioning</u>			Largest Contributor
			Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	
Mothers	.360	.411	.641	.000	.641	.000	.580	.580	.000	.384	.384	Maternal parenting style
Fathers	.190	.192	.000	.378	.378	.000	.438	.438	.000	.291	.291	Father-child relationship

CHAPTER V

DISCUSSION

Summary, Discussion, and Future Research Recommendations

Studies have shown that both American and Chinese 7-to-9-year-old children at the primary grades have attained relative stable social competence and behavioral patterns (Bracken et al., 1994; Chen et al., 2003; Ekbal, 1989; Howes & James, 2004; Wang & Li, 2003). The early social competence not only relates to children's current social functioning, it also has a predictive validity for children's later successful life as well (Hartup & Stevens, 1999; Sanson, Hemphill, & Smart, 2004). One of the key factors influencing child social competence is parenting (Maccoby & Martin, 1983). Earlier research has concluded that authoritative parenting has the optimal outcome; whereas authoritarian parenting appears to have adverse impacts on children's social competence (Baumrind, 1967, 1971, 1991b; Darling & Sternberg, 1993).

Nevertheless, these conclusions have been challenged for the underlying unilateral framework of parent-child interactions (Kuczynski, 2003) and the ethnic-centricity (Chao, 1994, 2000; Park & Bauer, 2003; Pittman & Chase-Lansdale, 2001), among the other criticisms. Recently, researchers have advocated bidirectional, ecological models to understand the interactional mechanism of parental and familial influences on children (Bornstein & Cheah, 2006; Bronfenbrenner & Morris, 1998; Cook, 2001). Yet, empirical testing on the interactional models has been limited, especially with Chinese samples.

The primary objective of the present study was to examine the direct effect and indirect models of parenting style on child social competence with a sample of 7- to 9-year-old Chinese children. More specifically, this study investigated: (a) the current status and group differences on child social competence, parenting style, child temperament, parent-child relationship, and

family functioning with the Chinese families, (b) whether parenting style had a significantly direct influence on child social competence, (c) whether child temperament moderated the direct relationship, (d) whether parent-child relationship mediated parenting style on child social competence, (e) whether family functioning interacted with parenting style in affecting child social competence, and (f) whether there were any relational models of parenting style, parent-child relationship, and family functioning on predicting child social competence.

Table 5.1 summarized the findings in this study against the research hypotheses in Table 2.1. If accurate, in addition to the possible theoretical implications, findings from this study may help parents and educators with Chinese or Chinese American primary grade children understand the developmental mechanism governing Chinese children's social development and guide their parenting or educational practices in nurturing children's social competence.

Table 5.1
Findings on the Research Hypotheses

Research questions	Hypotheses	Findings
Q1. Univariate Analysis		
Child social competence		
H1	Chinese children's positive social competence outperformed the negative social competence.	Supported
H2	Chinese children had lower social competence than the American peers.	Supported
H3	Girls had higher social competence than boys.	Rejected
H4	Boys had more antisocial behaviors than girls.	Partially supported
Parenting style		
H5	Chinese parents used more authoritative and less authoritarian and permissive parenting styles.	Supported
H6	There were no parental sex differences on parenting style.	Rejected
H7	Parents treated the boys and girls equally authoritative.	Supported
H8	Parents treated the boys and girls equally authoritarian.	Supported in mother Rejected in father
H9	Parents treated the boys and girls equally permissive.	Supported
H10	Low SES parents were less authoritative than high SES ones.	Supported
H11	Low SES parents were more authoritarian than the high SES ones.	Supported in mother Rejected in father
Child temperament		
H12	Boys and girls had similar temperament profiles.	Supported
H13	Boys and girls had similar degree of difficult temperament.	Supported
H14	Chinese children had similar temperament as the U. S. peers	Rejected

(table continues)

Table 5.1 (continued).

Research questions	Hypotheses	Findings
Parent-child relationship		
H15	There were no differences between the mother's view and the father's view on parent-child relationship.	Rejected
H16	Children viewed their relationships with both parents similarly.	Rejected
H17	There were no differences between the mother's and child's views.	Rejected
H18	There were no differences between the father's and child's views.	Rejected
Family functioning		
H19	There were no differences between the mother's and father's perceptions of family functioning.	Supported
H20	The Chinese families had lower family functioning than the American families.	Supported
Q2. Latent Model Testing		
Direct Model		
H21	There was a significant direct relationship between parenting style and child social competence in both parents.	Supported
H22	No differences on the direct effect between the mothers and fathers.	Supported
H23	There were no differences for the direct effect between parenting style and child social competence on boys and girls.	Supported
Q3. Child temperament as a moderator		
H24	Child temperament moderated maternal parenting style on child social competence.	Rejected
H25	Child temperament moderated paternal parenting style on child social competence.	Rejected

(table continues)

Table 5.1 (*continued*).

Research questions	Hypotheses	Findings
Q4. Parent-child relationship as a mediator		
H26	Mother-child relationship mediated maternal parenting style on child social competence.	Rejected
H27	Father-child relationship mediated paternal parenting style on child social competence.	Supported
H28	Child-mother relationship mediated maternal parenting style on child social competence.	Rejected
H29	Child-father relationship mediated paternal parenting style on child social competence.	Rejected
Q5. Parenting interacting with family function		
H30	Mother's view of family functioning moderated maternal parenting style on child social competence.	Rejected
H31	Father's view of family functioning moderated paternal parenting style on child social competence.	Rejected
H32	Mother's view of family functioning mediated maternal parenting style on child social competence.	Rejected
H33	Father's view of family functioning mediated paternal parenting style on child social competence.	Rejected
Q6. Bidirectional model		
H34	Maternal parenting became insignificant or indirect due to the inclusion of mother-child relationship and family functioning.	Rejected
H35	Paternal parenting became insignificant or indirect due to the inclusion of father-child relationship and family functioning.	Supported
H36	The models were different for easy and difficult children.	Rejected

Findings from this study were multi-faceted. On the forefront, the univariate results were summarized and discussed. The first research hypothesis in the present study conjectured the Chinese children at the primary grade overall socially functioning well based on theoretical assertions (Howes & James, 2004) and empirical data (e.g., Wang et al., 2002). This hypothesis was supported. The Chinese children had much more social competence than antisocial behaviors in a difference of four standard deviations. The finding of positive social competence outscored antisocial competence for the Chinese sample was consistent with other studies involving Chinese children (Chen, Dong, et al., 1997; Chen et al., 2000).

The lower social competence in Chinese children than the counterparts in the industrialized countries, possibly due to the society's predominant focus on academic achievement and relatively less attention paid to children's social development and social competence, has been a concern for the general Chinese public and researchers. Some cross-cultural studies supported this widely recognized impression (e.g., Chen et al., 2004; Chen & Rubin, 1992; Zhang et al., 2002). This study confirmed Chinese children had lower social competence than the American peers with a medium effect size by using the norm data for American children in the test manual. Hypothesis two was supported. Interestingly, Chinese children had lower antisocial behaviors than the American counterparts as well with noticeable small effect sizes. This may be due to the high degree of concern and control on children's negative social behaviors in the Chinese society (Chao & Tseng, 2002; Chan, 1992).

Many studies have reported girls have higher social competence than boys in both the Chinese and American cultures (e.g., Chen & Jiang, 2002; Dodge & Feldman, 1990; Putallaz, Hellstern, Sheppard, Grimes, & Glodis, 1995; Rubin & Krasnor, 1992; Wang et al., 2002). However, this conclusion was not supported in the present study. Both male and female students

had the similar scores in both the total social competence and its two domains of peer relationship and self-management/compliance. Accordingly, the third hypothesis was rejected. One possibility for the inconsistent findings between this study and other studies is that this study focused on the primary grade children whereas others mostly were on the other age groups, which may suggest that child age is a critical factor. The development trajectory of social competence for boys and girls may be different. Whereas girls usually master social competence at an earlier age than boys do before the middle childhood (Howes & James, 2004), the difference may decrease in the primary grades.

Consistent with the overwhelming evidences of boys having more antisocial behaviors than girls in both the Western and non-Western cultures (e.g., Block, 1983; Chen & Jiang, 2002; Hyde & Frost, 1993; Maccoby & Jacklin, 1974, 1980; Wlaker, 2004; 2004; Wang et al., 2002), the Chinese parents reported their boys displayed more negative social behaviors, especially the relatively serious aggressive/antisocial behaviors, than the girls. Particularly, the boys from the semi-urban school had more antisocial behaviors than children in the other subgroups. Hypothesis four was generally supported. Nevertheless, the male grade three students in the urban schools were found to be similar to their female classmates on antisocial behaviors. As the students in the urban school were from higher socioeconomic statuses (SES) families than the counterparts in the semi-urban school, the findings may suggest family SES is a more salient factor than child sex on child antisocial behaviors, which deserves further investigations.

The Chinese culture has often been described as authoritarian oriented in terms of parenting (Chao, 1994, 2000; Dornbusch et al., 1987; Lin & Fu, 1990; Kelley & Tseng, 1992). Recent research has argued Chinese parents may have a tendency to be more authoritative due to the implementation of the one-child policy and the influences of the Western cultures (e.g., Kang,

2003; Shek, 2006; Xu et al., 2005). Some studies also reported the Chinese parents were more authoritative than authoritarian or permissive in socializing their children in contemporary China (Zeng, 1999; Zhou et al., 2004). Similarly, this study found that about 92% of Chinese parents rated themselves as authoritative. The intraperson differences between authoritative parenting and the other two parenting styles were practically large, with at least two standard deviations in both the mothers and fathers. It could be concluded that authoritative parenting is prevalent in modern Chinese parents. Hypothesis five was supported.

The father as an invaluable informant in the parent-child interaction had been emphasized throughout this study, and the effects of parental sex had been investigated. The first within-couple difference explored was on parenting style. Inconsistent with some studies reporting few differences exist between mothers' and fathers' parenting styles in the Western literature (e.g., Baumrind, 1991c; Rubin et al., 1999), this study found there were significant differences with small effect sizes on all of the three parenting styles between the Chinese couples although their self-reported parenting styles were moderately correlated. Interestingly, the mothers scored higher than their spouses on all of the three parenting styles. The long-recognized phenomenon of “慈母严父” (“kind mother, stern father”) in the traditional Chinese society or as reported in some studies (e.g., Berndt et al., 1993) was not confirmed. The pattern of “慈父严母” (“kind father, stern mother”) characterizing the modern Chinese parents (e.g., Shek, 2005b; Zhai, 1994) were not found either. The null hypothesis of no parental sex differences on parenting styles in hypothesis six was rejected.

As parenting styles in this study were derived from the daily interaction frequencies between the parents and the child (Robinson et al., 1995), it was reasonable to speculate the mother engaged more in the child's life than did the father in many aspects of parent-child

interactions. The traditional role of father as the ultimate authority for the “big” decisions on children (Ho, 1981; Strom et al., 1995) seemed somewhat to be delegated to the mother in contemporary China. The finding of the differences on parenting styles between the couple was likely to suggest a phenomenon of “母多父少” (“more mother involvement, less father involvement”) in modern China, similar to that in the United States (National Center for Education Statistics, 1997).

The higher parenting scores for the mothers on all of the three parenting styles were also reported in other studies using the same questionnaire with Chinese samples (e.g., Zeng, 1999). The phenomenon of concurrent high or low scores on the opposite authoritative and authoritarian parenting styles in the Chinese parents had much theoretical implications. At least, the explanation of the three parenting styles needs to be detached from the orthogonal structure of warmth and demandingness as in Maccoby and Martin (1983) as a parent cannot be high in control, and both high and low in warmth. The findings of the mothers with higher scores on all of the three styles than the fathers may actually imply these parenting styles are independent, and hence empirically support Baumrind’s early three separate topologies of parenting (Baumrind, 1966, 1971).

Nevertheless, the distinction between parenting style and parenting practice was not clearly separated out on the PSDQ. The score differences between the three higher-order parenting constructs on the PSDQ do not necessarily reflect the differences on the three corresponding parenting styles in Maccoby and Martin’s. Additionally, permissive parenting was found to be a less solid parenting entity as the other two parenting styles in this sample. These challenges suggest that the effort of searching for the indigenous Chinese parenting dimensions (Chao, 1994, 2001; Wu et al., 2002) should continue in the future.

The next three research questions inquired about the interaction effect between parent's and child's sex on parenting styles. Although some studies have reported the main effect and/or interaction effect of parent and child sex on parenting styles or dimensions in both "individualist" and "collectivist" cultures (Russell, Hart, Robinson, & Olsen, 2003), the findings have not been conclusive. Therefore, this study made the null hypotheses for both the main effects and the interaction effect of parent and child sex on the three parenting style. Results indicated: (a) both parents were equally authoritative toward boys and girls, (b) fathers were more authoritarian toward boys than toward girls, whereas there were no differences in mothers, and (c) both parents were equally permissive toward both boys and girls. Zeng (1999) reported similar findings in a sample of 190 couples with 4- to 6-year-old Chinese children in Beijing, China. Maccoby's (1990) once stated that mothers tend to be non-discriminating in parenting their sons and daughters, whereas fathers are likely to treat their children in a gendered way. This claim was only supported on authoritarian parenting in the present study. However, even though the fathers tended to be more authoritarian toward their boys than toward girls, the magnitude of the difference was practically small. Child sex could account for only 1% of the variances in paternal authoritarian parenting. In light of this small effect size and no other differences on parenting styles related to parent or child sex, hypotheses 7-9 were considered supported. The Chinese mothers and fathers basically treated the boys or girls in similar ways.

The next two questions investigated the main effects of family socioeconomic status (SES) on parents' authoritative and authoritarian parenting styles. In aligning with existing research (Chen, Liu, Li, Cen et al., 2000; Xu et al., 2005; Zeng, 1999; Zhou et al., 2004), this study hypothesized the Chinese parents in the lower SES families were less authoritative and more authoritarian than their counterparts with higher SES. Overall, hypotheses 10 and 11 were

supported except for no differences on authoritarian parenting for the fathers in the two groups. Yet, the practical significances of the differences on authoritative and authoritarian parenting styles related to family SES were small, accounting for 2% of the variances in parenting styles, at most. These findings left much to explore for the large portion of unexplained variances in parenting styles, beyond family SES, in the future.

Child temperament has been considered as a key child characteristic influencing parental behaviors and parenting styles (Putnam, Sanson, & Rothbart, 2002; Sanson & Rothbart, 1995). Studies on child temperament have often showed there are some differences between boys and girl using different temperament measurement instruments (e.g., Porter et al., 2005). Research using the DOTS-R with the Chinese sample was unable to be located. The general null hypotheses on child sex and culture factor were established. Results from this study basically supported hypothesis 12. Boys and girls did not differ on the temperamental dimensions of approach to novelty, flexibility, mood, and task orientations; but there were small practical differences on activity and rhythmicity. Whereas the finding of the boys being more active than the girls was easily understandable and consistent with other studies with both the Chinese and American samples (e.g., Ahadi, Rothbart, & Ye, 1993; Buss & Plomin, 1975; Porter et al.; Zeng, 1999), the results of the boys being more rhythmic than the girls were surprised as the Chinese culture typically expects more regularity from the girls than from the boys.

Due to the low statistical and practical values and the relatively low reliability on the three rhythmic dimensions, measurement errors may confound with these small differences. Future studies need to validate these differences with similar samples by minimizing measurement errors and to explore the underlying mechanisms if it is indeed the case. As child sex effect was not obvious on most of the dimensions on the DOTS-R, it was not surprised to

find out hypothesis 13 was supported, that is, boys and girls had similar degrees of difficult temperament.

Researchers have long been interested in the similarities and differences between the quiet, obedient Chinese children and the boisterous, assertive North American children and whether these different behavioral patterns reflect innate temperamental dispositions (Ahadi et al., 1993; Chen, Hastings, Rubin, H. Chen, & Stewart, 1998; Kagan, 1987; Kessen, 1975). The cross-cultural studies on child temperament have often report both similarities and differences exist in child temperament and behavioral patterns between Chinese children and their counterparts in other countries (Ahadi et al.; Berry, 1989; Kagan, Arcus, & Snidman, 1996; Kagan, Reznick, & Snidman, 1986; Port et al., 2005). As the dimensions of child temperament on different measures are often not identical and the findings from the cross-cultural studies between the Chinese and American children are not always consistent. A null hypothesis of no differences on temperament between the Chinese and American children was proposed.

Findings in comparing the Chinese children with the norm American children on the nine dimensions of temperament on the DOTS-R in this study generally rejected the null hypothesis 14. The Chinese children were lower on most of the temperament dimensions except for no differences on task orientation and the higher regularity than American children. These results were consistent with other cross-cultural studies (e.g., Ahadi et al., 1993). These temperamental differences between the Chinese and American children may be due to different cultural values in the two countries as the American culture is usually more attuned to the child's active behaviors than the Chinese culture, and the latter often stresses more on societal expectations of child behaviors and self-constraints of openness and expressiveness (Berry, 1989; Porter et al., 2005; Triandis, 1994) than the former. These results may indicate temperamental traits are not

identical in all populations (Bates, 1987) and there may be unique cultural patterns of temperamental clusters (Bond & Hwang, 1986; Bornstein & Cheah, 2006; Chen et al., 1998). However, the findings should be interpreted cautiously as the results of the differences were based on two slightly different age groups in the two cultures. Future studies need to use similar samples and/or control the confounding variables to further explore the temperamental similarities and differences between the mainland Chinese children and their counterparts in other countries or regions.

Parent-child relationship has been recently recognized as one of the important process variables in influencing the impact of parenting style on child development (Kuczynski, 2003; Chao, 2001). However, this variable has been much less studied in referential statistics than parenting styles or other constructs relating to parent-child interactions. As no empirical data on parent-child relationships with Chinese samples using the PCRQ were found, this study established four null hypotheses (Hypotheses 15-18) in examining the intra-family differences on the perceptions of parent-child relationships. Results showed that both the Chinese parents and their children perceived their parent-child relationships satisfactory. The four positive dimensions of parent-child relationships on warmth involvement, personal relationship, disciplinary warmth, and possessiveness outscored the negative power assertion in all of the four different views.

For the perception differences, although the four views of parent-child relationships were moderately similar to one another, there were some small practical inter-person differences within a family. The four null hypotheses were statistically rejected. More specifically, the mothers reported more personal relations, disciplinary warmth, and power assertion with their children than did the fathers. The child, interestingly, perceived the mother was higher than the

father on all of the five aspects of parent-child relationship. In comparing the mother's and child's views of the dyadic relationship, the child expressed that the mother had higher possessiveness, more personal relationship, more warmth involvement, and less disciplinary warmth than did the mother. The child also reported the father had more possessiveness and less disciplinary warmth than did the father. The inter-parent differences with the mother scoring higher than the father on both the positive and negative dimensions of parent-child relationship were consistent with the inter-parent differences on parenting styles, which may link to the high level of maternal involvement. The higher level of parental engagement from the mother than from the father was also reflected in the child's perceptions. For the parent-child perception differences, it appeared that the parents' investment in the parent-child relationship was well acknowledged by the child, even at a larger degree except for disciplinary warmth. The less recognition of parents' disciplinary warmth by the child may suggest that the Chinese parents need to be more explicit in praising the child's good behavioral conducts, in co-making decisions with the child, and in rationalizing their guidance when the child behaves inappropriately. This was especially true for the fathers.

These findings on the perception differences on the dyadic parent-child relationship within a family were consistent with some qualitative studies reporting different views of parent-child relationships in the Chinese culture (e.g., Pattie, 2005). By stating all of the above, it should be noted that the *Parent-Child Relationship Questionnaire* (PCRQ) measures more on the positive domains of parent-child relationship than on the negative domains. Instrument improvement and development on parent-child relationship, especially with inclusions of more negative dimensions, seemed to be a high priority in the future due to the vital importance of the concept and the limited available measurement tools.

Although the family has been extensively described as a primary micro-ecological system for parent-child interactions theoretically (Bornstein, 2002; Bronfenbrenner & Morris, 1998; Schneider, 1993), the operationally-defined family process variables have not sufficiently appeared in empirical research on parenting styles. The present study utilized *Family Adaptability and Cohesion Evaluation Scales IV* (FACES IV; Olsen et al., 2004) based on Olson's (1993, 2000) circumplex model of family system to investigate the family functioning in the Chinese families. At the descriptive level, both the Chinese mothers and fathers reported higher family flexibility than family cohesion. The finding of the high family flexibility or adaptability and low emotional connectedness in the Chinese families were contradictory to the longstanding portrait of the Chinese family, in which both familial hierarchical orders and interdependency have been traditionally emphasized (Wu, 1996). However, they were consistent with the statement of a low connected husband-wife relationship in relative to a close parent-child relationship in describing the modern Chinese families (Hus, 1985; Stevenson et al., 1992).

The changing picture in family functioning in terms of the relatively high family flexibility and low family cohesion in contemporary China may be linked to the recent familial and socioeconomic changes. If the Chinese couples have become more equalitarian as reported (Pimentel, 2006; Shu, 2004), then the family would be less likely to have rigid and hierarchical family rules. The widespread and deepening market-driven economic reform has also significantly altered the Chinese people's work-life arrangements. Nowadays, the Chinese parents are less likely on the 早八晚五 (i.e., from 8 o'clock in the morning to 5 o'clock in the afternoon) work schedule than a decade ago. Instead, they are more likely to spend time outside of the home than ever before for familial financial gains or social relations after the normal working hours. If a parent, typically the husband, spends less time at home, then the couple

would be less likely being together, and the spouse left with the child is likely to build a closer relationship with the child than with the marriage partner. In addition to the insufficient family time, there are many other possible reasons at the personal, interpersonal, familial, community, and societal levels relating to the low family cohesion in modern China. Future studies need to understand various factors linking to Chinese parents' perceptions of low family cohesion from both the psychological and sociological perspectives.

For the within-couple difference on the perceptions of family functioning, again, as there were no sufficient empirical data to support a directional hypothesis, a null hypothesis was formulated and it was primarily supported. Both parents viewed the family flexibility, family cohesion, the overall family functioning, and family communications the same. The only difference was that the fathers had higher satisfaction than the mothers with a small effect size. Hypothesis 19 was considered supported. The higher discontent from the wives may signal the more power of women in modern China. Future studies need to investigate the key variables linking to this satisfaction discrepancy, possibly relating to the mother's complaints of the father's powerfulness as the breadwinner, the lack of psychological supports from the husband, and the burdens of dual roles as the primary family caregiver and a family income contributor.

The cross-cultural studies on the comparison of family functioning between the Chinese and American families have been minimal. The Chinese family was hypothesized to have lower family functioning than do the Americans in the present study. The findings supported Hypothesis 20. The Chinese family was lower than the American norm group on family flexibility, family cohesion, and the overall family functioning. The largest difference appeared on the family cohesion with an upper medium effect size at a magnitude of .69 standard deviation. The exact reasons for this noticeable difference need to be further investigated in

future studies. In addition to the differences on the sample characteristics in the two groups, speculations for the difference may be the sociocultural differences. For instance, the Chinese couples tend to spend less time being together, be less explicitly expressive on romantic love and emotional support, and be less equalitarian than the American counterparts. It may be also possible the cohesion construct on FACES IV is inadequate for the Chinese families and a more appropriate measure of cohesion is desirable. The low validity of the cohesion dimension on the earlier versions of FACES had been found in Latino American families, which have traditionally emphasized family cohesion and closeness (Knight et al., 1992; Smith et al., 2001), similar to the traditional Chinese families.

As the Chinese have been often considered less open in communications than are the Americans (Kim, Atkinson, & Yang, 1999), this study surprisingly found the Chinese parents reported much higher family communication and satisfaction than the Americans with large effect sizes. This phenomenon deserves further investigation. Possible speculations were that the Chinese parents may not have higher expectations on family communication and satisfaction than do the Americans or the two groups use different criteria or judgment anchors embedded in their own cultures in making the evaluations on these aspects of family functioning.

As the major focus of this study was on the model testing, only the derived family flexibility ratio, cohesion ratio, communication, and satisfaction were used as the continuous variables representing the quality of family functioning. Family functioning variables at the individual subscale level and the six types of families were not explored. It is worthwhile to examine how these metric and nonmetric variables relating to the interested dependent variables in the future. The following sections discussed the findings on the model testing.

Authoritative parenting has been reported linking to child social competence, whereas authoritarian parenting had the detrimental impact on child development in the American culture (Amato & Fowler, 2002; Baumrind, 1966, 1971, 1991a). In the Chinese culture, some studies have made the same conclusion (Chen, Dong, et al., 1997; Chen, Rubin, et al., 1997a), but others did not find the advantages of authoritative parenting (Chao, 2000, 2001). As the PSDQ captures a variety of parenting entities in three broad parenting constructs, this study took one step further to combine authoritative, authoritarian, and permissive parenting styles into a latent variable and test the direct model of parenting style on child social competence using structural equation modeling.

Consistent with many other studies in both the Chinese and American cultures, this study found there was a significant direct relationship between parenting style and child social competence in both parents. Hypothesis 21 was supported. Maternal parenting style explained 36% of the variances in child social competence, and paternal parenting style was able to account for 19%. Furthermore, this study found there were no parent and child sex effects for the direct relationship. The significant direct influence of parenting style on child social competence was basically the same for both parents on the boys and girls. Hypotheses 22 and 23 were supported. This study showed authoritative parenting positively associated with child social competence and negatively with antisocial behaviors, whereas authoritarian and permissive parenting styles were on the opposite. The findings on the beneficial effect of authoritative parenting and the negative impact of authoritarian and permissive parenting on child social competence indicated Baumrind's topology applicable to modern Chinese families, and were consistent with other studies (e.g., Chen, Dong, et al., 1997; Chen, Liu, & Li, 2000; Chen, Liu, Li, Cen, et al., 2000; Zhan, 1996; Zhang & Zhang, 2002) and the theoretical arguments (Sorkhabi, 2005).

One obvious challenge for the present study was the correlated variances of measurement errors. In addition to the prudent selections of the correlated errors with theoretical and substantive justifications in seeking the better fit models (Byrne, 2006; Fan & Hancock, 2006; Newcomb & Bentler, 1988), this study made an effort in maintaining the same set of correlated residuals in different subsamples as much as possible. The cross validations of the correlated errors in different subsamples seemed to suggest that the findings were plausible. As the loadings of the observed variables on their respective latent variables appeared to be noticeably affected by the selection of the correlated measurement errors in the models, this study focused much more on the relatively stable structural coefficients (Newcomb & Bentler). Nevertheless, the introduction of the correlated measurement errors in the models indicated that the measurement models needed to be improved and verified with larger and better data.

Studies often show child temperament adjusts parental influences (Gallagher; Rothbart & Bates, 1998) and has a moderational effect on the relationship between parenting and child behaviors (Ramos et al., 2005). Therefore, this study hypothesized child temperament served as a moderator between parenting style and child social competence in both parents. However, generally the findings rejected the moderation hypotheses (Hypotheses 24 and 25). This was especially true for the fathers. Paternal parenting style had almost identical influence on child social competence regardless of child temperament.

The findings of an inadequate moderator power of child temperament were similarly reported in other studies. For instance, Russell et al. (2003) reported the interaction effect between child temperament and parenting on child sociable and aggressive behaviors were not significant in seven of the eight hierarchical analyses in a sample of 198 American families and 224 Australian families with preschool-age children. Nevertheless, the nonsignificant results

from the mother-child sample did not preclude the likelihood of child temperament moderating maternal parenting.

Maternal parenting style was found to be significantly related to social competence for children with easy temperament, whereas it was not for children with difficult temperament. Also the moderational effect of child temperament in the mother-child sample was close to be significant. The finding of mothers influencing easy children more than difficult children was consistent with some studies with Western samples. For instance, Crockenberg and colleagues (Crockenberg, 1986; Fish & Crockenberg, 1986) reported children with easy temperament were more responsive to mothers than those with difficult temperament. However, it was contrary to other studies which found negative temperament was more amenable to parenting influences than non-negative temperament (e.g., Bates et al., 1998). Interestingly, although child temperament cannot be ruled out as a moderator for maternal parenting style on child social competence, there was strong evidence from this study that child temperament did not moderate the relationship between paternal parenting style and child social competence. Future studies need to validate these findings and further to investigate the possible different moderational roles of child temperament on maternal and paternal parenting styles in influencing child social competence in different cultures.

Parent-child relationships have been recognized as the interpersonal context for parenting influence on children (Chao, 2001; Kuczynski, 2003; Rubin & Stewart, 1996). Hence, this study hypothesized parent-child mediated parenting style on child social competence. This mediational model was tested with four different views of parent-child relationship: mother's, father's, child's on the relationships with both parents. Findings from the present study only supported father-child relationship mediated paternal parenting on child social competence (Hypothesis 27).

Hypotheses 26, 28, and 29 were rejected. The mediational effect of father-child relationship on the relationship between paternal parenting and child social competence implied a good father-child relationship buffered the negative impacts of authoritarian and permissive parenting styles, whereas a poor father-child relationship diminished the positive influence of authoritative parenting on child social competence.

For the mother's perception of mother-child relationship, although it did not mediate maternal parenting style on child social competence, interestingly, it was mediated by maternal parenting. Further reflection on the items in the two measurement instruments seemed to suggest the *Parent-Child Relationship Questionnaire* (PCRQ) focusing more on the global patterns, whereas the *Parenting Styles and Dimensions Questionnaire* (PSDQ) concentrating more on the concrete parenting practices (Robinson et al., 1995). The different mediational roles of parent-child relationship in the mothers and fathers seemed to imply the daily parent-child interactions shadowed the influences of the general parent-child relationship on children's social competence in the mothers, whereas it was on the opposite in the fathers. Definitely more studies are needed to investigate the reasons for the different influence channels.

The child's perceptions of parent-child relationships were found contributing little to the prediction of child social competence in the latent mediation model. The insignificance of the child's views may stem from the low correlations between the child's perceptions and parents' perceptions of parent-child relationship. Nevertheless, this fact did not necessarily suggest the child's views were trivial, inaccurate, or void. The child's perceptions of parent-child relationships demonstrated similar acceptable internal consistent reliability coefficients as in the parents' responses. This study did not examine the mediation model by age due to the sample size concern. As children's perceptions tend to be more congruent with parent's views when they

are getting older before the adolescence ages (Alessandri & Wozniak, 1987, 1989; Smetana, 1989), future research needs to continue to explore the child's active agency with different age groups and/or longitudinal data. In addition, children's self-evaluation of their social competence and their perceptions of parents' child-rearing styles may need to be included as well for cross-validations.

Family environment as an important context of parent-child interaction has long been acknowledged (Morrow, 2003) and various theoretical models on family system have been proposed (Parke & Buriel, 1998). Empirical studies involving the family variables have often employed the univariate analysis technique, typically multiple regression analysis. Latent models with parenting style and family functioning have been rare. This study hypothesized family functioning moderated parenting style on child social competence. However, the moderation effect was not found in both the mothers and fathers. Hypotheses 30 and 31 were rejected. The insignificant interaction effects were much smaller than the significant main effects of parenting style and family functioning. Findings indicated that parenting style and family functioning influence child social competence separately in a linear way. Additionally, this study found family functioning did not mediate parenting style on child social competence either. Hypotheses 32 and 33 were rejected as well. Nevertheless, maternal parenting style was found to be a mediator of family functioning on child social competence, suggesting the relationship between family functioning and child social competence was indirect, and adjusted by maternal parenting style. The lack of the moderational or mediational power for family functioning on the relationship between parenting style and child social competence definitely deserves verifications in the future, possibly with other more appropriate measurement instruments or the newest FACES IV on family functioning.

When parenting style, parent-child relationship, and family functioning were concurrently considered, this study hypothesized the direct link between parenting style and child social competence would be either weaker or disappeared due to the inclusion of parent-child relationship and family functioning. This hypothesis was largely based on theoretical deliberations (Bronfenbrenner & Morris, 1995; Kuczynski, 2003) due to lack of testable models and empirical studies. The model development approach was used to seek the best model fit by using the specification searching function in AMOS. It turned out there were several equivalent best models with identical fitting statistics in both the mother and father samples. To eliminate models not relevant to the purposes of this study, all of the three predictors were required to link to child social competence either directly or indirectly, or both.

Findings showed that there were different structural relationships among these variables for the mothers and fathers. In the mothers, maternal parenting was still significantly related to child social competence in a direct way as in the direct model. Additionally, maternal parenting served as a mediation variable for the impacts of mother-child relationship and family functioning on child social competence. Hypothesis 34 was rejected. For the fathers, paternal parenting did not directly relate to child social competence anymore, but instead, it was mediated by father-child relationship. Family functioning also indirectly related to child social competence, first through paternal parenting and then through father-child relationship. Hypothesis 35 was supported in the father sample.

These findings were largely consistent with the results of the earlier model testing on the three-factor models. They indicated parenting style was the primary factor influencing child social competence in the mothers, whereas father-child relationship was the most salient variable influencing child social competence in the father sample. The last hypothesis assumed the

bidirectional models would work differently on children with easy and difficult temperament. As the three-factor model on the moderational role of child temperament did not show evidences of the possibility. This hypothesis was not tested and presumably rejected.

In summary, the results from testing the five competing models indicated that: (a) The influence of parenting style on child social competence was proximal and substantial in the mothers, whereas paternal parenting style impacted child social competence distally through father-child relationship; (b) whereas there may be different relationship patterns in the mothers and fathers; parenting style, parent-child relationship, and family functioning all individually contributed to the prediction of child social competence; and (c) children's active role in terms of child temperament and their perceptions of parent-child relationships was not supported. The findings of the child's inactive role in the models may be due to other important child variables especially in the cognitive domain such as internal working model (Howe, Brandon, Hinings, & Schofield, 1999) or social information processing style (Weiss, Dodge, Bates, & Pettit, 1992) not considered in the present study. Future research needs to include other salient child variables in model development and testing. For the general modeling test in the Chinese culture using the American culture-originated measurement instruments, a two-step approach is recommended: first refining the measurement instruments through the confirmatory/exploratory factor analysis processes to minimize the measurement errors, and then testing the structural models with new samples.

Contributions and Limitations

The present exploratory study contributed to the existing body of knowledge in several ways. First, it partially validated the psychometric properties (mainly the internal consistency reliability and the convergent and discriminant validity through the inter-factor correlations) of

the American culture-laden measurement instruments on child social competence, parenting style, child temperament, parent-child relationship, and family functioning with a relatively large Chinese sample. The results not only provided information on the cross-cultural validity of the five instruments but also offered some empirical evidences for future development of indigenous measurement instruments on these variables applicable to the Chinese culture.

Second, as the empirical data on the five variables for the mainland Chinese parents and children have been limited in the English literature, in addition to obtaining the descriptive statistics, this study examined the within-cultural and cross-cultural group differences, especially with the fathers and children included. The findings gave the interested readers an overall picture of the Chinese families on these important variables.

Third, this study was the first to investigate the direct and indirect models of parenting style concurrent with child temperament, parent-child relationship, and family functioning on child social competence using structural equation modeling. It provided a beginning point for understanding the ways in which parenting style and the other three predictor variables might interact with one another to influence child social competence in the Chinese families.

Fourth, it validated the models in different subsamples and investigated the measurement invariance, structural invariance, and the between-group differences. If accurate, the findings from the model testing indicated that there may be different relationship structures impacting child social competence between the mothers and fathers.

Finally, as there may be dramatic differences on the psychological constructs related to parenting and child development (Rubin & Chung, 2006; Shweder, Goodnow, Hatano, LeVine, Markus, & Miller, 1998), the findings from this study might reveal the specific interaction patterns in the Chinese culture and deserve to be compared with similar samples in other cultures.

Nevertheless, the findings of this study need to be considered in light of the following study limitations. First, as this study used a convenience sample, the generalizability of the findings was limited. Second, because the data were cross-sectional, the proposed causal directionality in the structural models was theoretical. Other causal interpretation between the latent variables may fit the data equally well as demonstrated in the section of bidirectional model testing. Longitudinal studies with the advantages of maintaining the temporal order and minimizing the confounding variables need to verify these causal relationships. Third, the correlated measurement errors were prevalent in the tested models in the present study. This weakness deserves further discussion.

Although the approach of correlating measurement residuals was theoretically justified as a practical and feasible solution to overcoming the poor fit in SEM studies (Byrne, 2006; Fan & Hancock, 2006; Kano, 2002; Newcomb & Bentler, 1988) and the correlated error covariance were empirically validated in different subsamples in the present study, the inclusion of the correlated measurement errors made the models less stable and less likely to be replicated in new samples. The consistent correlated measurement errors in achieving the fitted models across different subsamples in this study may actually suggest there are common measurement factors rather than the person factor in the SEM models. In other words, there may be some theoretical constructs not captured or redundantly represented by the current measurement models in the Chinese culture. Close inspections on the correlated error terms revealed that they were likely either on the similar or opposite observed variables within or across the questionnaires. This fact indicated that there is a need to further examine the theoretical constructs relating to the five studied variables at the item, scale, and model levels in the Chinese culture in the future. In addition to the possible uncaptured constructs within or between the scales for the measurement

factor, there may be several other reasons for the unsatisfactory measurement models: (a) Majority of the questionnaires were translated from English and many of them were used with the Chinese sample for the first time, culture validity was not thoroughly checked and remained as an issue; (b) in the data collection process, because the parents were requested to complete a relatively large number of questionnaires, various times and settings were offered, which may impose a possible threat to the internal consistency and validity; (c) the independent completion of the questionnaires was not personally monitored due to the large number of participants; and (d) some observed variables may not be strong contributors to their respective latent variables such as permissive parenting on parenting style, they may need to be dropped, or other high quality measurement instruments should be used for the model testing in the future.

Another weakness of the study was that only one parent was requested to rate child social competence and the HBCSC and child temperament on the DOTS-R, whereas both of the parents were required to complete the other three questionnaires. If both parents had rated the child on social competence and child temperament, additional information such as the inter-rater reliability and the perception differences would have been to be examined. Additionally, the interfactor correlated measurement errors in the model testing would be easier to be attributed to the person/measurement factor as all of the questionnaires completed by the same person. Last, but not the least, indications of the five constructs in the present study were based on the paper-reported questionnaires, such an approach usually possess a threat to the ecological validity (Stone & Litcher-Kelly, 2006).

Implications for Practices

The current Chinese education system emphasizes academic achievement much more than social development for young children (Sun, 2006), as opposite to the advocacy of the

broadly holistic education in the United States (Bredekamp & Copple, 1997; Spodek & Saracho, 2006). This reality leaves much of the responsibility on nurturing child social competence to the parents, who usually socialize their children based on their personal experiences. An understanding of the relationships among the critical familial factors that influence child social competence will provide a theoretical foundation for helping Chinese parents and educators improve their practices, and eventually promote child social competence.

Implications of practical applications from the findings in the present study were multi-dimensional. First, for the Chinese parents, as this study found that authoritative parenting positively related to child social competence and negatively related to child antisocial behaviors, whereas authoritarian and permissive parenting styles were on the opposite; the Chinese parents might need to use more authoritative and less authoritarian and permissive parenting behavioral styles when interacting with their children.

This study also found the Chinese fathers scored lower than their wives in all of the three parenting styles, indicating a relatively low level of father engagement in children's life. More father involvement may be desirable. Although it has been found fathers and mothers interact with their children in different ways and may influence different mentalities of child development (Lamb, 1996; Parke, 1996, 2002; Parke & Tinsley, 1987; Russell & Russell, 1987), the collective body of research has shown that a high level of father involvement is beneficial to young children in both the American and Chinese cultures (Lamb, 1997; Marsiglio, Amato, Day, & Lamb, 2000; Yang et al., 2004).

On parent-child relationship, it was found a positive parent-child relationship was beneficial to child social development. Parental warmth involvement, emotional connectedness with the child, disciplinary warmth, and even effortful control and protectiveness were all

positively associated with child social competence; whereas power assertion and power struggles with the child worked on the opposite way. These findings clearly demonstrated that Chinese parents should strive to develop good parent-child relationships to facilitate their children's social competence. This was especially true for fathers as the study found father-child relationship was the most proximal variable relating to child social competence. The examination of the between-group difference on the same dyadic parent-child relationship revealed parents' investment in the parent-child relationship was largely acknowledged by the child. However, it seemed parents' efforts in disciplinary warmth were not fully appreciated by the child. Parents may need to communicate well with the child when they discipline the child.

On family functioning, since this study found the family cohesion was low in the Chinese families and high quality of family functioning was linked to positive child social competence, the Chinese parents may need to improve the quality of family process, especially the family cohesion to facilitate child social development in a positive family milieu.

Findings from the three-factor and four-factor models indicated although there may be different relationship mechanisms for the mothers and fathers; parenting style, parent-child relationship, and family functioning all positively related to child social competence in one way or another. Parents might need to maximize the authoritative parenting and minimize the authoritarian and permissive parenting behaviors in their parenting practices, to develop positive parent-child relationships, and to create a high quality family environment in nurturing their children's social competence. If only one critical factor had to be selected, the results from this study suggested the mothers should concentrate on authoritative parenting, whereas the fathers focus on development of a good relationship with their children.

In addition to the implications for the Chinese parents, findings from this study were also meaningful to the school educators in China. It might help the Chinese teachers expand their understanding of children's socially dysfunctional behaviors from the intuitively personality-trait view to a broad, ecological attribution thinking; which might subsequently help the teachers reduce their negative emotions and behaviors toward the ill-behaved students and turn to building a collaborative school-family partnership to resolve the children's behavioral problems.

In the past, the Chinese parents were usually contacted by the teacher only when their child had caught in some behavioral problems at school. Recently, the Chinese parents seem to be more actively involved in the parent-teacher communication process than ever before as they want to know how their children are doing in the school, especially on academic performance. The schools also seem to engage the parents more in the students' school life than before. However, the school-family connections in China, in general, need much improvement in both intensity and quality. Both parties have expressed the unfamiliarity of the child's another half life. In the United States, the school-family partnership has evolved from the traditional view of parents serving as volunteers, homework helpers, and fund-raiser to a philosophy of shared responsibility and shared roles in child education in recent years (Fiese, Eckert, & Spagnola, 2006). It is critical for the Chinese educators to have scientifically informed views on child development and education to initiate and develop a strong and collaborative school-family relationship to promote children's social and academic competence.

Certain groups of children were found to have low social competence and high antisocial behaviors such as some boys in the semi-urban school or those with high degree of difficult temperament. By no means, the paper-based questionnaires could be used as the sole clinical tool; the parental reports of child social functioning on these measurement instruments could help the

teachers further identify the needed children for social competence interventions, along with teachers' observations and other valid techniques.

At the policy level, although there are over dozens of national laws relating to family and child's education, there is much room to improve on the behalf of young children known as "the future of the motherland" in China. The Chinese government might need to: (a) advocate more on the quality of family functioning, in addition to the preventive foci in its current laws relating to families, (b) add more ingredients of child social development to its current educational polices and provide manageable measures, (c) establish educational laws to protect and help young children with special needs in social competence, and (d) endorse ongoing improvement of parenting skills.

The findings from this study also had implications to the American educators with young Chinese American students. The Chinese is the largest Asian group in the United States (Barnes & Bennett, 2000) and has been one of the fastest growing immigration ethnic groups for the past two decades (Daniels, 2004), which leads to the American teachers having more and more Chinese American children in their classrooms. There have been evidences that the Chinese American parents have kept their cultural heritages (Chao, 1994; Ho, 1989; Wu, 1996) and treat their children differently from the European American parents (Hulei, Zevenbergen, & Jacobs, 2006; Lin & Fu, 1996) although the two types of families have similar high socioeconomic status in terms of household income and education level (U. S. Census of Bureau, 2007). Even more, Studies have found disparities between children's and parents' recognition with Chinese culture predicted children's maladjustment, whereas parent-child discrepancies for engagement in the host culture did not (Coatigan & Dokis, 2006). It appeared that American educators need to maintain immigrant Chinese children's continued engagement in their ethnic culture while

helping them learn the new skills in the new culture. Familiarity to the child-rearing practices, the relationship models as explored in the present study, and the general cultural characteristics in the immigrant Chinese families may help the American educators develop effective school-family partnerships in concert with their cultural traditions in supporting the Chinese American children's social development and competence.

APPENDIX A
CHAPTER NOTES

Chapter I

1. The four cardinal principles are: (a) upholding the socialist path, (b) upholding the people's democratic dictatorship, (c) upholding the leadership of the Communist Party of China, and (d) upholding Marxist-Leninist-Mao Zedong thought.
2. The three represents are – The Communist Party of China has always represented the development trend of China's advanced productive forces, represented the orientation of China's advanced culture, and represented the fundamental interests of the overwhelming majority of the Chinese people.
3. The eight honors and eight graces are: (a) love the motherland, do not harm it; (b) serve, don't disserve the people; (c) uphold science, don't be ignorant and unenlightened; (d) work hard, don't be lazy; (e) be united and help each other, don't benefit at the expense of others; (f) be honest, not profit-mongering; (g) be disciplined and law-abiding, not chaotic and lawless; and (h) know plain living and hard struggle, do not wallow in luxuries.
4. In modern China, families living in the urban cities usually have higher socioeconomic statuses than those in the suburban areas, which subsequently have higher SES than families in countryside.

Chapter II

1. The concept of moderator in this model is different from Baron and Kenny's (1986).
2. This is just part of model. Refer to Darling and Sternberg (1993) for the entire model.
3. The original model does not specify if the three variables are observed or latent.
4. Throughout this study, γ was used for the path coefficient between latent variables while λ was used for the factor loading of an observed variable on its latent variable.

Chapter III

1. The principal in the urban school only allowed the third graders to participate in the study.
2. The equal variance assumption in Levene's test was violated on child age for the third graders in the two schools. Adjusted degree of freedom was used.
3. FACES IV has evolved to a new version (FACES IV, 2006) with minor changes after the data collection.
4. It took two months to ship the answered questionnaires to the U. S. from China.

Chapter IV

1. All of the correlational and variance-covariances for model testing were placed in Appendix B as they were mainly for the replication purpose and they were not interpreted or discussed in the contexts.
2. As measurement models with observed variables on the opposite directions tend to have very low alpha and rho, all of the observed variables in the variance-covariance matrix were coded in the same direction for Raykov rho in the present study unless specified. Such a change does not alter the loadings and structural coefficients (except for the directionality), and has a minor impact on fitting statistics.

APPENDIX B

CORRELATION AND VARIANCE-COVARIANCE TABLES

Table B.1
Correlation Matrix of Mother's Parenting and CSC for All Mothers

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.27 ^b	-					
3. Permissive parenting	-.12 ^a	.58 ^b	-				
4. Peer relationship	.35 ^b	-.21 ^b	-.16 ^b	-			
5. Self-Management/compliance	.30 ^b	-.28 ^b	-.15 ^b	.72 ^b	-		
6. Disruptive/defiant	-.13 ^b	.26 ^b	.15 ^b	-.25 ^b	-.43 ^b	-	
7. Antisocial/aggressive	-.17 ^b	.30 ^b	.18 ^b	-.22 ^b	-.35 ^b	.78 ^b	-

Note: $a = p < .01$, and $b = p < .001$; CSC = Child Social Competence; $N = 544$.

Table B.2
Covariance Matrix of Mother's Parenting and CSC for All Mothers

	1	2	3	4	5	6	7
1. Authoritative parenting	.288						
2. Authoritarian parenting	-.080	.299					
3. Permissive parenting	-.027	.135	.184				
4. Peer relationship	.100	-.060	-.035	.280			
5. Self-Management/compliance	.092	-.086	-.037	.216	.326		
6. Disruptive/defiant	-.040	.082	.036	-.075	-.140	.328	
7. Antisocial/aggressive	-.034	.061	.029	-.042	-.075	.165	.137

Note: CSC = Child Social Competence; $N = 544$.

Table B.3
Correlation Matrix of Parenting and CSC for Mothers Completed HCSBS

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.22 ^a	-					
3. Permissive parenting	-.10	.55 ^a	-				
4. Peer relationship	.43 ^a	-.23 ^a	-.20 ^a	-			
5. Self-Management/compliance	.38 ^a	-.32 ^a	-.23 ^a	.71 ^a	-		
6. Disruptive/defiant	-.11	.31 ^a	.19 ^a	-.20 ^a	-.37 ^a	-	
7. Antisocial/aggressive	-.19 ^a	.38 ^a	.25 ^a	-.19 ^a	-.36 ^a	.76 ^a	-

Note: $a = p < .001$; CSC = Child Social Competence; $N = 314$.

Table B.4
Covariance Matrix of Parenting and CSC for Mothers Completed HCSBS

	1	2	3	4	5	6	7
1. Authoritative parenting	.276						
2. Authoritarian parenting	-.063	.293					
3. Permissive parenting	-.021	.127	.179				
4. Peer relationship	.122	-.067	-.046	.288			
5. Self-Management/compliance	.113	-.099	-.055	.216	.323		
6. Disruptive/defiant	-.032	.097	.046	-.061	-.123	.333	
7. Antisocial/aggressive	-.036	.076	.039	-.039	-.076	.164	.140

Note: CSC = Child Social Competence; $N = 314$.

Table B.5
Correlation Matrix of Father's Parenting and CSC for All Fathers

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.27 ^b	-					
3. Permissive parenting	-.19 ^b	.50 ^b	-				
4. Peer relationship	.26 ^b	-.07	-.18 ^b	-			
5. Self-Management/compliance	.25 ^b	-.10 ^a	-.18 ^b	.72 ^b	-		
6. Disruptive/defiant	-.15 ^b	.22 ^b	.17 ^b	-.26 ^b	-.40 ^b	-	
7. Antisocial/aggressive	-.17 ^b	.25 ^b	.17 ^b	-.22 ^b	-.33 ^b	.78 ^b	-

Note: $a = p < .05$, $b = p < .001$; CSC = Child Social Competence; $N = 529$.

Table B.6
Covariance Matrix of Father's Parenting and CSC for All Fathers

	1	2	3	4	5	6	7
1. Authoritative parenting	.294						
2. Authoritarian parenting	-.075	.255					
3. Permissive parenting	-.045	.109	.189				
4. Peer relationship	.075	-.019	-.042	.294			
5. Self-Management/compliance	.076	-.029	-.045	.221	.323		
6. Disruptive/defiant	-.047	.063	.042	-.078	-.128	.318	
7. Antisocial/aggressive	-.035	.047	.028	-.045	-.070	.166	.141

Note: CSC = Child Social Competence; $N = 529$.

Table B.7
Correlation Matrix of Parenting and CSC for Fathers Completed HCSBS

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.28 ^c	-					
3. Permissive parenting	-.23 ^c	.52 ^c	-				
4. Peer relationship	.27 ^c	-.14 ^a	-.24 ^c	-			
5. Self-Management/compliance	.27 ^c	-.12	-.23 ^c	.74 ^c	-		
6. Disruptive/defiant	-.22 ^c	.30 ^c	.28 ^c	-.32 ^c	-.47 ^c	-	
7. Antisocial/aggressive	-.17 ^b	.32 ^c	.26 ^c	-.26 ^c	-.35 ^c	.81 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 247$.

Table B.8
Covariance Matrix of Parenting and CSC for Fathers Completed HCSBS

	1	2	3	4	5	6	7
1. Authoritative parenting	.273						
2. Authoritarian parenting	-.072	.239					
3. Permissive parenting	-.051	.108	.178				
4. Peer relationship	.078	-.037	-.055	.295			
5. Self-Management/compliance	.083	-.034	-.055	.234	.339		
6. Disruptive/defiant	-.064	.082	.067	-.097	-.155	.316	
7. Antisocial/aggressive	-.032	.058	.040	-.051	-.075	.168	.136

Note: CSC = Child Social Competence; $N = 247$.

Table B.9
Correlation Matrix of Mother's Parenting and Son's Social Competence

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.26 ^c	-					
3. Permissive parenting	-.15 ^b	.59 ^c	-				
4. Peer relationship	.35 ^c	-.17 ^b	-.13 ^a	-			
5. Self-Management/compliance	.30 ^c	-.27 ^c	-.15 ^a	.72 ^c	-		
6. Disruptive/defiant	-.12 ^a	.28 ^c	.15 ^a	-.25 ^c	-.44 ^c	-	
7. Antisocial/aggressive	-.17 ^b	.30 ^c	.17 ^b	-.25 ^c	-.37 ^c	.80 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 292$.

Table B.10
Covariance Matrix of Mother's Parenting and Son's Social Competence

	1	2	3	4	5	6	7
1. Authoritative parenting	.304						
2. Authoritarian parenting	-.078	.307					
3. Permissive parenting	-.036	.138	.180				
4. Peer relationship	.098	-.048	-.029	.265			
5. Self-Management/compliance	.096	-.087	-.036	.213	.330		
6. Disruptive/defiant	-.039	.088	.036	-.075	-.142	.324	
7. Antisocial/aggressive	-.034	.061	.026	-.047	-.077	.167	.134

Note: CSC = Child Social Competence; $N = 292$.

Table B.11
Correlation Matrix of Mother's Parenting and Daughter's Social Competence

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.29 ^c	-					
3. Permissive parenting	-.07	.57 ^c	-				
4. Peer relationship	.36 ^c	-.25 ^c	-.18 ^b	-			
5. Self-Management/compliance	.29 ^c	-.27 ^c	-.16 ^b	.71 ^c	-		
6. Disruptive/defiant	-.13 ^a	.23 ^c	.15 ^a	-.24 ^c	-.41 ^c	-	
7. Antisocial/aggressive	-.16 ^a	.29 ^c	.22 ^c	-.18 ^b	-.32 ^c	.75 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 252$.

Table B.12
Covariance Matrix of Mother's Parenting and Daughter's Social Competence

	1	2	3	4	5	6	7
1. Authoritative parenting	.268						
2. Authoritarian parenting	-.080	.290					
3. Permissive parenting	-.016	.133	.190				
4. Peer relationship	.102	-.073	-.043	.298			
5. Self-Management/compliance	.086	-.083	-.040	.218	.318		
6. Disruptive/defiant	-.037	.072	.037	-.073	-.130	.322	
7. Antisocial/aggressive	-.029	.056	.034	-.035	-.063	.150	.125

Note: CSC = Child Social Competence; $N = 252$.

Table B.13
Correlation Matrix of Father's Parenting and Son's Social Competence

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.28 ^c	-					
3. Permissive parenting	-.19 ^c	.51 ^c	-				
4. Peer relations	.29 ^c	-.10	-.19 ^b	-			
5. Self-Management/Compliance	.28 ^c	-.15 ^a	-.22 ^c	.71 ^c	-		
6. Disruptive/Defiant	-.16 ^b	.23 ^c	.18 ^b	-.25 ^c	-.42 ^c	-	
7. Antisocial/Aggressive	-.19 ^c	.23 ^c	.18 ^b	-.23 ^c	-.33 ^c	.81 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 282$.

Table B.14
Covariance Matrix of Father's Parenting and Son's Social Competence

	1	2	3	4	5	6	7
1. Authoritative parenting	.301						
2. Authoritarian parenting	-.074	.231					
3. Permissive parenting	-.044	.103	.179				
4. Peer relationship	.081	-.024	-.041	.269			
5. Self-Management/compliance	.086	-.040	-.052	.207	.315		
6. Disruptive/defiant	-.047	.060	.041	-.073	-.130	.306	
7. Antisocial/aggressive	-.038	.041	.027	-.044	-.069	.165	.136

Note: CSC = Child Social Competence; $N = 282$.

Table B.15

Correlation Matrix of Father's Parenting and Daughter's Social Competence

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.26 ^c	-					
3. Permissive parenting	-.19 ^b	.50 ^c	-				
4. Peer relationship	.22 ^c	-.04	-.17 ^b	-			
5. Self-Management/compliance	.21 ^c	-.04	-.15 ^a	.72 ^c	-		
6. Disruptive/defiant	-.15 ^a	.19 ^b	.18 ^b	-.25 ^c	-.37 ^c	-	
7. Antisocial/aggressive	-.16 ^a	.23 ^c	.20 ^c	-.20 ^c	-.31 ^c	.75 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 247$.

Table B.16

Covariance Matrix of Father's Parenting and Daughter's Social Competence

	1	2	3	4	5	6	7
1. Authoritative parenting	.288						
2. Authoritarian parenting	-.075	.276					
3. Permissive parenting	-.046	.119	.201				
4. Peer relationship	.067	-.010	-.044	.322			
5. Self-Management/compliance	.064	-.011	-.040	.235	.328		
6. Disruptive/defiant	-.045	.058	.045	-.082	-.120	.322	
7. Antisocial/aggressive	-.031	.044	.033	-.042	-.063	.155	.131

Note: CSC = Child Social Competence; $N = 247$.

Table B.17
Correlation Matrix of Mother's Parenting and CSC for "Easy" Children

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.50 ^c	-					
3. Permissive parenting	-.32 ^c	.59 ^c	-				
4. Peer relationship	.40 ^c	-.32 ^c	-.23 ^a	-			
5. Self-Management/compliance	.41 ^c	-.32 ^c	-.21 ^a	.75 ^c	-		
6. Disruptive/defiant	-.28 ^b	.21 ^a	.15	-.21 ^a	-.44 ^c	-	
7. Antisocial/aggressive	-.32 ^c	.31 ^c	.15	-.23 ^a	-.33 ^c	.76 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 115$.

Table B.18
Covariance Matrix of Maternal Parenting and CSC for "Easy" Children

	1	2	3	4	5	6	7
1. Authoritative parenting	.290						
2. Authoritarian parenting	-.144	.290					
3. Permissive parenting	-.063	.119	.138				
4. Peer relationship	.119	-.096	-.047	.303			
5. Self-Management/compliance	.109	-.085	-.039	.206	.246		
6. Disruptive/defiant	-.087	.066	.033	-.069	-.125	.336	
7. Antisocial/aggressive	-.063	.062	.020	-.047	-.061	.163	.136

Note: CSC = Child Social Competence; $N = 115$.

Table B.19

Correlation Matrix of Mother's Parenting and CSC for "Difficult" Children

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.12	-					
3. Permissive parenting	.06	.51 ^c	-				
4. Peer relationship	.24 ^b	-.06	-.13	-			
5. Self-Management/compliance	.13	-.18 ^a	-.07	.61 ^c	-		
6. Disruptive/defiant	.03	.20 ^a	.09	-.08	-.19 ^a	-	
7. Antisocial/aggressive	-.03	.20 ^b	.12	-.07	-.15	.76 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 158$.

Table B.20

Covariance Matrix of Mother's Parenting and CSC for "Difficult" Children

	1	2	3	4	5	6	7
1. Authoritative parenting	.278						
2. Authoritarian parenting	-.035	.303					
3. Permissive parenting	.014	.129	.213				
4. Peer relationship	.057	-.015	-.029	.214			
5. Self-Management/compliance	.037	-.054	-.018	.151	.287		
6. Disruptive/defiant	.010	.060	.022	-.021	-.057	.301	
7. Antisocial/aggressive	-.006	.042	.021	-.011	-.030	.155	.138

Note: CSC = Child Social Competence; $N = 158$.

Table B.21
Correlation Matrix of Father's Parenting and CSC for "Easy" Children

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.45 ^c	-					
3. Permissive parenting	-.28 ^b	.45 ^c	-				
4. Peer relationship	.19 ^a	-.02	-.24 ^b	-			
5. Self-Management/compliance	.25 ^b	-.05	-.29 ^b	.76 ^c	-		
6. Disruptive/defiant	-.16	.13	.20 ^a	-.22 ^a	-.42 ^c	-	
7. Antisocial/aggressive	-.10	.14	.23 ^a	-.23 ^a	-.34 ^c	.76 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 113$.

Table B.22
Covariance Matrix of Father's Parenting and CSC for "Easy" Children

	1	2	3	4	5	6	7
1. Authoritative parenting	.289						
2. Authoritarian parenting	-.121	.253					
3. Permissive parenting	-.066	.098	.184				
4. Peer relationship	.057	-.004	-.059	.311			
5. Self-Management/compliance	.068	-.014	-.063	.217	.261		
6. Disruptive/defiant	-.048	.036	.048	-.070	-.122	.326	
7. Antisocial/aggressive	-.019	.025	.035	-.046	-.063	.157	.130

Note: CSC = Child Social Competence; $N = 113$.

Table B.23

Correlation Matrix of Father's Parenting and CSC for "Difficult" Children

	1	2	3	4	5	6	7
1. Authoritative parenting	-						
2. Authoritarian parenting	-.23 ^b	-					
3. Permissive parenting	-.11	.48 ^c	-				
4. Peer relationship	.32 ^c	-.03	-.15	-			
5. Self-Management/compliance	.25 ^b	-.10	-.19 ^a	.61 ^c	-		
6. Disruptive/defiant	-.18 ^a	.20 ^a	.08	-.15	-.22 ^b	-	
7. Antisocial/aggressive	-.24 ^b	.23 ^b	.07	-.12	-.13	.76 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 155$.

Table B.24

Covariance Matrix of Father's Parenting and CSC for "Difficult" Children

	1	2	3	4	5	6	7
1. Authoritative parenting	.329						
2. Authoritarian parenting	-.065	.245					
3. Permissive parenting	-.029	.109	.211				
4. Peer relationship	.086	-.007	-.033	.216			
5. Self-Management/compliance	.077	-.027	-.047	.153	.292		
6. Disruptive/defiant	-.055	.054	.019	-.038	-.064	.297	
7. Antisocial/aggressive	-.051	.043	.012	-.021	-.027	.157	.143

Note: CSC = Child Social Competence; $N = 155$.

Table B.25
Correlation Matrix of Mother's Parenting, Mother-Child Relationship, and CSC

	1	2	3	4	5	6	7	8	9	10	11
1. Authoritative parenting	-										
2. Authoritarian parenting	-.27 ^b	-									
3. Permissive parenting	-.11 ^a	.58 ^b	-								
4. Warmth	.50 ^b	-.36 ^b	-.22 ^b	-							
5. Power assertion	-.21 ^b	.62 ^b	.34 ^b	-.34 ^b	-						
6. Personal relations	.52 ^b	-.28 ^b	-.14 ^a	.70 ^b	-.17 ^b	-					
7. Disciplinary warmth	.53 ^b	-.25 ^b	-.12 ^a	.65 ^b	-.17 ^b	.72 ^b	-				
8. Peer relationship	.37 ^b	-.21 ^b	-.17 ^b	.41 ^b	-.16 ^b	.37 ^b	.43 ^b	-			
9. Self-management/compliance	.33 ^b	-.29 ^b	-.16 ^b	.44 ^b	-.22 ^b	.40 ^b	.45 ^b	.72 ^b	-		
10. Disruptive/defiant	-.12 ^a	.28 ^b	.15 ^b	-.23 ^b	.37 ^b	-.15 ^b	-.12 ^a	-.24 ^b	-.42 ^b	-	
11. Antisocial/aggressive	-.17 ^b	.31 ^b	.19 ^b	-.24 ^b	.31 ^b	-.20 ^b	-.15 ^b	-.20 ^b	-.34 ^b	.78 ^b	-

Note: $a = p < .01$, and $b = p < .001$; CSC = Child Social Competence; $N = 521$.

Table B.26

Covariance Matrix of Mother's Parenting, Mother-Child Relationship, and CSC

	1	2	3	4	5	6	7	8	9	10	11
1. Authoritative parenting	.283										
2. Authoritarian parenting	-.080	.301									
3. Permissive parenting	-.026	.138	.185								
4. Warmth	.149	-.110	-.053	.312							
5. Power assertion	-.059	.177	.076	-.098	.273						
6. Personal relations	.135	-.075	-.029	.191	-.043	.240					
7. Disciplinary warmth	.166	-.079	-.030	.211	-.051	.205	.340				
8. Peer relationship	.103	-.061	-.038	.120	-.045	.095	.133	.277			
9. Self-management/compliance	.099	-.090	-.039	.139	-.064	.112	.147	.214	.320		
10. Disruptive/defiant	-.036	.088	.036	-.074	.109	-.043	-.040	-.071	-.136	.323	
11. Antisocial/aggressive	-.033	.063	.030	-.049	.059	-.036	-.033	-.039	-.072	.164	.136

Note: CSC = Child Social Competence; $N = 521$.

Table B.27
Correlation Matrix of Father's Parenting, Father-Child Relationship, and CSC

	1	2	3	4	5	6	7	8	9	10	11
1. Authoritative parenting	-										
2. Authoritarian parenting	-.27 ^c	-									
3. Permissive parenting	-.18 ^c	.49 ^c	-								
4. Warmth	.57 ^c	-.25 ^c	-.18 ^c	-							
5. Power assertion	-.21 ^c	.60 ^c	.31 ^c	-.22 ^c	-						
6. Personal relations	.54 ^c	-.12 ^b	-.11 ^a	.71 ^c	-.03	-					
7. Disciplinary warmth	.56 ^c	-.13 ^b	-.06	.62 ^c	.04	.72 ^c	-				
8. Peer relationship	.25 ^c	-.08	-.19 ^c	.34 ^c	-.03	.31 ^c	.32 ^c	-			
9. Self-management/compliance	.23 ^c	-.10 ^a	-.19 ^c	.31 ^c	-.11 ^a	.31 ^c	.28 ^c	.71 ^c	-		
10. Disruptive/defiant	-.15 ^c	.23 ^c	.19 ^c	-.23 ^c	.24 ^c	-.18 ^c	-.13 ^b	-.27 ^c	-.41 ^c	-	
11. Antisocial/aggressive	-.17 ^c	.25 ^c	.18 ^c	-.21 ^c	.22 ^c	-.16 ^c	-.11 ^a	-.22 ^c	-.33 ^c	.78 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 509$.

Table B.28

Variance-Covariance Matrix of Father's Parenting, FCR, and CSC

	1	2	3	4	5	6	7	8	9	10	11
1. Authoritative parenting	.287										
2. Authoritarian parenting	-.073	.254									
3. Permissive parenting	-.041	.107	.188								
4. Warmth	.175	-.071	-.044	.325							
5. Power assertion	-.060	.164	.071	-.069	.290						
6. Personal relations	.150	-.031	-.024	.208	-.010	.264					
7. Disciplinary warmth	.180	-.040	-.017	.214	.014	.224	.364				
8. Peer relationship	.071	-.022	-.044	.105	-.008	.086	.102	.285			
9. Self-management/compliance	.070	-.030	-.046	.100	-.034	.090	.096	.213	.317		
10. Disruptive/defiant	-.045	.063	.045	-.073	.072	-.053	-.043	-.081	-.127	.312	
11. Antisocial/aggressive	-.035	.046	.029	-.044	.045	-.031	-.025	-.045	-.069	.164	.140

Note: FCR = Father-Child Relationship; CSC = Child Social Competence; $N = 509$.

Table B.29
Correlation Matrix of Mother's Parenting, Child-Mother Relationship, and CSC

	1	2	3	4	5	6	7	8	9	10	11
1. Authoritative parenting	-										
2. Authoritarian parenting	-.28 ^c	-									
3. Permissive parenting	-.12 ^b	.58 ^c	-								
4. Warmth	.12 ^b	-.07	.02	-							
5. Power assertion	-.06	.15 ^c	.02	-.28 ^c	-						
6. Personal relations	.09 ^a	-.03	.05	.69 ^c	-.24 ^c	-					
7. Disciplinary warmth	.06	-.01	.06	.57 ^c	-.08	.63 ^c	-				
8. Peer relationship	.35 ^c	-.21 ^c	-.15 ^c	.08	-.01	.05	.11 ^b	-			
9. Self-management/compliance	.30 ^c	-.28 ^c	-.16 ^c	.07	-.09 ^a	.06	.08	.72 ^c	-		
10. Disruptive/defiant	-.13 ^b	.27 ^c	.15 ^c	-.09 ^a	.07	-.08	.00	-.25 ^c	-.42 ^c	-	
11. Antisocial/aggressive	-.17 ^c	.31 ^c	.19 ^c	-.08	.07	-.08	.01	-.21 ^c	-.35 ^c	.78 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 538$.

Table B.30
Covariance Matrix of Mother's Parenting, Child-Mother Relationship, and CSC

	1	2	3	4	5	6	7	8	9	10	11
1. Authoritative parenting	.287										
2. Authoritarian parenting	-.081	.298									
3. Permissive parenting	-.027	.135	.184								
4. Warmth	.054	-.030	.009	.698							
5. Power assertion	-.028	.077	.010	-.217	.886						
6. Personal relations	.038	-.013	.017	.465	-.179	.648					
7. Disciplinary warmth	.030	-.007	.023	.426	-.070	.449	.788				
8. Peer relationship	.098	-.059	-.035	.036	-.003	.021	.052	.278			
9. Self-management/compliance	.091	-.087	-.038	.031	-.049	.028	.042	.216	.327		
10. Disruptive/defiant	-.040	.084	.037	-.044	.040	-.039	.000	-.074	-.139	.328	
11. Antisocial/aggressive	-.033	.062	.030	-.024	.026	-.023	.003	-.041	-.073	.164	.136

Note: CSC = Child Social Competence; $N = 538$.

Table B.31
Correlation Matrix of Father's Parenting, Child-Father Relationship, and CSC

	1	2	3	4	5	6	7	8	9	10	11
1. Authoritative parenting	-										
2. Authoritarian parenting	-.27 ^c	-									
3. Permissive parenting	-.19 ^c	.50 ^c	-								
4. Warmth	.09 ^a	-.10 ^a	.03	-							
5. Power assertion	-.03	.06	-.04	-.31 ^c	-						
6. Personal relations	.07	-.05	.06	.70 ^c	-.24 ^c	-					
7. Disciplinary warmth	.08	-.02	.04	.61 ^c	-.10 ^a	.65 ^c	-				
8. Peer relationship	.25 ^c	-.07	-.18 ^c	.17 ^c	-.06	.15 ^c	.18 ^c	-			
9. Self-management/compliance	.24 ^c	-.10 ^a	-.18 ^c	.10 ^a	-.12 ^b	.08	.13 ^b	.72 ^c	-		
10. Disruptive/defiant	-.15 ^c	.22 ^c	.17 ^c	-.13 ^b	.13 ^b	-.11 ^a	-.06	-.25 ^c	-.40 ^c	-	
11. Antisocial/aggressive	-.17 ^c	.25 ^c	.18 ^c	-.10 ^a	.13 ^b	-.13 ^b	-.01	-.21 ^c	-.32 ^c	.78 ^c	-

Note: $a = p < .05$, $b = p < .01$, and $c = p < .001$; CSC = Child Social Competence; $N = 523$.

Table B.32

Variance-Covariance Matrix of Father's Parenting, CFR, and CSC

	1	2	3	4	5	6	7	8	9	10	11
1. Authoritative parenting	.294										
2. Authoritarian parenting	-.075	.256									
3. Permissive parenting	-.046	.111	.190								
4. Warmth	.043	-.047	.012	.775							
5. Power assertion	-.013	.029	-.016	-.244	.786						
6. Personal relations	.032	-.020	.020	.508	-.174	.687					
7. Disciplinary warmth	.040	-.010	.017	.468	-.077	.469	.753				
8. Peer relationship	.072	-.019	-.042	.083	-.030	.066	.082	.291			
9. Self-management/compliance	.074	-.029	-.046	.052	-.059	.040	.065	.220	.323		
10. Disruptive/defiant	-.046	.064	.042	-.064	.063	-.050	-.028	-.078	-.127	.319	
11. Antisocial/aggressive	-.034	.047	.029	-.032	.044	-.039	-.005	-.043	-.069	.165	.140

Note: CFR = Child-Father Relationship; CSC = Child Social Competence; $N = 523$.

Table B.33
Correlation Matrix of Parenting and Family Functioning in Mother with CSC

Indicator Variables	Latent Independent			Latent Independent				Latent Dependent			
	1	2	3	4	5	6	7	8	9	10	11
1. Authoritative parenting	-										
2. Authoritarian parenting	-.27 ^b	-									
3. Permissive parenting	-.12 ^a	.59 ^b	-								
4. Communication	.25 ^b	-.23 ^b	-.19 ^b	-							
5. Satisfaction	.29 ^b	-.31 ^b	-.24 ^b	.74 ^b	-						
6. Cohesion	.33 ^b	-.18 ^b	-.18 ^b	.63 ^b	.63 ^b	-					
7. Flexibility	.30 ^b	-.29 ^b	-.17 ^b	.51 ^b	.49 ^b	.54 ^b	-				
8. Peer relations	.35 ^b	-.22 ^b	-.17 ^b	.23 ^b	.28 ^b	.23 ^b	.22 ^b	-			
9. Self-Management/compliance	.31 ^b	-.29 ^b	-.17 ^b	.29 ^b	.33 ^b	.25 ^b	.29 ^b	.72 ^b	-		
10. Disruptive/defiant	-.12 ^a	.28 ^b	.15 ^b	-.17 ^b	-.22 ^b	-.19 ^b	-.18 ^b	-.25 ^b	-.42 ^b	-	
11. Antisocial/aggressive	-.18 ^b	.32 ^b	.20 ^b	-.19 ^b	-.22 ^b	-.20 ^b	-.20 ^b	-.22 ^b	-.35 ^b	.79 ^b	-

Note: $a = p < .01$, and $b = p < .001$; CSC = Child Social Competence; $N = 518$.

Table B.34
Covariance Matrix of Parenting and Family Functioning in Mother with CSC

Indicator Variables	Latent Independent			Latent Independent				Latent Dependent			
	1	2	3	4	5	6	7	8	9	10	11
1. Authoritative parenting	.285										
2. Authoritarian parenting	-.078	.299									
3. Permissive parenting	-.026	.138	.185								
4. Communication	.085	-.080	-.052	.396							
5. Satisfaction	.099	-.109	-.066	.304	.421						
6. Cohesion	.075	-.042	-.034	.172	.176	.185					
7. Flexibility	.101	-.098	-.046	.201	.197	.146	.391				
8. Peer relations	.099	-.064	-.040	.078	.096	.052	.073	.283			
9. Self-Management/compliance	.093	-.090	-.041	.102	.123	.061	.104	.218	.320		
10. Disruptive/defiant	-.038	.088	.038	-.062	-.082	-.046	-.064	-.075	-.137	.329	
11. Antisocial/aggressive	-.035	.065	.032	-.044	-.052	-.033	-.047	-.043	-.075	.168	.139

Note: CSC = Child Social Competence; *N* = 518.

Table B.35
Correlation Matrix of Parenting and Family Functioning in Father with CSC

Indicator Variables	Latent Independent			Latent Independent				Latent Dependent				
	1	2	3	4	5	6	7	8	9	10	11	
1. Authoritative parenting	-											
2. Authoritarian parenting	-.27 ^b	-										
3. Permissive parenting	-.18 ^b	.50 ^b	-									
4. Communication	.39 ^b	-.23 ^b	-.27 ^b	-								
5. Satisfaction	.39 ^b	-.20 ^b	-.21 ^b	.74 ^b	-							
6. Cohesion	.46 ^b	-.22 ^b	-.21 ^b	.71 ^b	.63 ^b	-						
7. Flexibility	.43 ^b	-.26 ^b	-.19 ^b	.49 ^b	.50 ^b	.56 ^b	-					
8. Peer relations	.24 ^b	-.07	-.17 ^b	.21 ^b	.19 ^b	.22 ^b	.21 ^b	-				
9. Self-Management/compliance	.24 ^b	-.09 ^a	-.17 ^b	.25 ^b	.24 ^b	.23 ^b	.24 ^b	.72 ^b	-			
10. Disruptive/defiant	-.16 ^b	.23 ^b	.19 ^b	-.24 ^b	-.26 ^b	-.19 ^b	-.16 ^b	-.27 ^b	-.41 ^b	-		
11. Antisocial/aggressive	-.17 ^b	.25 ^b	.18 ^b	-.20 ^b	-.23 ^b	-.18 ^b	-.20 ^b	-.23 ^b	-.33 ^b	.78 ^b	-	

Note: $a = p < .05$, and $b = p < .001$; CSC = Child Social Competence; $N = 508$.

Table B.36
Covariance Matrix of Parenting and Family Functioning in Father with CSC

Indicator Variables	Latent Independent			Latent Independent				Latent Dependent				
	1	2	3	4	5	6	7	8	9	10	11	
1. Authoritative parenting	.292											
2. Authoritarian parenting	-.074	.257										
3. Permissive parenting	-.042	.111	.191									
4. Communication	.136	-.076	-.075	.407								
5. Satisfaction	.142	-.068	-.062	.315	.449							
6. Cohesion	.108	-.049	-.041	.197	.184	.191						
7. Flexibility	.170	-.096	-.061	.231	.244	.179	.537					
8. Peer relations	.071	-.019	-.040	.074	.067	.052	.085	.294				
9. Self-Management/compliance	.072	-.027	-.043	.090	.090	.057	.102	.221	.323			
10. Disruptive/defiant	-.048	.065	.045	-.085	-.098	-.046	-.065	-.083	-.131	.313		
11. Antisocial/aggressive	-.033	.047	.029	-.047	-.057	-.029	-.053	-.046	-.070	.163	.139	

Note: CSC = Child Social Competence; *N* = 508.

Table B.37

Correlation Matrix of Parenting, MCR, Family Functioning in Mother and CSC

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	-													
2	-.27 ^c	-												
3	-.11 ^a	.58 ^c	-											
4	.50 ^c	-.35 ^c	-.22 ^c	-										
5	.51 ^c	-.28 ^c	-.13 ^b	.70 ^c	-									
6	.53 ^c	-.24 ^c	-.12 ^b	.65 ^c	.72 ^c	-								
7	.26 ^c	-.23 ^c	-.19 ^c	.44 ^c	.44 ^c	.40 ^c	-							
8	.30 ^c	-.31 ^c	-.24 ^c	.52 ^c	.45 ^c	.45 ^c	.74 ^c	-						
9	.33 ^c	-.18 ^c	-.18 ^c	.43 ^c	.43 ^c	.42 ^c	.63 ^c	.63 ^c	-					
10	.30 ^c	-.28 ^c	-.16 ^c	.38 ^c	.41 ^c	.39 ^c	.51 ^c	.49 ^c	.54 ^c	-				
11	.36 ^c	-.22 ^c	-.17 ^c	.41 ^c	.37 ^c	.43 ^c	.23 ^c	.28 ^c	.23 ^c	.22 ^c	-			
12	.32 ^c	-.29 ^c	-.16 ^c	.44 ^c	.40 ^c	.45 ^c	.28 ^c	.33 ^c	.25 ^c	.29 ^c	.72 ^c	-		
13	-.12 ^b	.28 ^c	.15 ^c	-.23 ^c	-.16 ^c	-.12 ^b	-.18 ^c	-.22 ^c	-.20 ^c	-.18 ^c	-.24 ^c	-.42 ^c	-	
14	-.17 ^c	.32 ^c	.19 ^c	-.25 ^c	-.21 ^c	-.16 ^c	-.19 ^c	-.22 ^c	-.21 ^c	-.20 ^c	-.21 ^c	-.35 ^c	.78 ^c	-

Note: 1. 1 = Authoritative Parenting, 2 = Authoritarian Parenting, 3 = Permissive Parenting, 4 = Warmth, 5 = Personal Relation, 6 = Disciplinary Warmth, 7 = Communication, 8 = Satisfaction, 9 = Cohesion, 10 = Flexibility, 11 = Peer Relations, 12 = SMC, 13 = DD, and 14 = AA

2. $a = p < .05$, $b = p < .01$, and $c = p < .001$; MCR = Mother-Child Relationship, CSC = Child Social Competence, N = 512.

Table B.38
Covariance Matrix of Parenting, MCR, Family Functioning in Mother and CSC

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	.282													
2	-.078	.300												
3	-.025	.137	.185											
4	.148	-.108	-.052	.312										
5	.134	-.074	-.026	.193	.240									
6	.166	-.078	-.030	.211	.207	.342								
7	.087	-.079	-.052	.153	.134	.147	.397							
8	.102	-.109	-.066	.188	.143	.172	.305	.424						
9	.077	-.042	-.034	.103	.090	.105	.172	.178	.187					
10	.101	-.097	-.044	.134	.126	.142	.202	.199	.147	.390				
11	.102	-.062	-.038	.121	.096	.134	.078	.096	.053	.074	.279			
12	.096	-.089	-.039	.140	.110	.148	.101	.122	.061	.104	.215	.319		
13	-.036	.087	.036	-.075	-.044	-.041	-.064	-.084	-.048	-.066	-.072	-.137	.326	
14	-.034	.064	.030	-.051	-.037	-.035	-.045	-.053	-.034	-.047	-.040	-.073	.166	.137

Note: 1. 1 = Authoritative Parenting, 2 = Authoritarian Parenting, 3 = Permissive Parenting, 4 = Warmth, 5 = Personal Relation, 6 = Disciplinary Warmth, 7 = Communication, 8 = Satisfaction, 9 = Cohesion, 10 = Flexibility, 11 = Peer Relations, 12 = SMC, 13 = DD, and 14 = AA
 2. MCR = Mother-Child Relationship, CSC = Child Social Competence, $N = 512$.

Table B.39
Correlation Matrix of Parenting, FCR, Family Functioning in Father and CSC

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	-													
2	-.27 ^c	-												
3	-.18 ^c	.49 ^c	-											
4	.57 ^c	-.24 ^c	-.17 ^c	-										
5	.54 ^c	-.12 ^b	-.11 ^a	.71 ^c	-									
6	.56 ^c	-.12 ^b	-.06	.62 ^c	.73 ^c	-								
7	.39 ^c	-.23 ^c	-.27 ^c	.48 ^c	.42 ^c	.37 ^c	-							
8	.40 ^c	-.20 ^c	-.22 ^c	.51 ^c	.45 ^c	.40 ^c	.74 ^c	-						
9	.47 ^c	-.21 ^c	-.21 ^c	.52 ^c	.45 ^c	.43 ^c	.71 ^c	.63 ^c	-					
10	.43 ^c	-.27 ^c	-.20 ^c	.46 ^c	.46 ^c	.41 ^c	.50 ^c	.50 ^c	.56 ^c	-				
11	.26 ^c	-.08	-.19 ^c	.35 ^c	.32 ^c	.32 ^c	.21 ^c	.19 ^c	.23 ^c	.22 ^c	-			
12	.24 ^c	-.10 ^a	-.19 ^c	.32 ^c	.32 ^c	.29 ^c	.25 ^c	.23 ^c	.24 ^c	.25 ^c	.71 ^c	-		
13	-.15 ^c	.23 ^c	.19 ^c	-.23 ^c	-.18 ^c	-.13 ^b	-.24 ^c	-.27 ^c	-.20 ^c	-.17 ^c	-.27 ^c	-.41 ^c	-	
14	-.17 ^c	.24 ^c	.18 ^c	-.21 ^c	-.16 ^c	-.11 ^a	-.20 ^c	-.23 ^c	-.17 ^c	-.20 ^c	-.23 ^c	-.33 ^c	.78 ^c	-

Note: 1. 1 = Authoritative Parenting, 2 = Authoritarian Parenting, 3 = Permissive Parenting, 4 = Warmth, 5 = Personal Relation, 6 = Disciplinary Warmth, 7 = Communication, 8 = Satisfaction, 9 = Cohesion, 10 = Flexibility, 11 = Peer Relations, 12 = SMC, 13 = DD, and 14 = AA
 2. $a = p < .05$, $b = p < .01$, and $c = p < .001$; FCR = Father-Child Relationship, CSC = Child Social Competence, $N = 502$.

Table B.40
Covariance Matrix of Parenting, FCR, Family Functioning in Father and CSC

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	.286													
2	-.073	.255												
3	-.041	.109	.189											
4	.175	-.070	-.042	.327										
5	.149	-.030	-.024	.211	.266									
6	.179	-.037	-.015	.215	.225	.363								
7	.134	-.074	-.074	.176	.140	.144	.406							
8	.141	-.067	-.063	.195	.152	.161	.310	.438						
9	.110	-.046	-.039	.129	.101	.114	.196	.180	.190					
10	.170	-.098	-.063	.192	.174	.179	.233	.241	.180	.537				
11	.073	-.022	-.044	.108	.089	.104	.073	.067	.055	.088	.289			
12	.072	-.028	-.046	.103	.093	.098	.089	.088	.058	.103	.216	.318		
13	-.046	.064	.046	-.075	-.053	-.043	-.084	-.099	-.047	-.068	-.082	-.129	.311	
14	-.033	.046	.029	-.044	-.031	-.025	-.047	-.057	-.028	-.054	-.046	-.069	.163	.140

Note: 1. 1 = Authoritative Parenting, 2 = Authoritarian Parenting, 3 = Permissive Parenting, 4 = Warmth, 5 = Personal Relation, 6 = Disciplinary Warmth, 7 = Communication, 8 = Satisfaction, 9 = Cohesion, 10 = Flexibility, 11 = Peer Relations, 12 = SMC, 13 = DD, and 14 = AA

2. FCR = Father-Child Relationship, CSC = Child Social Competence, $N = 502$.

APPENDIX C

FAMILY DEMOGRAPHIC QUESTIONNAIRE IN ENGLISH

(To be completed by the Father or the Mother Only)

Directions: The information in this questionnaire will be kept confidential. The investigator will use the provided data only in group comparisons. The study will not hurt you in any way. No others will know your answers. Therefore, please answer the questions honestly.

1. Today's Date: ___ 2. Child Name: ___ 3. Child Sex: (circle one): (1). Male (2). Female

4. Child's Birthday: __Year__Month__Day 5. Child's Nationality: _____

6. Your Relationship to the Child: _____

7. Child's School: _____ Grade: _____ Class: _____

8. Except for parents, any other adult family members living in the household ? (1) Yes (2) No

If yes, who are they (example, grandparents)? _____

9. Family Type: Two-parents Single Parent Remarried Other

10. Father's age: ___ (2) Mother's age: _____

11. Father's education: _____ years (Example: 6=elementary school, 9=junior middle school, 12=high school, 16=Bachelor's degree, 19=Master's degree)

12. Mother's education: _____ years (Example: 6=elementary school, 9=junior middle school, 12=high school, 16=Bachelor's degree, 19=Master's degree)

13. Parent's Education Level (Please check the appropriate level ✓)

Father

Mother

___ Uneducated	___
___ Graduated from elementary school	___
___ Graduated from Middle school, high school, or senior vocational school	___
___ Graduated from a university or college	___
___ Graduated from graduate school	___

14. Parent's Occupation (Please check the highest level for the father or the mother ✓)

___ **Non-technical or semi-technical worker:** such as housewife, peasant, worker, vendor, fisherman, seaman, waiter, servant, soldier, and unemployed.

___ **Technical worker:** such as electrician, salesman, driver, tailor, beauty-specialist, barber, chef, and postman, and junior military officer.

___ **Semi-professional and public servant:** such as cadres at the community level, technician, cashier, general public servant, policeman, elementary school teacher, and owner of small business.

___ **Professional and officer:** such as accountant, medical doctor, judge, lawyer, engineer, architect, middle level administrator, secondary school teacher, principal, and owner or manager of middle-size business.

___ **High-level professional and administrator:** medical doctor with an advanced title, legislator, central representative, senior government officer, college or university teacher, military general, senior executive official of a company

15. How many years had your child been in kindergarten (excluding daycare)? __Years__ Months

16. The type of kindergarten your child had been in (check one only):

(1) Public, (2) Private, (3) Co-owned, (4) Other: _____

17. Surname of the father: ___ Surname of the mother: ___ Your phone number: _____

The information in the last item will be used only if there are missing data.

APPENDIX D

FAMILY DEMOGRAPHIC QUESTIONNAIRE IN CHINESE

家庭基本情况问卷 - 请孩子父亲或母亲完成

说明:

这份问卷所涉及的资料将严格保密, 研究者仅将这些信息用于团体比较, 不会涉及任何您个人的利害关系, 也没有其他非研究人员会知道您提供的信息, 因此请放心根据您的实际情况回答。

1. 今天日期: _____
2. 孩子姓名: _____
3. 孩子性别: (请择一圈出): (1). 男 (2). 女
4. 孩子的生日: _____年____月____日
5. 孩子的民族: _____
6. 填写人与孩子的关系: _____
7. 孩子的学校: _____ 年级: _____ 班级: _____
8. 除去父母, 家中是否有其他成人居住 (请择一圈出): (1) 有 (2) 无
如果有, 是什么人(请具体说明, 如祖父母等): _____
9. 家庭类型: 双亲家庭 单亲家庭 其它
10. 孩子父母的年龄: 父亲: ____岁 (2) 母亲: ____岁
11. 孩子父亲受教育年数: ____年 (例如: 6 = 小学, 9 = 初中, 12 = 高中, 16 = 大学本科毕业, 19 = 硕士毕业)
11. 孩子母亲受教育年数: ____年 (例如: 6 = 小学, 9 = 初中, 12 = 高中, 16 = 大学本科毕业, 19 = 硕士毕业)
13. 父母学历 (请在相应的类别上打勾✓)

父亲

- _____ 未上学
_____ 小学毕业
_____ 初中、高中, 中专或职业中学毕业
_____ 专科或大学毕业
_____ 研究生毕业

母亲

- _____

14. 父母职业（请在父母目前最高职业类别上打勾✓）

_____ **非技术及半技术工人：**如家庭主妇、农民，工人、工友、摊贩、渔夫、船员、服务生、帮佣，士兵、无业

_____ **技术工人：**如技工、领班、推销员、店员、小店主、司机、裁缝师、美容师、理发师、厨师、班排级军官

_____ **一般性公务人员：**如乡镇干部、技术员、文书、银行员、出纳员、一般公务人员（含股长）、警察、小学教师、尉级军官、小型工商业老板

_____ **专业技术人员及中级行政人员：**如会计师、医师，法官、律师、工程师、建筑师、中高级公务人(含科，局，处级)、中学教师、厂长、公司老板、中级商业经理人员

_____ **高级专业人员及高级行政人员：**如高级职称医师、省级民意代表、高级行政人员（含厅级，部级）、高等院校教师、将级军官、工商业大老板（如董事长、总经理）

15. 您孩子总共上过多长时间的幼儿园（不含托班）？_____年_____月

16. 您孩子上过的幼儿园类型(请择一圈出):

(1) 公立, (2) 民营, (3) 私立, (4) 其它 _____

17. 孩子父亲贵姓：_____ 孩子母亲贵姓：_____ 您最方便的联系电话：_____

最后一项的资料是为了在有漏答题目的情况下与您联系。

APPENDIX E

PERMISSION TO USE DOTS-R AND THE SCORING INSTRUCTIONS

Good morning Charlie,

No, there is nothing to purchase—with this e-mail message I authorize you to use the DOTS-R for your dissertation study. Yes, I would appreciate a copy of the translated version of the DOTS-R for my files. I have versions in several different languages (but not currently in Chinese) and share them with other investigators when they inquire. I have attached a document that includes scoring instructions for the DOTS-R. Yes, it is reasonable to derive the DTI for your sample the way it was done in Windle (1992).

Best wishes with your research project!

Dr. Windle

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APPENDIX F

THE FORMAT OF PCRQ FOR THE CHILD VERSION IN CHINESE

亲子关系问卷-----儿童版

姓名：_____ 性别：男□ 女□ 生日：____年__月__日

学校：_____ 年级：_____ 班级：_____ 今天日期：_____

说明：以下是描述父母亲与孩子关系的的一些问题。请仔细阅读每个问题，然后圈出最符合你自己情况的答案。每个问题的每一部分不一定都符合你的情况，试着考虑所有的部分，然后圈出你的答案。

| || ||| |||| |||||
 基本没有 不是很多 有一些 很多 非常多

左边是关于妈妈的

右边是关于爸爸的

- | | | |
|--|---|--|
| | 1. 有些父母想他们的孩子大多数时间都与他们在一起，而另一些父母只想他们孩子的部分时间与他们在一起，你的妈妈(爸爸)有多想与你一起渡过大部分时间？ | |
| | 2. 你的妈妈(爸爸)有没有不让你去他(她)担心对你不利的地方？ | |
| | 3. 你和你妈妈(爸爸) 有没有互相关心？ | |
| | 4. 你和你妈妈(爸爸)有没有互相不同意对方或争吵？ | |
| | 5. 你和你妈妈(爸爸)有没有做令对方高兴的事？ | |

APPENDIX G

AN EQS PROGRAM FOR TESTING MEASUREMENT INVARIANCE

```

/TITLE
Measurement Invariance on Parenting and Social Competence - Mothers
/SPECIFICATIONS
VARIABLES=7; CASES=518;
METHOD=ML; ANALYSIS=COVARIANCE; GROUPS=2;
/LABELS
V1=PSDQPS1; V2=PSDQPS2; V3=PSDQPS3; V4=HB_PR; V5=HB_SMC; V6=HB_DD;
V7=HB_AA;
/EQUATIONS
V1 = *F1 + E1;
V2 = *F1 + E2;
V3 = *F1 + E3;
V4 = *F2 + E4;
V5 = *F2 + E5;
V6 = *F2 + E6;
V7 = *F2 + E7;
F2 = *F1 + D1;
/VARIANCES
E1 - E7 = 1*;
D1 = 1*;
/COVARIANCES
E6, E7 = *; E5, E6 = *; E4, E7 = *;
/Matrix
0.284
0.085 0.119
0.094 0.060 0.138
0.102 0.067 0.065 0.275
0.096 0.067 0.056 0.209 0.320
0.026 0.022 0.013 0.073 0.135 0.314
0.027 0.018 0.014 0.039 0.071 0.155 0.127
/PRINT
FIT=ALL;
TABLE=EQUATION;
/END

```

```

/TITLE
Measurement Invariance on Parenting and Social Competence - Fathers
/SPECIFICATIONS
VARIABLES=7; CASES=484;
METHOD=ML; ANALYSIS=COVARIANCE;
/LABELS
V1=PSDQPS1; V2=PSDQPS2; V3=PSDQPS3; V4=HB_PR; V5=HB_SMC;
V6=HB_DD; V7=HB_AA;
/EQUATIONS
V1 = *F1 + E1;

```

```
V2 = *F1 + E2;  
V3 = *F1 + E3;  
V4 = *F2 + E4;  
V5 = *F2 + E5;  
V6 = *F2 + E6;  
V7 = *F2 + E7;  
F2= *F1 + D1;
```

```
/VARIANCES
```

```
E1 - E7 = *;
```

```
D1 = *;
```

```
/COVARIANCES
```

```
E6,E7=*; E7,E4=*; E6,E5=*;
```

```
/MATRIX
```

```
0.294
```

```
0.061 0.127
```

```
0.089 0.043 0.148
```

```
0.067 0.055 0.055 0.290
```

```
0.070 0.046 0.049 0.216 0.317
```

```
0.041 0.011 0.019 0.069 0.120 0.301
```

```
0.028 0.011 0.013 0.040 0.069 0.155 0.132
```

```
/PRINT
```

```
FIT=ALL;
```

```
TABLE=EQUATION;
```

```
/CONSTRAINTS
```

```
! These 7 constraints test for measurement invariance
```

```
(1,V1 ,F1)=(2,V1,F1);
```

```
(1,V2 ,F1)=(2,V2,F1);
```

```
(1,V3 ,F1)=(2,V3,F1);
```

```
(1,V4 ,F2)=(2,V4,F2);
```

```
(1,V5 ,F2)=(2,V5,F2);
```

```
(1,V6 ,F2)=(2,V6,F2);
```

```
(1,V7 ,F2)=(2,V7,F2);
```

```
! This last constraint tests the structural model
```

```
(1,F2,F1)=(2,F2,F1);
```

```
/LMTEST
```

```
/END
```

APPENDIX H

SIMPLIS PROGRAM TO COMPUTE LATENT VARIABLE SCORES

Computing for Mother's Parenting, Family Function, and Social Competence

Observed Variables V1-V11

Raw Data from File ps1hb_faces_m.psf

Latent Variables

hb ps hq

Relationships

$V1=1*ps$

$V2-V3=ps$

$V4=1*hq$

$V5-V7=hq$

$V8=1*hb$

$V9-V11=hb$

PSFfile ps1hb_faces_m.psf

End of Problem

APPENDIX I

PRELIS2 PROGRAM TO ESTIMATE GAMMA COEFFICIENTS

Estimate Gamma Coefficient in Latent Variable Interaction Model

SY=ps1hb_faces_m.psf

NE ksi12=ps*hq

CO ksi12

RG hb ON ps hq ksi12

OU RA=ps1hb_faces_m.psf

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