

Learning Environments of Chinese Only Children

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Abstract

Based on Lewin's (1951) Field Theory and Bronfenbrenner's (1979) Bioecological Systems Theory, the author collected data from 405 Chinese only children regarding 3 social interrelation learning environments, chronic self-concept levels and some outcomes such as career orientation, academic achievement orientation, social competence and self-esteem through their own perceptions through questionnaire distributing. On one hand, this research was designed to see whether there was some uniqueness about Chinese only-children; on the other hand this research was a theoretically driven research for proof of a theoretical model. The proposed theoretical model contends that the impacts of learning environments on students must be studied from a psychological ecological perspective by considering the direct and joint effects of learning environments and student personality within the macro-environments of culture, public policy etc. With data analyses such as exploratory factor analysis, hierarchical multiple regression analysis and ANOVA, hypotheses formulated on these research purposes were tested to be true and the proved theoretical model coincided with part of the prediction of Bronfenbrenner's Bioecological Systems Theory. Finally, based on the conclusion of the present study, theoretical and practical implications were discussed.

1. Introduction

1.1. History of Learning Environment Research

Commentators often attributed the beginnings of the field of learning environments to the pioneering independent contributions of two American researchers, Herbert Walberg and Rudolf Moos, approximately 40 years ago. Walberg developed the Learning Environment Inventory to assess students' perceptions as part of the research and evaluation activities of Harvard Project Physics (Walberg & Anderson, 1968). Moos (1974) developed questionnaires to assess nine separate human environments (including hospital wards, families and work settings), with one of these being the Classroom Environment Scale (Moos & Trickett, 1974). One of Moos' (1974) contributions was to show that the same three basic types of dimensions characterized diverse human environments: the Relationship dimension involves the strength and type of personal relationships within an environment and the extent to which people are involved in the environment and help and support each other; the Personal Development dimension assesses basic directions along which personal growth and self-enhancement tend to occur; and the System Maintenance and Change dimension involves the extent to which the environment is structured and orderly, provides clear expectations, maintains control, and is responsive to change.

1.2. China's One-Child Policy and Its Impact on Family and Society

The One-Child Policy is the population control policy in China. Chinese government introduced this policy in 1979, in order to alleviate social, economic, and environmental problems in China due to a large population and an increasing birth rate. It officially restricts the number of children married urban couples can have to one, although it allows exemptions for several cases. Of course, this policy has some advantages on a family with only one child. For example, the family will have less financial pressure, more freedom,

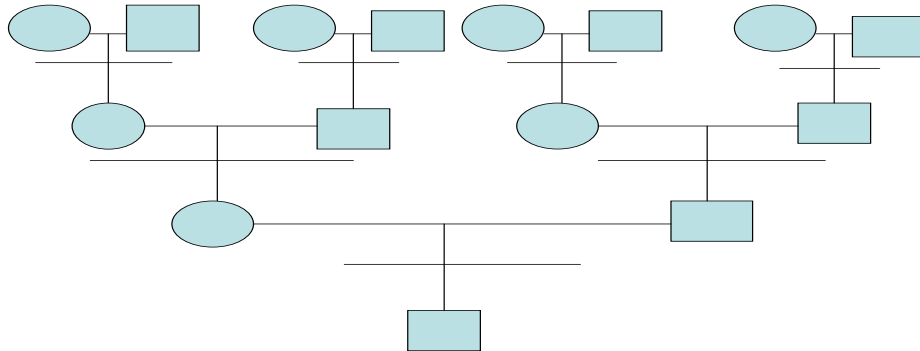
more possibility to devote time and energy to the only child, no sibling rivalry, and more possibility for the mother to realize her career ambition etc.

Meanwhile, this policy also has been bringing immensely other social effects on society and families. To name but a few, for example, the first effect of the policy is on the size and structure of Chinese families, which have a long time of tradition of preferring larger size of families with more children and more grand children. The size of Chinese families tends to be minimized, and more and more nuclear families have been resulted in. While nuclear family has already been the most popular form of Chinese families, the traditional large families including 3 or 4 generations have been disappearing. A nuclear family probably makes more family cohesion, but at the same time, this leaves the family more vulnerable and unstable, and more isolated as well.

Second effect is that many parents tend to take new parenting styles. Since they have only one child in the family and hence are capable to invest more resources and more attention and patience in their only child. Parenting styles may change from the traditional Chinese authoritarian style into a permissive or authoritative style.

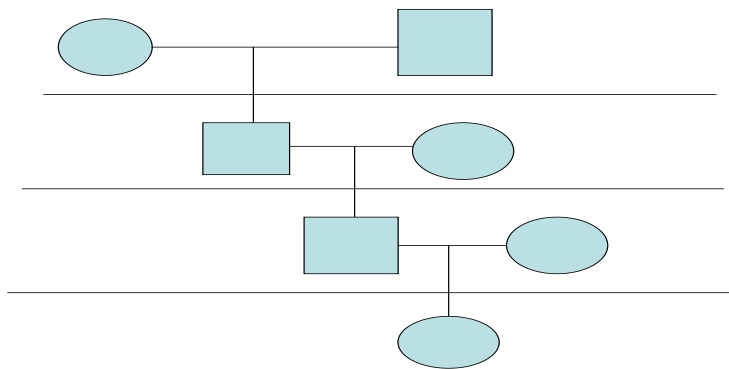
Thirdly, this policy has also a great impact on Chinese family kinship and on the ratio between the elderly people and young people in society. To illustrate the effects of China's One-Child Policy on Chinese family kinship, I use an extended family of a fourth generation only child based on Helle's (1988) parent family culture (see Figure 1). In this extended family, each member in this extended family has been or is the only child of his or her parents in the former or present nuclear family. The present only child (in the fourth row from the top) in Figure 1 has 8 great grand parents (the first row from the top), 4 grandparents (the second row from the top) and 2 parents (the third row from the top). But if this conception of extended family is based on Father Family Culture (Helle, 1988), it would be like the illustration in Figure 2, but when a married couple have a female child, the family

Figure 1. The Extended Family of the Fourth Generation Only Child in a Parent Family Culture



Note. “□” refers to a male, while “○” refers to a female. And “□—○” refers to a married couple.

Figure 2. Family Tree in a Father Family Culture



Note. “□” refers to a male, while “○” refers to a female. And “□—○” refers to a married couple.

would come to the end for further development! Probably few people have seen such strange extended families because they are not developing, but generation after generation combining and decreasing till disappearing. The number of family members of the last generation divided by two would be the largest number of the immediate next generation. This is exactly the goal of the policy makers, that is, to reduce the birth rate at national level. But if we consider this situation from the long run, we could see that the rapid decrease in the birth rate, together with stable or improving proportion of elderly people. In China, the percentage of the population over the age of 65 years old was 5% in 1982 and accounted for 7.5% in 2005, but is expected to rise to more than 15% till 2025 according to World Bank Health Nutrition and Population Division, Developmental data. (Accessed August 26, 2005, at <http://www.worldbank.org/hnpstats>).

Therefore, the “4:2:1” (or even “8:4:2:1”) phenomenon appears. A lack of adequate pension coverage in China, the underdeveloped social welfare systems and social health insurance systems mean that financial dependence on offspring is still necessary for approximately 70% of the elderly people because they live in rural areas and have no pensions. In China, this problem has been named as the “4:2:1” phenomenon, meaning that increasing numbers of couples will be solely responsible for the care of one child and four parents. Chinese people have greatly emphasized children’s roles and duties in the family as part of the larger Chinese value of filial piety, of which family obligation is one component. The obligation to the family that is emphasized in Chinese societies includes dimensions such as a belief in the need to repay parents for their efforts in raising children, a willingness to make sacrifices for the sake of the family, and a respect for the elderly of the family (Ho, 1996; Huang, 1989; Yang, 1989). Also according to the law in China, parents shall take the responsibility to bring up their children, and the children later shall take the obligation to support their parents when they are old or need help. Therefore, the “4:2:1” phenomenon would create a heavy

social and financial burden for the young adults if the government does not make any improvement in the social health insurance system and other supporting systems. These heavy burdens might probably make the new generation of Chinese only children have quite different career orientations to run for practical means, such as money and power.

Finally, the lack of extension of family kinship and the prevailing way of living in a nuclear family, to some extent, lead to a loss of the basic functions of the family: initial socialization of children (Parsons, 1955). With this policy, there are to be less relatives and less closer family kinship relations for each member of the family because it is obvious that each member in the extended family has no uncles or aunts, no siblings, and no cousins as well. Probably these Chinese terms, such as uncle, aunt, brother, sister, and cousin, are to be explained by the later archaeologists and are going to seem new words from a foreign language to the later generations of only children in China. In a nuclear family, the only-child could not find the same age children to communicate with and thus may not learn how to get along well with his peers later in society. Therefore, when they consider themselves, they may limit to the individual level, instead of a relational and/or collective level, hence they may lack social competence, have a feeling of loneliness and helplessness, and present some anxious solitary behaviors.

1.3. Learning Environment Research Gaps

There are at least three learning environment research gaps. First, it is the gap between Western world and China in learning environment research. Learning environment research has a history of about 40 years in the West and the researchers from Western world in this field have accomplished fruitful successes in terms of the variety and validity research instruments, research design, and research results both about normal population or only children. But few research results are revealed about Chinese students or Chinese only children. Therefore, it would be of great importance and of great interest to investigate the

learning environments of Chinese only children in such a huge laboratory created by Chinese government, but based on a quite different culture — a collectivistic culture.

Secondly, there is a research gap on Western research part as well. Since throughout the learning environment literature, almost all researchers concentrated themselves on one aspect of learning environments, such as family environment, classroom climate environment or teacher effectiveness (or teacher interpersonal relations). As learning environments, researchers should consider them as a whole to study the effects on students.

Thirdly, personal characteristics were mostly ignored by learning environment researchers. According to Lewin's Field Theory (1951), behavior depends on the interaction of the person and the environment within a psychological field, or life space. That is, when studying the effects of learning environments, the personal state of the learners should be considered as well because it is the learners who determine which aspects of the physical and social learning environments could enter into their psychological learning environment reality and what they react to the learning environments according to their needs, expectations, etc.

2. Theoretical Framework

As Lewin realized that: “Without theories it is impossible in psychology, as in any other science, to proceed beyond the mere collection and description of facts which have no predictive value. It is impossible to handle problems of conditions or effects without characterizing the dynamic properties behind the surface of the directly observable phenotypical properties.” (Lewin, 1951, p. 241) Lewin’s field theory and Bronfenbrenner’s (1979) Ecological Systems Theory are applied as the theoretical framework of the present study.

2.1. Kurt Lewin’s Field Theory and his Psychological Ecology

2.1.1. Field Theory and Psychological Field

Field theory, defined by Lewin (1951, p. 45) primarily as “a method of analyzing causal relations and of building scientific constructs”. According to Lewin’s (1951) field theory, “behavior and development depend upon the state of the person and his environment, $B = F(P, E)$. In this equation the person (P) and his environment (E) have to be viewed as variables which are mutually dependent upon each other. In other words, to understand or to predict behavior, the person and his environment have to be considered as one constellation of interdependent factors. We call the totality of these interdependent factors the life space (LSp) of that individual, and write $B = F(P, E) = F(LSp)$. The task of explaining behavior then becomes identical with (1) finding a scientific representation of the life space (LSp) and (2) determining the function (F) is what one usually calls a law” (p.239-240).

There are six essential features of the field-theoretical approach which distinguish it most clearly from other theoretical orientations (Lewin, 1951, p. 60): (1) the use of a constructive rather than classificatory method; (2) dynamic approach: an interest in the dynamic aspects of events; (3) a psychological rather than physical approach; (4) an analysis which starts with the situation as a whole; (5) a distinction between systematic and historical problems;

(6) a mathematical representation of the field.

What is the “field” then? “A totality of coexisting facts which are conceived of as mutually interdependent is called a field. Psychology has to view the life space, including the person and his environment, as one field.” (p.240) Specifically, “What means are most appropriate for analyzing and representing scientifically a psychological field have to be judged on the basis of their fruitfulness for explaining behavior.” (p. 240)

Therefore, for Lewin, both the person and the environment are important in studying behavior and development. Moreover, both aspects of the field should be studied as interdependent factors when considering their impacts on behavior or development.

2.1.2. Psychological Ecology

With the intention of clarifying what the “psychological field” is, Lewin (1951, p. 57) noticed that within the realm of facts existing at a given time one can distinguish three areas in which changes are or might be of interest to psychology:

- (1) The “life space”; i.e., the person and the psychological environment as it exists for him. We usually have this field in mind if we refer to needs, motivation, mood, goals, anxiety, ideals.
- (2) A multitude of processes in the physical or social world, which do not affect the life space of the individual at that time.
- (3) A “boundary zone” of the life space: certain parts of the physical or social world do affect the state of the life space at that time.

Lewin (1951, p. 57) continued to emphasize that “the process of perception, for instance, is intimately linked with this boundary zone because what is perceived is partly determined by the physical ‘stimuli’; i.e., that part of the physical world which affects the sensory organs at that time. Another process located in the boundary zone is the ‘execution’ of an action.” Then he (Lewin, 1951, p. 59) went further to define “psychological ecology”:

Theoretically, we can characterize this task as discovering what part of the physical or social world will determine during a given period the “boundary zone” of the life space. This task is

worth the interest of the psychologists. I would suggest calling it “psychological ecology.”

Thus, in Lewin’s field theory, through the proposal of psychological ecology, some physical and social environments are as components of psychological investigation. But, in essence, he meant that all these physical and social environments must appear in the psychological investigation as psychological, not purely physically objective data, that is, they must be present “as they are perceived or known” in the psychological field considered. The most important is that through his proposal of psychological ecology, Lewin essentially suggests a form a psychological research able to use and to integrate information of a non-psychological nature for the understanding of psychological phenomena.

2.2. Implications of Lewin’s Field Theory for Study of Learning Environments

2.2.1. Lewin’s Definition of Learning

Learning is “a term with many meanings and a disturbing history” as Lewin (1951, p.65) noted. Under the broad sense of leaning as “doing something better than before”, Lewin distinguished at least the following types of changes: (1) learning as a change in cognitive structure (knowledge), (2) learning as a change in motivation (learning to like or dislike), (3) learning as a change in group belongingness or ideology (this is an important aspect of growing into a culture), (4) learning in the meaning of voluntary control of the body musculature (this is one important aspect of acquiring skills, such as speech and self-control).

2.2.2. Defining Learning Enviornment

Thus, we could give a simple definition to learning environment: it is the environment where learning takes places. Thus the real problem lies in how the “environment” is defined. As Lewin (1951, p. 57) defined that the “field” is the person in his life space. Therefore, the study of learning environment become the study of the “field”, which includes not only the life space, that is, the person and the psychological environment as it exists for him, but also

those areas of the physical and social world which are part of the life space or which affect its boundary zone at present.

Lewin (1951, p. 72-74) further suggested that scientific predictions or advice for methods of change should be based on an analysis of the “field as a whole,” including both its psychological and nonpsychological aspects. That is, “One should view the present situation— the status quo — as being maintained by certain conditions or forces. In other words, we have to deal, in group life as in individual life, with what is known in physics as ‘quasi-stationary’ processes.” Moreover, “these processes have to be conceived of as a result of forces in the organism and its life space, in the group and its setting. The structure of the organism, of the group, of the setting, or whatever name the field might have in the given case, has to be represented and the forces in the various parts of the field have to be analyzed if the processes are to be understood scientifically.” Because “the process is but the epiphenomenon,” while “the real object of study is the constellation of forces.”

Therefore, an inference about learning environments is: the study of learning environments becomes the study of the constellation of forces coming from the learners’ life space (such as personality, family, school, community, etc.) and its boundary zone (such as parents work places, public policy, culture, etc.), which contribute to the learning processes or outcomes.

2.3. Bronfenbrenner’s Ecological Systems Theory

2.3.1. Bioecological Systems Theory

As many other psychologists, Bronfenbrenner (1979) has been greatly influenced by Lewin’s field theory and his proposal of psychological ecology and the proof we could find in his ecological approach to human development in his Ecological Systems Theory. Specifically, this theory looks at a child’s development within the context of relationships between 5 systems, which are the environments for development. This theory has recently

been renamed “bioecological systems theory” (Bronfenbrenner, 2005) to emphasize that a child’s own biology is a primary environment for development, which is again a reflection of the influence from Lewin’s field theory. The interaction between factors in the child’s maturing biology, his immediate family/community environment, and the other social environments affect the development of the child. Changes or conflict in any one layer will ripple throughout other layers. To study a child’s development, we must look not only at the child and his or her immediate environments, but also at the interaction of the larger environments as well.

2.3.2. Bronfenbrenner’s structure of environment

Within Bronfenbrenner’s Bioecological Systems Theory, five environmental systems are identified (see Figure 3):

- (1) **Microsystem:** The setting in which the individual lives. Structures in the microsystem include family, school, neighborhood, or childcare environments. At this level, relationships have impact in two directions - both away from the child and toward the child. It is in the microsystem that the most direct interactions with social agents take place; with parents, peers, and teachers, for example. The individual is not a passive recipient of experiences in these settings, but someone who helps to construct the settings. In addition, the person's own biology may be considered part of the microsystem; thus the theory has recently sometimes been called "Bio-Ecological Systems Theory."
- (2) **Mesosystem:** Mesosystem refers to relations between microsystems or connections between contexts. Examples are the relation of family experiences to school experiences, school experiences to church experiences, and family experiences to peer experiences. For example, children whose parents have rejected them may have difficulty developing positive relations with peers.

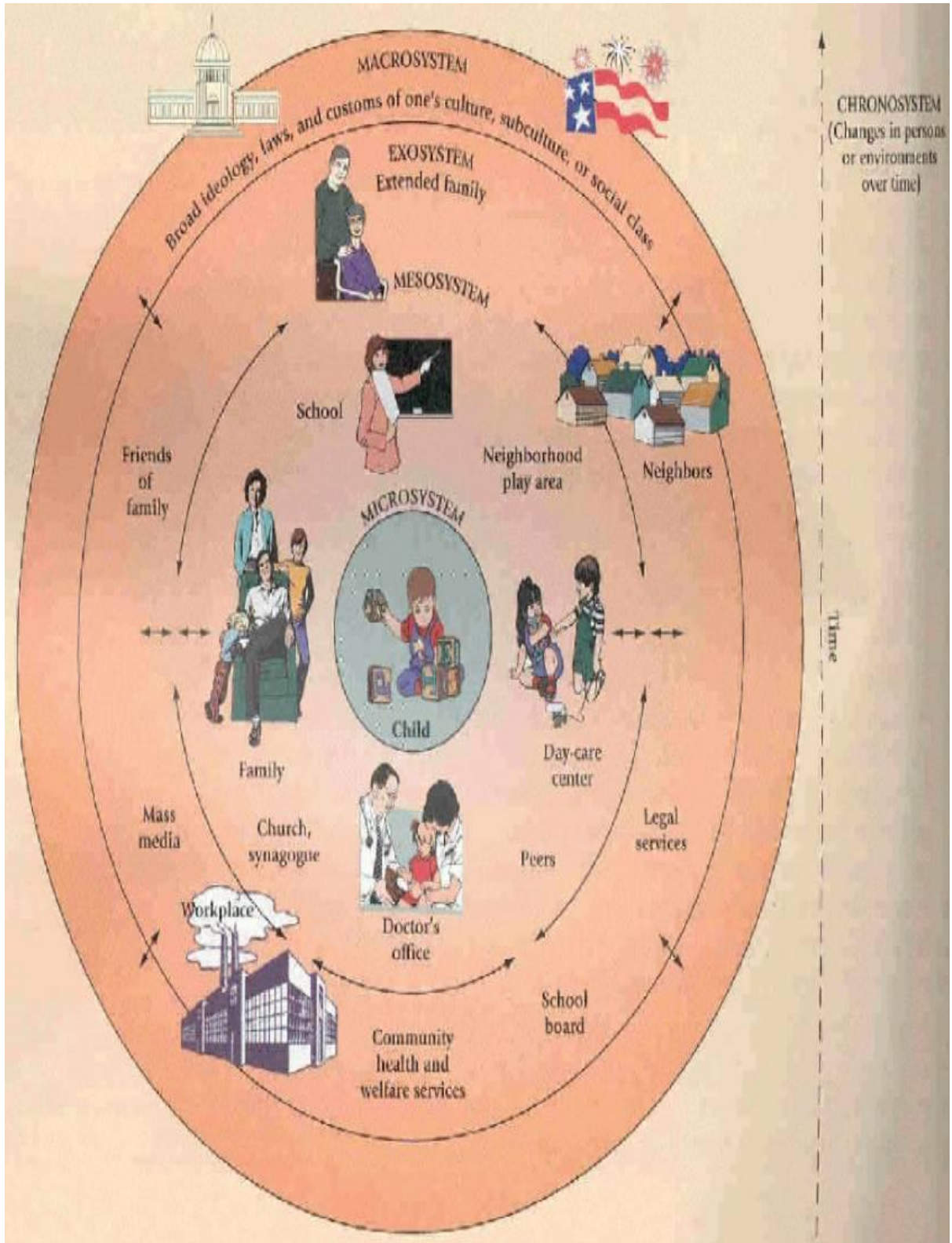


Figure 3. Bronfenbrenner's Ecological Systems Theory Model.

(see: <http://www.des.emory.edu/mfp/302/302bron.PDF>)

- (3) Exosystem: Exosystem involves links between a social setting in which the individual does not have an active role and the individual's immediate context in the microsystem. For example, that a mother has to work longer in her workplace may influence length of time and quality of reaction between the mother and her child.
- (4) Macrosystem: Macrosystem describes the culture in which individuals live. Cultural contexts include developing and industrialized countries, socioeconomic status, poverty, and ethnicity. Moreover, the public policy is also categorized into the macrosystem by Bronfenbrenner (1979).
- (5) Chronosystem: Chronosystem encompasses the dimension of time as it relates to a child's environments. Elements within this system can be either external or internal, such as the patterning of environmental events, social-historical circumstances, and transitions over the life course, or different development phases due to age increase. For example, divorce is one transition. Researchers have found that the negative effects of divorce on children often peak in the first year after the divorce. By two years after the divorce, family interaction is less chaotic and more stable. As social-historical circumstances, we might consider decades or hundreds years ago, women had no right to enter into education world and to pursue their careers, but now they have the rights, which, in turn, affect the development of their children.

In sum, Bronfenbrenner proposed a theoretical work on human development as regards methods and results and in particular their possibilities of providing indications for social changes in the area of social policy. Both Lewin's field theory and Bronfenbrenner's bioecological systems theory are to act as theoretical frameworks in present study.

3. Past Theories and Research Results regarding Only-Children

3.1. Theories

A child's ordinal place in the family has long been thought to have enduring implications for personality development and psychological well-being. The concept of birth order as a mechanism to understand children's behavior was formally developed by Alfred Adler (1931), who thought that children's positions in the family greatly influence their overall development and attitude toward life. The pioneering psychologist G. Stanley Hall held that for a child to develop normally he or she should have siblings and on the basis of a study with an extremely small sample size of only children, concluded that, "being an only child is a disease in itself" (as cited in Fenton, 1928: p. 547). Although Hall's conclusion was questionable, his negative view of the only child launched new interests to study the impact of the birth order and/or the only children.

Anyway, from a theoretical standpoint, only children do represent a useful and challenging concept because they do not grow up with siblings and they also provide a natural comparison group for those who seek to determine what impact siblings have on development. Only children are also important for both birth order and family size theorists (Polit & Falbo, 1985).

3.2. Research Results about Only Children outside of China: Advantaged or No Difference

Although some researchers reached mixed results both about only children (e.g., Chen and Goldsmith, 1991; Doby and others, 1980), advantaged outcomes or no difference outcomes regarding the comparison of only children and other children were reached by most of the researchers.

However, negative stereotypes about only children persist. For example, it is commonly believed that only children are spoiled, selfish, lonely, and maladjusted (Roberts & Blanton,

2001). Blake's (1981) research also stated that such a negative perception of only children is common, citing that only children are depicted as self-centered, anxious, domineering, and quarrelsome. Falbo and Polit (1986) noted that only children are often characterized as lacking social competence because of the notion that they are deprived of the social experiences siblings can offer.

But advantaged or no difference results about only children and other children are the mainstream. Doby and others (1980) conducted an investigation by comparing the characteristics of only children with children raised in multiple-sibling families. Results indicated that being reared as only child actually provided a slightly developmental advantage over those raised with other siblings. But when information was gathered on background characteristics such as parents' educational levels and prenatal and natal conditions, they reached similar or no difference outcomes. Rivera and Carrasquill's (1997) research indicated that in level of achievement and intelligence, only-children appear to have an advantage over children with siblings and that their research on sociability and self-esteem also revealed positive aspects about only children. Kuersten (2000) also found that only children did not fit the stereotype of lonely social misfits, and in fact they surpassed children with siblings both academically and socially. Moreover, a quantitative review (Falbo and Polit, 1987) of the literature on the personality characteristics of only children was conducted on 141 studies from 16 different personality domains and it was found that only children scored significantly better than other groups in achievement motivation and personal adjustment. But it was also found that only children were not substantially different from other children who were raised with siblings with respect to personality characteristics.

Overall, however, the review indicated that only children were comparable in most respects to their non-only counterparts.

3.3. Research Results about Chinese Only-Children in China: Mixed Results

Mixed research results also existed with Chinese only-Children. For example, except for differences in academics, some researchers found very few only-child effects in comparing only children in China and other children with siblings either in China or in the United States (e.g., Falbo and Poston, 1993; Poston and Falbo, 1990; Tsui, 2005). Furthermore, Falbo and Poston (1993) and Poston and Falbo (1990) demonstrated in two studies that Chinese only children outscored children with siblings in academics but showed no differences from other children in personality outcomes. But Chen and others (1994) examined differences in social and academic competence between Chinese 8- and 10-year olds with and without siblings. Unlike previous studies, results indicated no significant differences between the only-child subjects and those with siblings in the areas of social behavior, peer relationships, school-related social competence, and academic achievement.

3.4. Summary

The mixture of research results may be caused by a variety of factors. For example, some selected samples contain groups of only children who are advantaged (e.g., living in a financially and affectionately happy family), while other selected samples contain groups of only children who are disadvantaged (e.g., living in a divorced family or in a single parent family). Besides siblings and birth order, more other factors should be considered as well. However, despite the mixture of research results concerning only children, most of research results indicate that the negative stereotypes of only children are not true in reality, that there are few differences between only children and their peers with siblings, and that to some degree, only children even have more strengths than non onlies. Therefore, it is of great importance to know deeper about only children from a same or very similar baseline. In other part of the world, only children may have some characteristics of being special in comparison with their peers, but in China, being an only child is no special because his or her peers mostly are also only children. In China, a similar baseline is being provided.

4. Family Environment

Generally, family environment is the first learning environment of a child after his birth. There are two main research focuses on family environment: one is on the general family environment closely connected with parents' indirect behaviors in the family (e.g., Woos et al, 1981); the other is the specific family environment, such as parenting style or its relevant components closely connected with parents' direct behaviors in the family.

4.1. Parenting Style

4.1.1. Diana Baumrind's Concept of Parenting Style

More than 40 years ago, Baumrind (1967, 1971) noted that preschool children reared by parents with differing parenting attitudes, or styles, differed in their degrees of social competence. According to Baumrind, the construct of parenting style is used to capture normal variations in parents' attempts to control and socialize their children (Baumrind, 1991). Parenting style has two dimensions: parental responsiveness and parental demandingness. Parental responsiveness (or parental warmth or supportiveness) refers to "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, 1991, p.62). Parental demandingness (or behavioral control) refers 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, 1991, p. 61-62). According to whether parents are high or low on parental demandingness and responsiveness, a typology of four parenting styles is created: permissive, authoritarian, authoritative, and uninvolved parenting styles. Permissive parents are more responsive than they are demanding. They are non-traditional and lenient, do not require mature behavior, allow considerable self-regulation, and avoid confrontation (Baumrind, 1991, p. 62). Authoritarian parents are highly demanding and directive, but not

responsive. They are obedience- and status-oriented, and expect their orders to be obeyed without explanation (Baumrind, 1991, p. 62). These parents provide well-ordered and structured environments with clearly stated rules. Authoritative parents are both demanding and responsive. They monitor and impact clear standards for their children's conduct. They are assertive, but not intrusive and restrictive. Their disciplinary methods are supportive, rather than punitive. They want their children to be assertive as well as socially responsible, and self-regulated as well as cooperative (Baumrind, 1991, p. 62). Uninvolved parents are low in both responsiveness and demandingness. In extreme cases, this parenting style might encompass both rejecting-neglecting and neglectful parents, although most parents of this type fall within the normal range. It is further warned that, because parenting style is a typology, rather than a linear combination of responsiveness and demandingness, each parenting style is more than and different from the sum of its parts (Baumrind, 1991).

And later, Baumrind's theory met challenges in other ethnic groups, for example, in Chinese group, regarding the positive association of authoritative parenting style with children's positive outcomes, such as academic performance. And even she was asked to express her attitude to the punitive disciplinary parental practices at several conferences because such parental practices have been found to be effectual. She (Baumrind, 1996) clearly expressed that the prudent use of punishment within the context of a responsive, supportive parent-child relationship is a necessary tool in the disciplinary encounter with young children. The short- and long-term effects on child outcomes of any disciplinary practice within the normative range are moderated by cultural and childrearing contexts. Therefore, developmental and cultural factors must be taken into account for rational debate to occur concerning desirable child outcomes and consequent childrearing objectives. And the general conclusion is reached that it is not the specific disciplinary practice but how it is administered and in what cultural context that determine its efficacy and long-term effects.

4.1.2. Third Dimension of Parenting Style

In addition to differing on responsiveness and demandingness, the parenting styles also differ in the extent to which they are characterized by a third dimension: psychological control. Psychological control refers to control attempts that intrude into the psychological and emotional development of the child (Barber, 1996, p. 3296) through using parenting practices such as guilt induction, withdrawal of love, or shaming. One key difference between authoritarian and authoritative parenting is in the dimension of psychological control. Both authoritarian and authoritative parents place high demands on their children and expect their children to behave appropriately and obey parental rules. Authoritarian parents, however, also expect their children to accept their judgments, values, and goals without questioning. In contrast, authoritative parents are more open to give and take with their children and make greater use of explanations. Thus, although authoritative and authoritarian parents are equally high in behavioral control, authoritative parents tend to be low in psychological control, while authoritarian parents tend to be high (Darling, 1999).

4.1.3. Research Results about Parenting Style

Parenting Style and Preschool and Preadolescence Children

Baumrind's typological parenting style theory (1971) implied that parenting style had a major impact on the degree of social competence achieved as well as on the behavioral adjustment of preschool children (Baumrind, 1991) and preadolescence children. In the domain of emotion socialization, Chan, Bowes and Wyver (2009) found that Hong Kong Chinese mothers of 6- to 8-year-old children adopted an authoritative style most often and an authoritarian style least often, that they valued both relational and individualistic emotional competence of their children as parental goals but regarded the former as more important than the latter, and that parental goals mediated the influences of parenting styles on parental practices. That is, parenting styles played an overarching role in emotion socialization,

influencing both parental practices and goals. With a sample consisted of 112 children (6-11 years of age) and both their parents, Dekovic and Janssens (1992) examined relationships between parents' child-rearing style, the child's prosocial behavior, and the child's sociometric status. Factor analyses of parental behavior revealed that 2 factors, Authoritative/Democratic and Authoritarian/Restrictive, can be found in the subsamples of mothers and fathers. These 2 dimensions of maternal and paternal behavior appeared to be predictive of both the child's prosocial behavior and sociometric status. Another study reached similar results: to test the theory that preschool children, reared by parents with differing parenting attitudes or styles, would differ in their degrees of social competence, a two-year study was conducted by Slicker and Kim (1996). Adding to Baumrind's research result about impacts of parenting style on preschoolers, Paulussen-Hoogbeem et al. (2008) examined whether the relations between children's negative emotionality and problematic behavior (internalizing and externalizing) were partially mediated by parenting style (authoritative and authoritarian) in a community sample of 196 3-year-old children and their mothers. Maternal perception of child negative emotionality and problematic child behavior was assessed. Their results showed that the relations between child negative emotionality and internalizing and externalizing behaviors were partially mediated by mothers' authoritative parenting style.

Parenting styles played an important role in students' self-regulated learning as well. In a study by Huang and Prochner (2004), the relationship between Chinese parenting style and children's involvement in self-regulated learning was examined with a sample of 177 grade 4 students and their parents. It was found that authoritative parenting style was significantly and positively related to students' self-regulated learning, whereas authoritarian parenting style was significantly and negatively related to students' self-regulated learning.

Parenting Style and Early Adolescents

However, most researchers concentrated on adolescents when considering the association between parenting style and academic, psychological and behavioral outcomes. In school achievement and attendance, Steinberg & Elmen's (1986) results revealed that adolescents from authoritative households (as opposed to either authoritarian or permissive households) performed better in school than their peers, even after controlling for social class and achievement test scores. School grades and attendance records examined one year after the study suggest that authoritative parenting actually promotes school success among high school students.

For early adolescents, parenting style, especially maternal concern could act as a predictor of life satisfaction, social competence. In short-term longitudinal study, the relations among maternal parenting style, academic competence, and life satisfaction in Chinese early adolescents in Hong Kong was examined by Leung and McBride-Chang, and Lai (2004). Results indicated that adolescents' perceived maternal concerns and academic competences significantly predicted life satisfaction over time, whereas perceived maternal restrictiveness did not. In another study, Rubin et al. (2004) examined parental support, best friendship quality and psychological functioning in early adolescence and found that perceived parental support and friendship quality predicted higher global self-worth and social competence and less internalizing problems, that perceived parental support predicted fewer externalizing problems, and that paternal (not maternal) support predicted lower rejection and victimization.

Furthermore, Smith et al. (2008) explored the socialization of adolescents' processing of identity-relevant information by examining perceived parenting dimensions and identity styles in a sample of middle and late adolescents. Results indicated that an information-oriented style was positively predicted by parental support; contrary to expectations, however, an information-oriented style was also positively predicted by psychological

control; a normative identity style was positively predicted by support and behavioral control; in line with expectations, a diffuse-avoidant identity style was positively predicted by psychological control and negatively by maternal (but not paternal) behavioral control.

Research also found that parenting style has impacts on motivational constructs, such as academic goal orientation, self-efficacy, autonomy in learning and self-esteem. For example, Hoang (2007) found that parenting style was related to adolescents' academic goal orientation in maths and autonomy in regulating academic behavior. Specifically, firstly, authoritative parenting served as the strongest individual predictor of mastery orientation and permissive parenting also accounted for a significant portion of the variance in adopting a mastery orientation; secondly, parental behavioral involvement served as the strongest individual predictor of a performance approach orientation, while permissive parenting and authoritarian parenting also accounted for significant portions of the variance in adopting a performance approach orientation; thirdly, parental behavioral involvement served as the strongest individual predictor of a performance avoidance orientation. But interestingly, the analyses indicated no significant relation between behavioral involvement and the adoption of a mastery orientation. Meanwhile, authoritative parenting was found to serve as the strongest individual predictor of a higher level of autonomy. Reporting a more democratic parent was predictive of student's reporting feeling more autonomous in regulating their academic behaviors. Another study (Chan and Chan, 2007) examined goal orientations, perceived parenting styles, and their relationships in a sample of Hong Kong teacher education students. It was found that their most influential parents to be authoritative and that perceived parenting styles predicted goal orientations: authoritativeness was significantly and positively related to learning goals, whereas authoritativeness and authoritarianism were significantly and positively related to performance goals. In study of parenting effects on self efficacy and self esteem in late adolescence and how those factors

impact adjustment to college, Smith (2007) firstly assessed 203 high school seniors' self-efficacy, self-esteem, and their parents parenting styles approximately three months before starting college and two weeks after starting college he investigated the students' homesickness and adjustment to college. It was found that authoritarian parents had children with lower self-esteem and self-efficacy, while authoritative parents had children with higher self-esteem and self-efficacy and that students higher in self-esteem and self-efficacy experienced less homesickness and showed better emotional and behavioral adjustment to college. Moreover, Edward and Price (2002) examined the relationship between perceived parenting style and hope in college students and the results revealed that authoritative parenting, with its high but balanced levels of nurturance, communication, control and maturity demands, appeared to consistently be related to positive outcome in children as well as adolescents.

Significant differences in behavioral adjustment were also been found in early and middle adolescents reared by parents using the four "classic" parenting styles (Durbin et al., 1993; Lamborn et al., 1991; Steinberg et al., 1993; Steinberg et al., 1992; Steinberg et al., 1991; Steinberg et al., 1994).

Parenting Style and Older Adolescents and Young Adults

Later the age range in parenting style research was further enlarged to older adolescents and young adults (Slicker, 1996; Slicker and Kim, 1996). With older adolescents and young adults, research results persisted in the relations between parenting style and behavior outcomes. For example, Slicker (1996) investigated graduating high school seniors (HS) and university freshmen (UF) and searched for relations between their levels of participation in problem and conventional behaviors and the three parenting dimensions: acceptance, behavioral control, and democracy (or psychological control). It was found that the "democracy" dimension was not needed to effectively define authoritative parenting after the

other two dimensions were considered. Results indicated that parenting style was significantly related to older adolescent behavioral outcome in problem and conventional behaviors in the HS sample ($p < .0001$) and in the UF sample ($p < .05$), and that previously established advantages and disadvantages of the four classic parenting styles persisted even when they were extended into older adolescents, and that the influence of parenting style appears to wane with increasing age of older adolescents, especially after a semester of college. Furthermore, Slicker and Kim (1996) studied the longitudinal relationship of parenting style and family type to older adolescent (higher school seniors and university freshmen) problem behaviors in the middle South of USA and the significant results at “Year 1” indicated that, in regard to a variety of problem behavior outcome, authoritative parenting was superior to permissive and neglectful parenting, and that “balanced” and “moderately balanced” family types were superior to “mid-range” and “extreme” family types. In “Year 2” ($N = 261$), significant differences among parenting styles and family types persisted. Turner, Chandler and Heffer’s (2009) study indicated that authoritative maternal parenting continued to influence the academic performance of college students.

There were other aspects of behavioral and psychological outcomes that were reported in the literature as associated with parenting style, including those in social competence (Baumrind, 1991; Lamborn et al., 1991; Steinberg, 1990), academic achievement (Dornbusch et al., 1987; Lamborn et al., 1991; Steinberg et al., 1991; Steinberg et al., 1989), self-reliance (Steinberg et al., 1991), psychological distress and delinquency (Lamborn et al., 1991; Steinberg et al., 1991), substance use (Baumrind, 1991), adolescent drinking and delinquency (Barnes and Farrell, 1992), and peer group selection (Brown et al., 1993) etc.

Impact of Mother-Father Differences in Parenting Style

Very interesting research results were found by Simons & Conger (2007) by linking mother-father differences in parenting style and adolescent outcomes. Using longitudinal data

from a sample of 451 families with a child in eighth grade at the time of study, they found that regardless of reporter, the most common family parenting styles were those in which both parents display the same style of parenting, that having two authoritative parents was associated with the most positive outcomes for adolescents, and that in the absence of this optimal family parenting style, there was evidence that having one authoritative parent could, in most cases, buffered a child from the deleterious consequences associated with less optimal styles of parenting.

Developmental Results of Parenting Style

Adolescence is a critical period of development. In their research review, Cripps and Zyromski (2009) found that parenting style greatly influenced children's development as well. The authoritative/democratic parenting style influences middle school children, leading to positive developmental outcomes, positive adolescent self-evaluations, higher levels of adolescent self-esteem and adjustment, while also positively influencing levels of intrinsic motivation for learning. In a recent longitudinal study by Williams et al. (2009) examined the impact of behavioral inhibition and parenting style on internalizing and externalizing problems from early childhood through adolescence by investigating a sample of 113 children from childhood till adolescence. And results revealed that internalizing problems at age 4 were greatest among behaviorally inhibited children who also were exposed to permissive parenting. Furthermore, greater authoritative parenting was associated with less of an increase in internalizing behavior problems over time and greater authoritarian parenting was associated with a steeper decline in externalizing problems.

Consequences of Parenting Style

In reviewing the literature on parenting style, it seems there is a lasting consistency with the benefits of authoritative parenting style regardless of the age range or normal or abnormal children. Parenting style has been found to predict child well-being in the domains

of social competence, academic performance, psychosocial development, and problem behavior etc. Research consistently found that children and adolescents having authoritative parents were more socially and instrumentally competent than those whose parents are nonauthoritative (Baumrind, 1991; Weiss & Schwarz, 1996; Miller et al., 1993); that, in contrast, children and adolescents having uninvolved parents, perform most poorly in all domains; that, in general, parental responsiveness predicts social competence and psychosocial functioning, while parental demandingness is associated with instrumental competence and behavioral control (i.e., academic performance and deviance); that children and adolescents having authoritarian parents tend to perform moderately well in school and be uninvolved in problem behavior, but they have poorer social skills, lower self-esteem, self-efficacy and higher levels of depression; and that children and adolescents having permissive parents 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.

Influence of Gender, Ethnicity, or Family Type

As was realized by Darling (1999), it was important to distinguish between differences in the distribution and the correlates of parenting style in different subpopulations. Although authoritative parenting is most common among intact, middle-class families of European descent, the relationship between authoritativeness and child outcomes is quite similar across groups in this subpopulation. There are some exceptions for some subgroups. For example, first, in terms of gender differences, Weiss and Schwarz (1996) found that demandingness seemed not to be so critical to girls than to boys' outcomes. Another example of gender effect is the cross-sex parenting effect, in investigating senior high school students. Richards et al (1991) found that boys and girls who perceived their cross-sex parent to be warm and supportive were found to have higher self-esteem. Rubin et al. (2004) also found that having

a supportive mother protected boys from the effects of low-quality friendships on their perceived social competence, and that high friendship quality buffered the effects of low maternal support on girls' internalizing difficulties. In the study of Chan and Chan (2005), it was found that the positive relationship between authoritarian parenting style and performance orientation was significant in male but not in female students. On the contrary, the positive relationship between authoritative parenting and learning goal was significant only in female but not in male students.

Secondly, authoritative parenting predicts psychosocial outcomes and problem behaviors for adolescents in all ethnic groups studied (African-, Asian-, European-, and Hispanic Americans), but it is associated with academic performance only among European Americans (Steinberg, Dornbusch, & Brown, 1992; Steinberg, Darling, & Fletcher, 1995). For instance, Chao (1994) and others (Darling & Steinberg, 1993) have argued that observed ethnic differences in the association of parenting style with child outcomes may be due to differences in social context, parenting practices, or the cultural meaning of specific dimensions of parenting style. And Baumrind (1996) herself also admitted that the association of parenting style with child outcomes was based on developmental and cultural factors.

Research Results about Asian-American and Chinese Parenting Style Effects

Researchers reached mixed results about Asian-American parenting style effects. In a study by Dornbusch, Ritter, Leiderman, Roberts, and Fraleigh (1987), although authoritative parenting style was consistently and positively related to the school grades of European American students, this style was unrelated to the school grades of Asian Americans. Another study by Steinberg, Lamborn, Dornbusch, and Darling (1992) found that for both European Americans and Asian Americans, authoritative parenting had positive effects on adolescent's school performance. Steinberg, Lamborn, Darling, Mounts, and Dornbusch

(1994) tested whether there were ethnic group differences in the effects of parenting style by estimating interaction terms for ethnicity and parenting style. They noted that authoritative parenting was relatively more advantageous for European American youth than it was for Asian American youth, whereas authoritarian parenting was relatively more advantageous for Asian American youth. But these mixed parenting style effects are reached from the comparison of European Americans with Asian-American parenting style effect. How about the effects of Chinese parenting effects on Chinese students then?

Studies of Chinese families in Hong Kong and Mainland China also found different results about the effects of Chinese parenting style on school performance. Using Dornbusch et al.'s (1987) measures of parenting style, Leung, Lau, and Lam (1998) investigated Hong Kong Chinese high school students, European American and Australian high school students. Results revealed that the authoritative style was unrelated to the grades of Hong Kong Chinese, but positively related to the grades of European Americans and Australians, and that authoritarian parenting was positively related to the grades of Hong Kong Chinese. In another study of Hong Kong Chinese, McBride-Chang and Chang (1998) found that, on base of parent self-report, both the authoritative and authoritarian styles were unrelated to adolescents' achievement test scores. In contrast, Chen, Dong, and Zhou (1997), examined Chinese families in Beijing and found that the authoritative style was positively related to children's school achievement, whereas the authoritarian style was negatively related to school achievement. As Chao (2001) inferred the possible reasons for Chen, Dong, and Zhou's differing results, in their study, much younger children (i.e., second graders) than the studies cited above were involved; additionally, there might be important differences in parenting between Chinese parents from Hong Kong and those from Mainland China. Therefore, it would be meaningful to examine further the associations between parenting style and adolescents' outcomes in Mainland China with adolescents.

Explanations for Mixed Parenting Style Effects on Chinese Students

Chao (1993 and 1994) suggested the different effects of Chinese-American and Chinese parenting effects may be due to the culture. He argued that the idea of “training” in Chinese families may contribute to the differences.

Furthermore, Darling and Steinberg (1993) considered parenting style as the emotional climate between parents and children. Based on this idea, Chao (2001) suggested further that parenting style might influence adolescent outcomes through its effect on the parent–adolescent relationship. Therefore, we could take again a step further and suggest that: since parenting style is realized through parenting practices, but same parenting practices have different developmental and cultural meanings, thus, different specific family relations, such as family cohesions, are fostered. Parenting style is thus defined as a global Relationship construct that is explained by specific relationship qualities (Chao, 2001). This is probably why same parenting styles have different effects on offspring outcomes in different cultures. Chao (2001) examined the effects of parent–adolescent relationships on school performance to provide a clearer understanding of why authoritative parenting does not have as beneficial effects for Asian Americans as it does for European Americans. Positive effects of both authoritative parenting and relationship closeness on school performance were found for European Americans and, to some extent, second-generation Chinese, but not first-generation Chinese. These effects were also stronger for European Americans than first-generation Chinese. Through examination of the mediating role of parent–adolescent relationships, this study also found that among European American families, the beneficial effects of authoritative parenting are explained through relationship closeness. But what would be the research results in Mainland China if similar research designs but with only Chinese adolescents there then?

4.2. General Family Environment

4. 2.1. Definition of General Family Environment

Woos et al (1981) believed that family as a general learning environment could be described and measured, and they designed the Family Environment Scale (FES) to measure family environment, which composed of 10 subscales underlying three dimensions: relationship, personal growth (or goal orientation), and system maintenance dimensions. The Relationship Dimension assesses the degree to which the family members are perceived to be involved with each other and how openly positive and negative feelings are expressed. The Relationship Dimension consists of 3 subscales: Cohesion (degree of perceived commitment, support, and help family members provide for each other), Expressiveness (degree to which family members are encouraged to express feelings and problems), and Conflict (amount of openly expressed anger, aggression, and conflict among family members). The Personal Growth Dimension reflects the family-of-origin's goal orientation or ways the family-of-origin encourages or inhibits an individual's personal growth. The Personal Growth Dimension is made up of the following 5 scales: Independence (extent to which family members are assertive, make own decisions, and self-sufficient); Achievement Orientation (extent to which school and work activities are cast as indices of achievement or areas of competition); Intellectual–Cultural Orientation (degree to which family members showed interest in political, social, intellectual, and cultural activities); Active–Recreational Orientation (extent to which family members emphasized participation in social and recreational activities); and Moral–Religious Emphasis (extent to which family members emphasized ethical and religious issues and values). Finally, the System Maintenance Dimensions reflect the degree to which the family emphasizes clear organization, control, structure, rules, and procedures in running family life. The System Maintenance Dimensions consists of two subscales: Organization (extent to which the family endorses clear organization and structure in planning family activities and responsibilities) and Control

(extent to which rules and procedures are followed and enforced by family members). The Relationship and System Maintenance Dimensions reflect more perceived internal family functioning, whereas the personal growth (or goal orientation) dimension reflects the link between the family and society.

4. 2.2. Impacts of General Family Relations (cohesion, conflict and expressiveness)

Impact of Family Relations on Career Development

First of all, general family environment has great impact on career development, such as career goals, career identity, career interest etc. Family relationship, especially expressiveness, was found to be related to vocational variables. Along with previous research (Blustein et al., 1991; Kenny, 1990; Kinnier et al., 1990; Lopez, 1989; Penick & Jepsen, 1992), the results of Johnson, Buboltz, and Nichols' study (1999) provided support to the theoretical contention that family environment plays a role in the career development process. Specifically, results indicate that each family relationship variable (i.e., conflict, cohesion, and expressiveness) is related to vocational identity for college students. Although accounting for only about 3% of the variance, expressiveness appears to be the family relationship variable most predictive of vocational identity for college students. This finding supports previous research which indicates that expressiveness is the family relationship variable with the strongest effect on developmental task attainment for college students (Johnson & McNeil, 1998; Johnson & Nelson, 1998) and suggests that college-age children who grew up in families that encouraged direct and open communication between members may more easily develop a relatively clear and stable picture of their vocational goals and interests.

Ethnic Differences in the Impact of Family Relations

Ethnic differences were also found in the impact of family environment. With the purpose to explore the ethnic differences in family dynamics and career interests of European

Americans and Chinese Americans and how these dynamics--cohesion, expressiveness, and conflict--influence one's career interests, Leong, Kao and Lee (2004) found significant ethnic differences in career interests. The Chinese Americans' highest career interest was enterprising, whereas the highest for European Americans was social. Ethnic differences in family dynamics were also found, though opposite from hypothesized; Chinese Americans reported more family conflict, less cohesion, and less expressiveness than the European Americans.

Developmental Features of Family Relations Impact

The impact of family environment was found to be developmental. Based on a developmental contextual perspective advocated by Vondracek, Lerner, and Schulenberg (1986), Whiston & Keller (2004) provided a comprehensive review of the research published since 1980 related to family of origin influences on career development and occupational choice. Influential family contextual factors are identified within four developmental levels (i.e., children, adolescents, college students/young adults, and adults):

(a) The initial influence of parents includes both their occupations and their occupational expectations for their children. There is also some indication that children whose mothers are employed are likely to consider a greater number of occupations, including nontraditional occupations, than children whose mothers are not employed. Additionally, there is some evidence that children from non-two-parent homes are more likely to have limited occupational aspirations than children in two-parent homes.

(b) This review indicated that higher occupational expectations were associated with a family environment that is supportive and where parents have high expectations for the adolescents. Family support and parental expectations also influence females' career orientation. Parental support for a certain occupational area or career direction (e.g., entering the military) seems to have an influence, particularly on older adolescents' interests and

preliminary career direction. The mother-daughter relationship may be significant in adolescent girls' developing a career orientation and may play a pertinent role in their feeling about career decision-making. Parental expectations during adolescence also seem to have an influence on later occupational attainment.

(c) Through review of 32 studies about college students, it was concluded that the family of origin influences college students' career development and maturity, occupational exploration, vocational identity, assessment of career-related abilities, career commitment or decidedness, and occupational selection. On the other hand, this review tended to indicate that families had a less direct influence on college students' career decision-making self-efficacy and career indecision. Although these trends were somewhat tentative, the family variables that seem most influential were family attitudinal and relational factors. Regarding family dynamic variables, attachment, emotional support, autonomy support, encouragement, and boundaries seemed to be more important than other dynamic variables such as psychological separation. For example, college students' career development seemed to be enhanced by parental emotional support, autonomy support, encouragement, and warmth. Students who had higher levels of career commitment tended to have higher levels of parental attachment and fewer conflicts with their families. Furthermore, the influence of family variables on various career constructs varied depending on the gender of college students or young adults and the gender of the parent. For example, in terms of vocational exploration, maternal attachment seemed to have more influence than paternal variables. On the other hand, paternal relationship variables seemed to be more influential in terms of females entering a nontraditional career field. This review also indicated that both family demographic and family dynamic variables influence adults' career development.

Interaction Effect among Family Structure Variables and Family Process Variables

Moreover, in the above-mentioned review and in my review of literature, it was found that

several studies indicated career outcomes were influenced by an interaction among family structure variables and family process variables. For example, Hargrove, Creagh, and Burgess' study (2002) explored the family interaction patterns as predictors of vocational identity and career decision-making self-efficacy of college students. Achievement orientation in the family was found to be a significant predictor of career identity and a number of family variables including achievement, intellectual-cultural and moral-religious emphasis orientations and degree of family conflict and expressiveness were found to be predictors of career decision-making self-efficacy. Therefore, their findings suggested that family-of-origin interaction patterns may play small, yet significant roles in the formulation of clear and stable career goals and the promotion of self-confidence in regard to completing career planning activities (Hargrove, Inman and Crane, 2005).

Impact of Family Cohesion on Physical and Psychological Well-Being, and Social Competence

Family cohesion influences physical and psychological well-being. Greenberger, Ellen, & Chen, Chuansheng (1996) examined perceived parent-adolescent relationships and depressed mood among early adolescents and college students, all of them being European or Asian American background. Ethnic differences in depressed mood, not evident in the early adolescent sample, emerged in the college sample, with Asian Americans reporting more symptoms. Ethnic differences in depressed mood were reduced to nonsignificance when quality of parent-adolescent relationships was statistically controlled. And perceived parent-adolescent relationships accounted for more of the variance in depressed mood in early adolescence than in late adolescence: 44% to 51% for the junior high samples and about 10% for the college samples. Manzi et al (2006) also found that Family cohesion was associated with better psychological well-being of adolescents from UK and Italy. It was found by Behnke et al (2008) that family cohesion strongly mediated most of the relations

between stress and parenting behaviors. Important ethnic and gender differences were evident. In contrast with other groups, Mexican American fathers reported higher levels of family cohesion when faced with economic pressures. Family cohesion and parental monitoring exerted even a protective-stabilizing effect on number of illicit drugs used and on problems with drugs and alcohol (Kliewer et al, 2006). In examining the influence of family cohesion and adaptability on college students' trauma symptoms and psychological well-being, Uruk et al's (2007) study revealed that the family adaptability and cohesion has a significant unique variance in explaining both trauma symptoms and psychological well-being. In order to test a model of suicidal ideation with family cohesion, expressiveness, conflicts, teacher support, teacher-student relationships and peer support as antecedents, and self-esteem and depression as mediators, Sun and Hui (2006) investigated 433 Hong Kong Chinese adolescents and found that only family cohesion, conflicts, teacher support and peer support significantly predicted self-esteem and depression, with depression being a strong mediator of suicidal ideation. In a second study by Sun and Hui (2007), with the purpose to investigate the family, school, peer and psychological factors that contribute to adolescent suicidal ideation with a sample of Hong Kong Chinese adolescents who were divided into younger (12.3 years, n = 694) and older (15.4 years, n = 664) age groups, the results showed that family cohesion and sense of school belonging were the core predictors of self-esteem and depression, and that depression was a strong mediator of suicidal ideation. In the prediction of suicidal ideation, peer support was significant among girls and younger adolescents only, whereas peer conflict was significant among older adolescents only. Family conflict, teacher support and academic pressure did not show any significant contribution in the prediction. Johnson et al (2001) examined relationship of family cohesion and interparental conflict with loneliness in late adolescents and found that feelings of loneliness were related to perceived levels of interparental conflict for males and females,

and to decreased family cohesion for females. Feelings of social anxiety and social avoidance were related to feelings of loneliness. In a longitudinal study (Frank, 2000) of adolescent health, it was found that adolescent involvement in four types of violent behaviors was related to race/ethnicity, gender, and family structure. Family cohesion was a protective factor against all types of violence. Wentzel and Feldman (1996) also found that the cohesive nature of family relationships affected adjustment more consistently for girls than boys, whereas family power structures more consistently affected boys' adjustment than girls'.

Impact of Family Cohesion on Academic Outcomes, Creativity and Leadership

Family cohesion was proved to have impact on academic outcomes, such as school engagement, GPA, adjustment to college etc. In the study of Annunziata et al (2006), results showed that both family cohesion and parental monitoring predicted school engagement of at-risk, inner-city adolescents, but neither family characteristic predicted their GPA. Important gender differences also emerged. For boys only, the relation between family cohesion and school engagement was stronger when parental monitoring was high. For girls only, the effects of cohesion and monitoring on school engagement were additive: girls with both high family cohesion and high parental monitoring were most likely to be engaged in school. Lagana (2004) also wanted to determine what factors predicted school dropout, with particular attention given to family and social support variables. School dropout was measured by proxy, using group membership as an indirect indicator of risk and the results indicated that family cohesion, adult support, and peer support were predictors of group membership. In another investigation of the influence of self-concept and perceived family environment on psychosocial adjustment among 180 early-entrance college students (ages range from 14 and 17 years old) by Caplan et al (2002), family cohesion, conflict, and expressiveness and overall self-concept were found to be predictive of adjustment to college

and family cohesion, organization, control, conflict, and overall self-concept were found to predict first semester grade-point average.

Family cohesion has impact not only on academic outcomes, but also on creativity and leadership. In Chan's (2005) study of family environment and talent development of Chinese gifted students in Hong Kong, it provided opportunities to challenge a number of conjectures regarding the relationships between family environmental variables and perceived talents in academic skills, creativity, and leadership. Accordingly, it was assumed that family cohesion and parental expectations to achieve academically would favor academic achievement, but would impede creativity. In contrast, it was assumed that parental encouragement for independence was connected to the development of creativity. Further, it was assumed that leadership would be enhanced by parental expectations to achieve and parental encouragement for independence, as well as by family cohesion. However, the findings did not fully support these conjectures. Rather, family cohesion and parental expectations to achieve emerged as significant predictors of perceived academic skills, creativity, and leadership. Thus, gifted students who perceived their family as more cohesive and their parents as having high expectations of them also perceived themselves as having more talents in academic skills, creativity, and leadership.

In the present study, among the three family relation variables, only family cohesion is considered because in Chinese culture, family expressiveness is traditionally not encouraged in a family, and family conflict as a negative aspect of family relations normally is deemed not to be reported.

5. Peer Relations: Peer Group Acceptance and Best Friendship Quality

Ladd (1999) did a review of peer relations research and concluded that major periods of empirical activity and accomplishment in research on peer relations could be divided into three generations. Each generation had investigative agendas that were dominant or ascendant during these periods.

5.1. First Generation (from late 1920s till World War II)

5.1.1. Investigative Agenda of First Generation: studying the nature of peer groups and the association between children's characteristics and their positions in peer groups

The first generation of children's peer relations emerged in the late 1920s when social scientists began to study the nature of children's peer groups and the association between children's characteristics and their positions in peer groups. Investigations, based on methodologies, such as observation, sociometry and experimental interventions, addressed to these topics continued until the outbreak of World War II, after which they fell dormant for more than a decade (see Renshaw, 1981).

5.1.2. Research Review in First Generation

As Renshaw (1981, p. 1-2) reviewed: The extent of the contribution of the 1930s to current research on peer interaction and friendship can be appreciated by noting the classic theoretical works published during that decade. Moreno launched the field of sociometry by publishing *Who Shall Survive* in 1934. Sherif initiated a lifetime investigation of groups with the publication of *The Psychology of Social Norms* in 1936. Lewin's writings on field theory (Lewin, 1931) and group climates (Lewin, Lippitt, & White, 1939) established the experimental method as an indispensable tool for studying group phenomena. Piaget (1926, 1932) demonstrated the importance of studying the social cognitive development of children, and Murphy showed that even young children acted altruistically toward each other

(Murphy, 1937).

Renshaw also noted that all these above-mentioned classic studies, however, are only part of the large body of peer research that was conducted and reported during the era. Other studies, such as studies by Parten (1932) on children's play, by Koch (1933) on popularity, by Isaacs (1933) on children's social development, by Buhler (1930), Bridges (1933), Shirley (1933), and Maudry and Nekula (1939) on social interaction of children below the age of 2, are also noteworthy examples of peer relations studies in this era.

5.2. Second Generation (from 1970s and 1980s)

5.2.1. Investigative Agenda: Likely Causes of Peer Rejection and Peer Acceptance, Types and Functions of Peer Relations

The second generation of research on children's peer relations was triggered by a series of discoveries that emerged during the late 1960s and early 1970s. Harlow and colleagues (1969) found that young rhesus monkeys that were reared by their mothers but deprived of peer contact failed to develop essential social skills and traversed abnormal developmental trajectories. However, these investigators also showed that play with younger peers could compensate for some of the deficits that were attributable to maternal deprivation (see also Freud & Dann, 1951). Together, the evidence suggested that peers played an essential role in the socialization of interpersonal competence and that skills acquired in this manner affected the individual's long-term adjustment. This premise was further strengthened by findings from a series of longitudinal studies (e.g. Cowen et al, 1973, Roff & Sells, 1967). All these findings and their implications shaped the agendas of the second generation of researchers (from 1970s and 1980s). Through correlations, researchers found support for the conclusion that whereas antisocial and disruptive behaviors were likely causes of poor peer relations (e.g. peer rejection), prosocial behaviors led to positive outcomes, such as peer acceptance (see review by Coie et al 1990). Researchers also found the behavioral antecedents of

children's friendships: conversational) skills (see Gottman 1983).

5.2.2. Reasons for Social Skills and Skill Deficits

But why some children exhibited social skills in their interactions with peers and other children manifested skill deficits. Some researchers found reasons from interpersonal cognitions, such as goals, strategies, outcome expectations, and peer attributions, and/or from intrapersonal cognitions, such as self-perceptions, perceived competence, and self-efficacy (Dodge 1986, Ladd & Mize 1983), while other researchers found reasons from early socialization contexts, such as the family — direct family influences (e.g. parents' attempts to influence children's peer relations) and/or indirect family influences (i.e. family processes with no direct bearing on children's peer relations, such as parenting, attachment, or child abuse) (Parke & Ladd 1992). Results indicated that children with high versus low peer acceptance tended to construct different types of goals and strategies for peer interactions (Dodge & Feldman 1990, Ladd & Crick 1989).

5.2.3. Friendship and Peer Acceptance

Researchers in this era began to differentiate the types and functions of peer relations: friendship and peer acceptance (Berndt & Ladd 1989). In general, friendship was defined as a voluntary, dyadic form of relationship that often embodied a positive affective tie, whereas peer acceptance was defined as a child's relational status in a peer group, as indicated by the degree to which they were liked or disliked by group members (see Bukowski & Hoza 1989). Friendship and peer acceptance may offer provisions such as support, intimacy and companionship etc. (Bukowski & Hoza, 1989; Furman & Robbins 1985).

5.2.4. Impact of Peer Relations on Children's Development

By the end of 1980s, researchers began to examine the contributions of peer relationships on children's development. As Berndt & Ladd (1989) concluded that little evidence had accumulated that could confirm or deny the existence of the functions of peer relationships

in children's development. Anyway, it was found that children adapted better when in the presence of friends or familiar peers (see Ladd & Kochenderfer 1996) and that both the quantity of a child's friendships and the quality of those relationships (e.g. variations in support and closeness) predicted changes in children's social perceptions, competence, and adjustment (Bukowski & Hoza 1989, Ladd 1990).

5.3. Third Generation (1990s and beyond)

5.3.1. Investigative Agenda: Do distinct forms of peer relationships, and the provisions they afford, differentially affect children's development and adjustment?

Further investigations and progress were made by the third generation (1990s and beyond) researchers in addressing the question of whether distinct forms of peer relationships, and the provisions they afford, differentially affect children's development and adjustment.

5.3.2. More about Contributions of Peer Relations

In addition to distinguishing among the forms and features of children's peer relationships, researchers have acquired more information about the potential contributions of peer relationships to children's adjustment and development. Longitudinal studies conducted in the 1990s strengthened earlier evidence indicating that peer rejection was a relatively stable characteristic that predicted both internalizing and externalizing problems as well as absenteeism during the grade school years (e.g. DeRosier et al 1994; Hymel et al 1990a); rejection also predicted grade retention and adjustment difficulties during the transition to middle school (Coie et al 1992). The DeRosier et al findings also showed that the severity of children's internalizing and externalizing problems varies as a function of the proximity and chronicity of peer rejection. Research results linking peer rejection with loneliness in middle childhood were replicated with younger samples (Cassidy & Asher 1992), and neglected peer status was found to be a correlate of adaptive outcomes such as achievement motivation (Wentzel & Asher 1995). Friendship and the quality of children's friendships were found to

be important predictors of children's emotional well-being (Parker & Asher 1993) and adjustment trajectories during early and middle grade school (Ladd et al 1996). Considerable attention was focused on the potential effects of peer victimization on children's adjustment, and findings link abusive peer relations with a number of adjustment difficulties during childhood, including anxiety, loneliness, depression, and school maladaptation (Boulton & Underwood 1992, Kochenderfer & Ladd 1996).

5.3.3. Impacts of Friendship, Friendship or Best Friendship Quality and Quantity, and Peer Acceptance

Initial efforts to investigate differential relationship contributions focused on friendship and peer acceptance. Research results about adolescent showed that loneliness was more closely linked with friendship than peer acceptance, and feelings of isolation were more closely tied to peer acceptance than friendship (see Bukowski & Hoza 1989).

Friendship quality was also found to be very important for adolescents. Veronneau and Vitaro (2007), after reviewing theoretical and empirical work conducted over the last few decades on the relations between child and adolescent peer experiences and high school graduation, concluded that peer acceptance is a correlate of high school graduation, and that having numerous friends was not, in itself, a very efficient predictor of high school graduation, because friends might have a positive or a negative influence on school achievement, depending on their own characteristics, that is, friendship quality may moderate both the positive and negative effects of friendship on academic adjustment. Meanwhile, they recommended further research directions: first, all relevant variables (not only peer experiences) should be systematically included in empirical studies in order to control for confounding variables; second, the impact of the interplay between different peer experiences should be investigated; third, variables such as age, chronicity of peer experiences, and reciprocal effect between independent and dependent variables are also

necessary to maximize the validity of empirical research. As a good example, Nelson and Debacker (2008) investigated associations among perceived peer relationships and achievement motivation during science class with middle school and high school students. Results indicated that perceived peer relationship variables explained variance in achievement motivation. Adolescents who perceived being valued and respected by classmates were more likely to report adaptive achievement motivation. Reports of adaptive achievement motivation were also related to having a good quality friendship and a best friend who values academics. Having a poor quality friendship and perceiving classmates to be resistant to school norms were related to reports of maladaptive achievement motivation. Another new cross-sectional study by Woods, Done, and Kalsi (2009) indicated that the higher quality of friendship was associated with the reduced levels of loneliness in their sample group.

Flanagan, Erath and Bierman's (2008) study examined the unique associations between social anxiety and peer relations (including positive peer nominations, peer- and self-reported peer victimization, and self-reported friendship quality) among adolescent students. The results provided support for the unique contribution made by peer relations to social anxiety. Research also found support for the role of peer relationships in adjustment to college (Swenson, Nordstrom & Hiester, 2008) and their results suggested that a close relationship with a high school friend was beneficial during the first weeks of college, but later in the first semester there were more benefits to having a close relationship with a new college friend. Cillessen et al (2005) also found that aggression was associated with self and partner perceptions of friendship conflict and low positive friendship qualities and that prosocial behavior was associated with self and partner perceptions of positive friendship qualities and low conflict. Furthermore, Nelson and Teresa (2007) enlarged the contents of peer relations as dependent variables and outcome variables of adolescents (middle school

and high school students). They assessed peer classroom climate, achievement-related beliefs and values of a best friend, achievement goals, social goals, and self-efficacy. And their regression analyses indicated multifaceted impact: (a) Peer class-climate and best friend variables accounted for significant variance in mastery goals. Significant individual predictors were grade level (negative), class belongingness (positive), and best friend's academic valuing (positive). (b) Peer class-climate variables accounted for significant variance in performance-approach goals. Classmates' resistance to school norms and belongingness were significant positive predictors. (c) Peer class-climate variables accounted for significant variance in performance-avoidance goals, with the only significant individual predictor being classmates' resistance to school norms (positive). (d) Peer class-climate and best friend variables accounted for significant variance in social intimacy goals. Class belongingness and friendship quality were significant positive predictors. (e) Peer class-climate and best friend variables accounted for significant variance in social approval goals. Classmates' resistance to school norms and friendship quality was a unique positive predictor. (f) Peer class-climate and best friend variables accounted for significant variance in social responsibility goals. Significant positive predictors were class belongingness, best friend's academic valuing, and friendship quality. (g) Peer class-climate variables accounted for significant variance in self-efficacy. Grade level was a significant negative predictor and class belongingness was a unique positive predictor. Adolescents who perceived being valued and respected by classmates were more likely to report adaptive achievement motivation. Reports of adaptive achievement motivation were also related to having a good quality friendship and a best friend who values academics. Having a poor quality friendship and perceiving classmates to be resistant to school norms were related to reports of maladaptive achievement motivation.

Among grade school children, Parker and Asher (1993) found that many low-accepted

children had best friends and were satisfied with these friendships. However, these children's friendships were lower than those of other children on most dimensions of quality, and that friendship, friendship quality, and group acceptance made separate contributions to the prediction of loneliness.

In peer relation research, best friends are seen as a source of interpersonal support as well as a source of beliefs and values. Having a trusting, caring, and intimate relationship with a best friend is associated with improved social and emotional adjustment (Buhrmester, 1990; Parker & Asher, 1993), self-esteem (Keefe & Berndt, 1996; Mannarino, 1980), and classroom behavior (Berndt & Keefe, 1995). Friends in high-quality relationships are more likely to share similar beliefs and values than friends in lower quality relationships (Berndt, Hawkins, & Jiao, 1999; Berndt, Laychak, & Park, 1990; Hallinan, 1983; Hallinan & Williams, 1990). For example, Agnew (1991) reported that delinquency rates of adolescent friends increased over time only in high-quality friendships. Likewise, Berndt et al. (1999) found that behavior problems increased over the course of a school year when students reported a higher quality relationship with a best friend who had behavioral problems.

Similarly, Vandell and Hembree (1994) found that mutual friendships and peer acceptance uniquely and additively predicted social competence, self-esteem, and achievement in elementary school children. In a developmental sense, one study (National Institute of Child Health and Human Development Early Child Care Research Network, 2008) investigated the association of third graders' social competence with earlier peer experiences in childcare. The results indicated that children who had more positive experiences with peers in childcare, had better social and communicative skills with peers in third grade, were more sociable and cooperative and less aggressive, had more close friends, and were more accepted and popular; and that children with more frequent negative experiences with peers in childcare were more aggressive in third grade, had lower social and communicative skills, and reported having

fewer friends. With a total of 238 fifth to eighth graders (boys = 109) participants, Waldrip, Malcolm and Jensen-Campbell (2008) also examined the unique contributions of peer acceptance, friendship, and victimization to adjustment and investigated how these relational systems moderate the influence of one another to influence adjustment. Adolescents who had lower levels of peer acceptance, number of friends, and friendship quality had greater teacher-reported maladjustment. Moreover, friendship quality was an important buffer against adjustment problems when peer acceptance and number of friends were low. In study of Korean primary school children, Shin (2007) revealed that peer relationships, including peer acceptance, the number of friends, and positive friendship quality, uniquely contributed to loneliness. Peer relationships partially mediated between withdrawal and loneliness. Peer acceptance and friendship quality fully mediated the link between academic functioning and loneliness. Since childhood social anxiety consistently has been linked with low levels of peer acceptance, Greco and Morris (2005) investigated factors influencing the link between social anxiety and peer acceptance of grade school children. Their results revealed that, as expected, childhood social anxiety was associated with low levels of peer acceptance, that this relation was mediated in part by social skills difficulties, and that friendship quality (but not quantity) moderated this process for girls. Interestingly, friendship quantity and positive friendship quality did not serve a protective function for either boys or girls. In examining the main and interactive effects of fifth-graders' relationships with parents and friends on their psychosocial functioning, Rubin et al (2004) found that friendship quality predicted higher global self-worth and social competence and less internalizing problems. Friendship quality predicted lower rejection and victimization for only girls. High friendship quality buffered the effects of low maternal support on girls' internalizing difficulties. In comparing later elementary schoolers with learning disabilities and their typically achieving peers, Estell et al (2009) conducted a two-year study and their research results indicated that

students with learning disabilities were as likely to have a reciprocated best friend and had as many best friends as their typically achieving peers. However, they retained fewer friendships over time, and were more likely to have friends who also had learning disabilities.

As a rare, but valuable example study with children at a transition period, Kingery and Erdley (2007) examined the role of peer acceptance, number of mutual friends, and friendship quality in predicting adjustment across the transition from elementary to middle school and results revealed that there was a significant decrease in the average number of mutual friendships across time, and that peer acceptance and friendship quality and quantity play significant yet somewhat different roles in predicting loneliness and school involvement across the middle school transition. Specifically, the regression models using the peer variables to predict loneliness and school involvement across the transition were significant, with peer acceptance emerging as a unique predictor; children with lower peer acceptance are more likely to experience behavioral, emotional, academic, and peer difficulties; and these students are at a higher risk for having adjustment difficulties across the middle school transition; and the friendship quality variable was more highly correlated with school involvement.

With young children, Ladd (1990) found that friendship and peer acceptance uniquely predicted changes in kindergartners' school attitudes, avoidance, and performance. In another study (Ladd & Coleman, 1997), which assessed changes over time in kindergarten children's school attitudes and perceptions of peer acceptance and friendships, it was found that initial levels of peer group acceptance were associated with liking school at both assessments, while the number of mutual friendships was associated with an increase in school liking. However, in an investigation in which a broader range of peer relationships were examined (i.e. friendship, peer acceptance, and peer victimization (Ladd et al 1997), it

was found that multiple relational influences played a role in most of the adjustment outcomes examined and that the adaptive significance of particular forms of relationship (i.e. presence of unique versus shared linkages) varied across adjustment domains.

Overall, these findings were consistent with the view that peer relationships are specialized in the types of social provisions they offer children but also diverse in the sense that some provisions may be found in more than one form of relationship.

5.3.4. Innovative Areas of Investigation of Third Generation Peer Relations Research

As their innovative agendas and areas of investigation, the third generation researchers explored child behaviors versus peer relationships as potential causes of development and adjustment. One prominent objective was to examine the relative importance of childhood aggression and peer group rejection as predictors of subsequent adjustment outcomes. The evidence accumulated supported the causal model, suggesting that in addition to aggression, peer rejection increases children's risk for maladjustment. This includes evidence from a short-term longitudinal study (Panak & Garber 1992) in which aggression's contribution to depression was found to be partially mediated by gains in peer rejection. Findings from longer-term longitudinal studies (e.g. Coie et al 1992, Hymel et al 1990a) suggest that both aggression and peer rejection in grade school make unique contributions to maladjustment in early adolescence. In contrast, however, Kupersmidt & Coie (1990) found that the strength of these linkages varied with the type of adjustment outcome examined: Whereas aggression in middle childhood best predicted delinquency in adolescence, both aggression and peer rejection anteceded other types of externalizing problems. Similar results have emerged in studies where these linkages have been examined concurrently (see Boivin & Hymel 1997). The question of whether the same model holds for other behavior patterns (e.g. withdrawn behavior) has been examined, too. Renshaw & Brown (1993) found that withdrawn behavior and low peer acceptance were additively associated (both concurrently and predicatively)

with loneliness in grade school children. A similar pattern of concurrent linkages was also reported by Boivin & Hymel (1997).

5.3.5. Gender Differences

The construct of gender has been an enduring consideration in the study of children's peer relations. Greater attention has been devoted to gender differences in the study of peer rejection. As with boys, it has been possible to identify behavioral subtypes of rejected girls (French 1990), but the behaviors that distinguish the subtypes (i.e. withdrawal, anxiety, underachievement) are not the same as those that differentiate rejected boys (i.e. aggression), suggesting that the causes or consequences of peer rejection may be different in boys' and girls' peer groups. There is also evidence to suggest that the proximity and chronicity of peer rejection take a greater toll on boys' than girls' adjustment (DeRosier et al 1994), although research of this type has tended to focus on externalizing outcomes, which are more common among boys.

Gender differences have also received further attention in the study of children's friendships. Friendship networks (Parker & Seal 1996) revealed that boys' friendship networks, in contrast to girls', were more likely to become interconnected over time. The investigators suggested that girls may be more likely than boys to winnow network affiliations as a means of managing conflicts and rivalries among members. Other evidence implies that unskilled children, who may be disliked by peers, are more likely to seek friendships among opposite-sex peers. Kovacs et al (1996) found that although neither grade school boys nor girls were more likely to have primarily opposite-sex friends, those who did (as compared with children with primarily same-sex friends or friends of both genders) tended to have weaker social skills. However, it may also be the case that plays with same-sex peers is a risk factor for some children. Fabes et al (1997) found that for boys (but not girls) who were highly arousal, play among same-sex peers increased the likelihood of

behavior problems. Additionally, there is further support for the premise that boys and girls have different relational priorities that shape their interactions and responses to friends or well liked peers (see Maccoby 1990). In conflicts with friends, Hartup et al (1993) found that girls were more likely than boys to accompany assertive behaviors with rationales, suggesting that girls have greater concern for relationship issues whereas boys have greater concern for mastery and status. Likewise, Whitesell & Harter (1996) found that girls were more likely than boys to judge a friend's misdeeds from a relationship perspective, and Fabes et al (1996) found that boys were more likely than girls to express anger toward well-liked peers—a response that may be motivated by concerns about dominance and competition.

5.3.6. Cultural and Ethnic Similarities and Differences

The third generation researchers of peer relations have also been investigating the cultural and ethnic similarities and differences in children's peer relations and social competence. Although the study of children's peer relations has become a worldwide endeavor, systematic efforts to explore ethnic and cultural differences have been rare (Krappman 1996). Within North America, investigators have begun to draw of picture of the peer relations of majority (typically Euro-American) and minority (typically African-American) children. Kupersmidt et al (1995), for example, found that middle social economic status neighborhoods appeared to operate as a protective factor against aggressive behavior for low-income, single-parent African-American children. Schools that enroll children from diverse backgrounds appear to promote ethnically diverse friendship and peer-interaction patterns (Howes & Wu 1990). Other studies reveal differences between minority and majority groups. Kovacs et al (1996) found that African-American children tend to have more friendships as well as more opposite-sex friendships than do Euro-American children, and they infer that African-American children may be socialized to develop larger networks

or may reside in family systems (e.g. extended families) that nurture broader ties. Other findings suggest that children who are members of minority groups are more likely to engage in self-protective, self-esteem-maintaining behaviors. Zakriski & Coie (1996) found that even though both Euro-American and African-American children were more likely to recast peer feedback about themselves in self-enhancing ways, self-protective distortions were more pronounced among African-American children, especially when the feedback was negative.

Cross-national comparisons of children's peer relations are rare. Researchers (Fonzi et al 1997) have argued that variations in cultural values may cause differences in the ways children interact and maintain friendships. In support of this contention, they found that friendships tend to be more stable in Italy than in Canada. Likewise, the role of children's social behaviors in determining relationship and adjustment outcomes may also vary by culture. Chen and colleagues (Chen et al 1992, and 1995) found that even though aggressive and leadership behaviors predicted similar adjustment outcomes in Canadian and Chinese samples, shy and sensitive behaviors did not. During childhood (but not adolescence), shy, sensitive behaviors and peer acceptance and competence were positively correlated for Chinese children but inversely related for Canadian children.

5.3.7. Summary of Three Generations of Peer Relations Research Results

In summary, with dominant or ascendant investigative agendas, research in peer relations has been making progresses step by step. Some behaviors lead to peer rejections and others lead to peer acceptance. Reasons for this are found from interpersonal and intrapersonal cognition and early socialization contexts. Furthermore, several types of peer relations are identified and they have different provisions and hence function differently on children's development and adjustment. Finally, with deeper insight into peer relations investigation, researchers reached fruitful results by innovatively combining children's behavior and peer

relations to examine the impact of peer relations on children's adjustment and development. Generally speaking, research findings indicated that peer relations have impact on children's academic outcomes, social competence, problem behaviors, psychological and developmental well-beings etc., but on some outcome variables gender differences, cultural differences existed.

6. Teacher Interpersonal Behavior

6.1. History of Teacher Interpersonal Behavior as Learning Environment

The research program of Wubbels and his colleagues in the Netherlands on teacher–student relationships using the Questionnaire on Teacher Interpersonal Behavior (QTI) can be considered one of the second pioneering contributions, which has around 30 years long history. And simultaneously another pioneering research program based in Australia and initially involving the use of the individualized classroom environment questionnaire (ICEQ) (Fraser & Fisher, 1982; Rentoul & Fraser, 1979) was also launched.

6.2. Research Results on Teacher Interpersonal Behavior through Perceptions of Students

6.2.1. International Feature of Research

Research on teacher-student interactions is truly international. Although the research program on teacher interpersonal behavior originated in the Netherlands, this research has spread widely in many countries over the last 30 years. The QTI has been translated into and validated in at least 15 languages.

6.2.2. Theoretical Foundation

The solid theoretical foundation of this research program is built on two theories. First, its general theoretical basis is the systems theory of communication of Watzlawick, Beavin and Jackson (1967). Second, Leary's (1957) research on the interpersonal diagnosis of personality was used to create a two-dimensional model of interactional teacher behavior. In the Leary model, two dimensions are important and Leary called them the Dominance-Submission axis and the Hostility-Affection axis. While the two dimensions have occasionally been given other names, they have generally been accepted as universal descriptors of human interaction. Adapting the Leary Model to the context of education, Wubbels et al. (1987) used the two dimensions, which they called Influence (describing who

is in control in the teacher-student relationship) and Proximity (describing the degree of cooperation between teacher and students) (see Figure 4). The influence dimension is characterized by teacher dominance (D) on one end of the spectrum, and teacher submission (S) on the other end. Similarly, the proximity dimension is characterized by teacher cooperation (C) on one end, and by teacher opposition (O) on the other. The two dimensions can be depicted in a two-dimensional plane that can be further subdivided into eight categories or sectors of behavior: leadership (DC), helpful/friendly behavior (CD), understanding behavior (CS), giving responsibility/freedom (SC), uncertain behavior (SO), dissatisfied behavior (OS), admonishing behavior (OD) and strictness (DO) (see Figure 5). The Model for Interpersonal Teacher Behavior (MITB) also assumes that the eight sectors of behavior can be represented by two independent dimensions (i.e., Influence and Proximity).

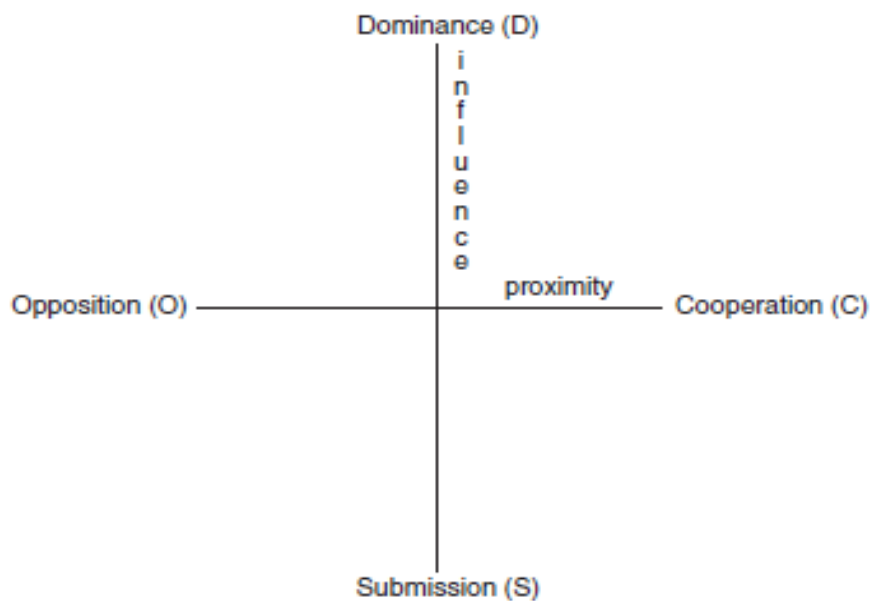


Figure 4 Two-dimensional coordinate system of the model for interpersonal behavior.

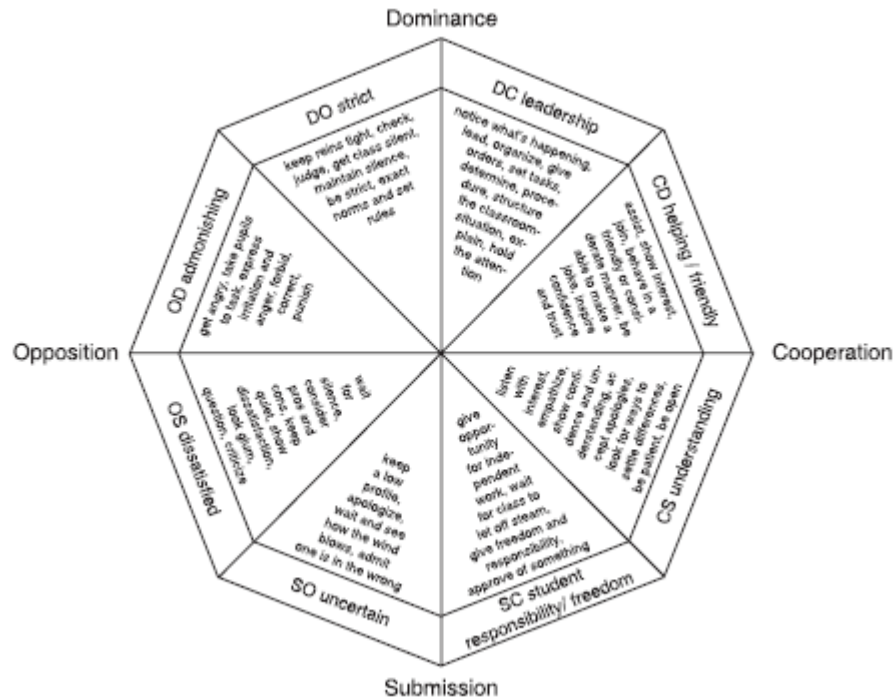


Figure 5 Model for teacher interpersonal behavior.

6.2.3. Mostly Studied Research Questions and Answers

Researchers on teacher interpersonal behavior investigated mostly associations between students' outcomes and student perceptions of their teacher interpersonal behavior. It was empirically proved that there was a link between the quality of teacher-student relationships and student outcomes, especially affective outcomes. Specifically, teacher interpersonal behavior with high dominance and proximity seemed to be conducive in terms of student outcomes, including cognitive outcomes and affective outcomes, and studies on non-verbal behavior and the spatial position of the teacher in the class offered support to the need for beginning teachers to portray the image of an experienced teacher whenever they address the class as a group (Wubbels & Brekelmans, 2005). For instance, Henderson, Fischer and Fraser (2000) investigated associations between students' perceptions of their biology teacher's behavior and their laboratory learning environment with student attitudinal, performance, and achievement outcomes and results revealed that associations between

attitudinal outcomes and learning environment dimensions assessed by the Science Laboratory Environment Inventory (SLEI) and Questionnaire on Teacher Interaction (QTI) were stronger than with either achievement or practical outcomes. In another study by Lang, Wong and Fraser (2005), associations were found between the interpersonal behavior of chemistry teachers and students' enjoyment of their chemistry lessons. However, through student perceptions of teacher interpersonal behavior, another study by den Brok, Brekelmans and Wubbels (2004) examined the effectiveness of secondary education teachers' interpersonal behavior by analyzing data from 2 samples: one study on 45 physics teachers and their 3rd-year classes and the other study on 32 English-as-a-Foreign-Language teachers and their 3rd-year classes. Results indicated that Influence and Proximity were positively related to both subject-specific cognitive and affective outcomes and that teacher interpersonal behavior explained up to more than half of the variance in student outcomes at the teacher-class level.

6.2.4. Teacher Interpersonal Behavior in China

Research on teacher interpersonal behavior in China is too few (see Wei, den Brok, & Zhou, 2009) although Chinese versions of QTI existed, but the investigations happened in Taiwan and Singapore. Through students' perceptions, his study examined the relationship between English as a Foreign Language (EFL) teachers' interpersonal behavior and students' fluency in English in secondary education in southwestern China and results showed that teacher uncertainty was negatively correlated with student achievement, that the degree of teacher cooperation with students was the only significant predictor for student achievement, that there was a discrepancy between students' perceptions of preferred and actual teacher interpersonal behavior, and that the tolerant-authoritative profile was the most common interpersonal style based on Chinese students' perceptions. But this study had not a trace of concentration on affective outcomes. In this aspect, it leaves much more to do

for future research.

6.2.5. Trial in Conjunction with Other Aspects of Learning Environment (e.g., Culture or Ethnicity)

Several comparisons of student perceptions of teacher interpersonal behavior among different cultures or ethnicities indicated the necessity of integrating culture element in learning environment studies. Wubbels and Levy (1989) did a comparison of Dutch and American interpersonal teacher behavior and their results revealed that Dutch and American teachers displayed the same interpersonal behavior toward their students in many aspects, that American teachers wanted to be stricter than did their Dutch colleagues, and that Dutch teachers wanted to give students more responsibility and freedom. This implied that Dutch teachers emphasized affective outcomes to a greater degree and that American teachers emphasize cognitive outcomes to a greater degree. Another study by Fisher and his colleagues (1997) investigated gender and cultural differences in teacher interpersonal behavior among secondary students in 35 coeducational schools in Western Australia and Tasmania. Their results indicated that generally, the dimensions of the QTI were found to be significantly associated with student attitude scores, that in particular, students' attitude scores were higher in classrooms in which students perceived greater leadership, helping/friendly, and understanding behaviors in their teachers, that Females perceived their teachers in a more positive way than did males, and that students from an Asian background tended to perceive their teachers more positively than those from the other cultural groups used in the study. Furthermore, in the study by den Brok et al. (2006), secondary teacher interpersonal behavior in Singapore, Brunei and Australia was examined and results showed that differences in teacher influence and proximity existed among the countries. Therefore it is necessary to integrate teacher-student relationships as one aspect of learning environment to be in conjunction with other aspects of learning environment, for example, culture or

ethnicity, in research field.

Through their research, Fisher, Waldrup and den Brok (2005) concluded that teacher–student relationships are linked to student outcomes both directly and indirectly through associations with other aspects of the learning environment. In their study, Fisher, Waldrup and den Brok involved the QTI in conjunction with another instrument called the cultural learning environment questionnaire (CLEQ) with a large sample of over 3000 Australian primary school students. They found that, first, scores on the QTI were related to scores on the CLEQ and, second, QTI and CLEQ scales each have a joint and separate influence on student outcomes.

Goh and Fraser (1998) reached similar conclusion with primary school students in Singapore. The QTI was used in conjunction with the My Class Inventory (MCI) in their study of students' achievement in and liking of mathematics. Their analysis revealed that the QTI and MCI each made a sizeable unique contribution, and a small common contribution, to the variance in students' liking of mathematics. However, for achievement, there was a relatively large common variance and the QTI accounted for little variance that was unique of that attributable to the MCI. Therefore, they concluded that their study supports the usefulness of including the QTI and MCI together in the same study of attitudinal outcomes but not for a study of achievement outcomes.

In their review, den Brok and Levy (2005) focused on the effects of ethnicity on students' perceptions of teacher interpersonal behavior and reviewed research in multicultural classes, but also included some investigations of differences in students' perceptions between countries. Their results revealed that ethnicity was consistently associated with students' perceptions of their teachers, that the way teachers communicated varied according to the ethnicity of their students, and that teacher interpersonal behavior could be more important for immigrant minority students' outcomes than for their indigenous peers.

In short, all these results clearly indicate the necessity for learning environment researchers to think seriously about including other aspects of learning environments, such as cultural elements, in their study designs.

6.2.6. Stability and Change of Teacher-Student Relationships in the Whole Teaching Career

Are there any changes in teacher-student relationships across the duration of the teaching career? By using both longitudinal data and a large cross-sectional sample, Brekelmans, Wubbels, and van Tartwijk (2005) explored the importance of teacher experience for building and sustaining teacher–student relationships during the professional career. Results showed that, on average, teachers’ ideal perceptions of influence and proximity were rather stable during the career. Teachers’ self-perceptions and students’ perceptions of proximity in the teacher–student relationship were rather stable as well. Students’ and teachers’ perceptions of teacher influence on average grew in the first 6 years of the teaching career, but mainly the first three years before this stabilized. Influence also seemed to fall off somewhat towards the end of the career. In contrast, there was negligible change in proximity behavior throughout the career. Furthermore, Fraser and Walberg (2005) emphasized that the research by Brekelmans, Wubbels, and van Tartwijk (2005) had practical implications for the differentiation of the provision of professional development for teachers at different stages of their careers.

6.2.7. Effects of Eight profiles of teachers in terms of teacher interpersonal behavior on Cognitive and Affective Outcomes

As reported by Wubbels and Brekelmans (2005), the Brekelmans’ (1989) study with physics teachers investigated the relationship between student outcomes and students’ perceptions of teacher–student relationships. Altogether the study identified eight profiles of teachers in terms of their patterns teacher–student interaction: authoritative, directive, drudging, tolerant, repressive, tolerant/authoritative, uncertain/aggressive and

uncertain/tolerant. In terms of the interpersonal profiles results showed that, on average, the teacher with a Repressive profile has the highest achievement outcomes. Teachers with disorderly classrooms, the Uncertain/Tolerant, Uncertain/Aggressive, and Drudging profiles reflect relatively low student achievement, whereas Directive, Authoritative and Tolerant teachers have relatively high outcomes. The Authoritative and Directive teachers have the highest student attitude scores. Students of the Drudging, Uncertain/Aggressive and Repressive teachers have the worst attitudes toward physics. This conclusion again provided practical implications for teacher training.

6.2.8. Teacher-Student Relationships from Perceptions of Different Groups of Students

Most researchers on teacher–student interaction focused on normal students from regular classes. However, Lapointe, Legault and Batiste (2005) did a study to compare learning disabled, average and talented students in terms of teacher interpersonal behavior and student motivation in mathematics in two Quebec schools located in the Quebec city area (middle to upper-middle social economic class). It was found that at-risk students consider teachers as more punitive, dissatisfied and uncertain. Gifted students perceived more leadership and teachers being more friendly, understanding and permissive. Lang, Wong and Fraser (2005) studied gifted and non-gifted students in separate streams in Singapore and investigated associations between teacher-student interaction and students' attitudes towards chemistry. Statistically significant gender differences and stream differences (i.e. gifted vs. non-gifted) were observed for numerous QTI scales. Associations were found between the interpersonal behavior of chemistry teachers and students' enjoyment of their chemistry lessons.

But we should be wise enough to see clearly whether the above mentioned differences happened within-class or between-class. As Fraser and Walberg (2005) warned: it is important to note that in different countries, there are different philosophies running in their

school systems respectively: streaming or mainstreaming. For example, in French-speaking Quebec, the philosophy of streaming or setting is applied in that the disabled, average and talented students are educated in separate classes. Therefore, in interpreting the results of the comparison of these three groups of students (disabled, average and talented); it should be alerted that the different groups are in different classes, with different teachers and peer groups. In contrast, some school systems have a philosophy of ‘mainstreaming’ or ‘integration’ in which disabled, average and talented students are educated in the same classrooms. For example, Orange and Fraser’s (2004) comparison of disabled and non-disabled students in integrated classes in Georgia, USA. The differences would be within-class differences among student perceptions of teacher interpersonal behavior.

6.2.9. Summary

Positive teacher–student relationships are parts of positive classroom learning environment and should be considered both as a means and as an end (Fraser & Walberg, 2005). When effort is taken to improve positive teacher-student relationships, learning environments are becoming more positive in terms of promoting positive student outcomes, especially affective outcomes. In this sense, a means is meant. However, positive teacher-student relationships could act as an educational goal of making great effort.

It has already been realized that there have been far too few intervention studies in which teachers use feedback from the actual and ideal forms of the QTI to guide their attempts to improve teacher–student interpersonal relationships in their classrooms (Wubbels and Brekelmans, 2005). Meanwhile, as a direction for future research, it has been suggested that such research could be guided by improvement studies involving the use of other learning environment instruments.

In terms of research places, China has long been greatly ignored. That is, more research interests in this line or broader lines in learning environments are hungered.

7. Research Goals and Hypotheses

7.1. Why Present Study?

With further enforcement of China's One-Child Policy, the number of nuclear families are to be increasing. The vast number of new-generation of Chinese only children has become a primary concern of society. The questions often asked are about their academic and psychosocial development. Thus, in present study, with Lewin's (1951) Field Theory and Bronfenbrenner's (1979) Bioecological Systems Theory as theoretical framework, three sub-learning environments of social interrelations and chronic self-concept levels are to be examined in connection with some academic and psychosocial development outcomes through the perceptions of Chinese only-children.

7.2. Why chronic self-concept levels are investigated?

7.2.1. State of the Person

In Lewin's field theory, it is emphasized that "Psychology has to view the life space, including the person and his environment, as one field." (Lewin, 1951, p.240) Meanwhile in Bronfenbrenner's bioecological systems theory, the biopsychological environment is also among the microsystem. Self-concept belong to a personality variable and self-concept levels present trait- and state-like characteristics such as chronic self-concept levels and working self-concept levels. That is, self-concept levels have between persons and within persons differences and could act as a state of person-category variables.

7.2.2. Individual, Relational, and Collective Levels of Self-Concept

The self-concept is a multifaceted schema that houses all information relevant to the self (Lord and Brown, 2004). Furthermore, this schema can be divided into different levels. Brewer and Gardner (1996) and others (e.g. Lord et al., 1999) have distinguished among three levels of the self-concept: individual, relational, and collective levels. The individual-level involves interpersonal comparisons where one's sense of uniqueness and self-worth are

derived from perceived similarities with and differences from other individuals. At this level, behavior is driven by self-interest (Brewer and Gardner, 1996; Lord et al., 1999 and Markus and Kitayama, 1991). The relational-level is based on the extent to which individuals define themselves in terms of dyadic connections and role relationships with others. At this level, individuals are motivated by the welfare of the specific other, and appropriate role behavior regarding a specific person determines self-worth (Brewer and Gardner, 1996 and Markus and Kitayama, 1991). The collective-level involves self-definition based on one's social group memberships, where favorable intergroup comparisons give rise to self-worth. At this level, individuals are motivated by the welfare of the groups to which they belong to (Brewer and Gardner, 1996).

7.2.3. Chronic and Working Self-Concepts

Lord and Brown (2004) argued that self-concept could be activated and self-concept activation has both trait- and state-like qualities. The chronic self-concept refers to the relatively time-invariant (i.e., trait-like) accessibility of the individual, relational, and collective levels for a particular person that occurs because different learning histories produce stable differences among people's self-schemas. The working self-concept refers to the situation-specific, moment-to-moment (i.e., state-like) activation of one's self-concept levels (Markus and Wurf, 1987) which is produced by priming factors that vary across situations. Consequently the self-concept level that is currently active will vary across people and over time, along with the goals, attitudes, and information processing styles associated with each level.

7.2.4. Self-Concept and Prior Social Interactions, Social Context and Cultural Influences

With respect to the chronic self-concept, the three levels exhibit different levels of accessibility across different people. For some individuals, one level may even be chronically accessible. This baseline activation associated with the chronic self-concept is

the product of social and cognitive development, especially which is associated with prior social interactions and cultural influences (Oyserman, 2001). For example, the individual self-concept may be chronically salient for members of individualistic cultures. In work contexts, phenomena such as organizational culture and routines contribute to chronic self-concept activation. Moorman and Blakely (1995) found that individuals with collectivistic values and norms (indicating chronic collective self-concept activation) are more likely to perform citizenship behaviors.

However, with respect to the working self-concept, the momentary social context is able to prime different self-concept levels depending on the cues that are currently present (Gardner et al., 1999 and Markus and Kunda, 1986). For example, cues within organizations include aspects of one's current work tasks and the performance feedback that is received. Cues within a social communicational system, such as a family, a peer group or between students and teachers, may include interactional relationships at the dyadic and group level.

7.3. Research Goal

7.3.1. Theoretical Purpose

This research, first of all, belongs to a theoretically driven research. This investigation was designed also to prove a theoretical model (see Figure 6) on basis of a psychological ecological perspective and through the perceptions of the Chinese only-children. This theoretical model proposed that, when only consider the impact of a separate learning environment, little variance in the Chinese only-children's outcomes could be explained, but only when considering direct and interaction impacts of the learning environments and biopsychological environment (here the personality variable chronic self-concept taken as an example) on the outcomes within the larger settings of culture, public policy, etc., much more variance could be explained.

Through this theory model, a new way of thinking is provided for learning environment

researchers or practitioners in that the specific social context (for example, China's One-Child Policy and Chinese culture) and culture-affected personality together with learning environments could offer greater explanations and/or contributions in explaining student outcomes; in that improvement or change of learning environments or even public policy in practices on basis of student outcomes should be executed from a systems perspective, that is the another central idea of systems: the circularity. This implies that all aspects of a system are intertwined and changes in one system will not only affect the others, but will then return like ripples of water moving between river banks.

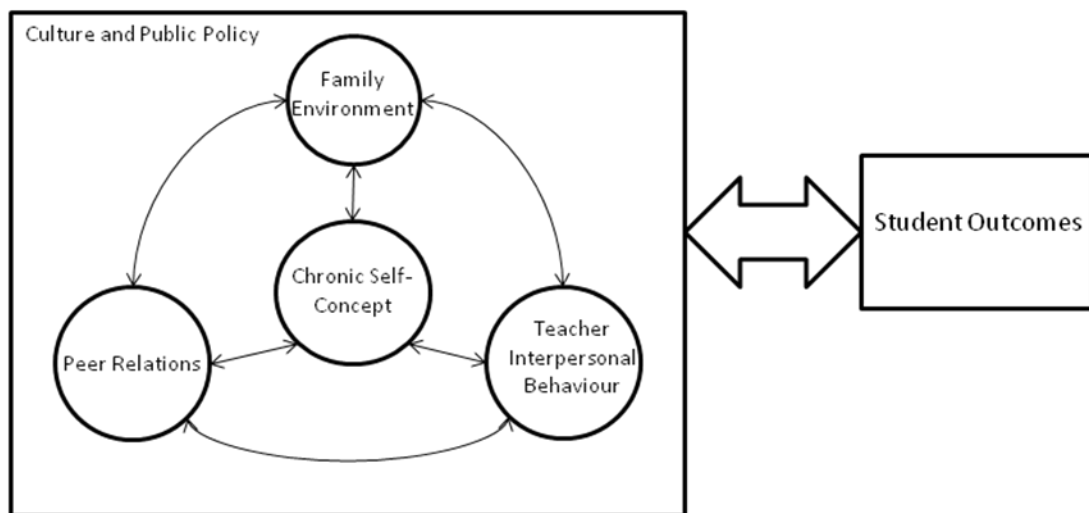


Figure 6. Proposed Theoretical Model

7.3.2. To find Whether Uniqueness about Chinese Only Children Exists

China's One-Child Policy has been in effect for thirty years, through which incidentally a huge laboratory has been created for psychologists, educational scientists, and sociologists. Meanwhile this policy has brought many new topics for education because this policy has altered some aspects of the immediate settings children living in. Therefore, there is a great need for more investigations in the actual settings within such a great laboratory to find whether uniqueness about Chinese only children exists in comparison with previous research results and whether some planned changes or reforms are necessary for facilitating the healthy development of this special group.

7.4. Hypotheses

Based on literature review and the present research purposes, the following hypotheses are formulated:

- H1: Career orientation would be influenced not only by family environment, but also by chronic self-concept levels; and individual level of chronic self-concept would be more closely related to individual-level-like career orientation, while relational and/or collective levels of self-concept would be more closely related to relational and collective-level-like career orientation.
- H2: The impact of peer relations on social competence would be different due to different school groups (senior high group and college group).
- H3: There would be cross-sex parenting effects on social competence and positive self-esteem.
- H4: Parents parenting style matches in a family would make a difference in determining their children's outcomes.
- H5. The three learning environments would alone, but mostly together with students' chronic self-concept levels exert their influences on student outcomes, such as academic achievement goals, social competence and self-esteem.
- H6. These 3 learning environments would not only have direct, but also joint effects on student outcomes, such as academic achievement goals, social competence and self-esteem as outcome variables.

8. Methodology

8.1. Participants

Participants are from medium-sized cities in middle China and they are 405 Chinese only children including senior high school students ($n = 188$) and college students ($n = 217$), consisted of 44.7% girls and 55.3% boys. The participants ranged in age from 16 to 26 years old, with a median of 19 years old. In comparing within their family household's community in their cities, their family economic status belongs to lower (42% of the sample) and middle class (56.8% of the sample). Most of their parents' jobs belong to conventional jobs, such as ordinary employees in companies, factory workers, farmers or civil servants.

8.2. Instrument

The self-report questionnaire in the current study includes scales designed to measure three learning environments, student chronic self-concept levels and student outcomes. The three learning environments were family environment including family cohesion and parenting style of father and mother's; peer relations including peer group acceptance and best friendship quality; teacher interpersonal behavior. And outcome variables were self-esteem, social competence, academic achievement orientation and career orientation. Most of the items in each scale were adapted from published instruments and only part of them was designed by the author herself. Instruments used in the current study all employed a 5-point Likert scale ranging from 0 (strongly disagree) to 4 (strongly agree).

Questionnaire on Teacher Interaction. This instrument is a short version of the Questionnaire on Teacher Interpersonal Behavior (QTI) (Wubbels & Levy (1993) including 48 items and was used to measure an average teacher and the favorite teacher's interpersonal behavior. QTI is designed to measure 2 dimensions (influence and proximity) or eight categories or sectors of teacher interpersonal behavior: leadership (DC), helpful/friendly behavior (CD),

understanding behavior (CS), giving responsibility/freedom (SC), and uncertain behavior (SO), dissatisfied behavior (OS), admonishing behavior (OD) and strictness (DO) (for detail, see Section 6.2.2).

Family Cohesion Scale. This scale included 3 items and was designed to measure one important aspect of family relations: family cohesion. And it was partly adapted from Moos and Moos (1981) and partly designed by the author. Here it is:

- (a) Family members really help and support one another (adapted from Moos & Moos, 1981).
- (b) There is a feeling of togetherness in our family (self-designed).
- (c) We are pleased with and proud of being a member in our family (self-designed).

Parenting Authority Questionnaire. This instrument was adopted from Buri (1991) and altogether 30 items were used to classify parenting styles into Baumrind's (1971) groupings of authoritarian (e.g., "My mother felt that wise parents should teach their children early just who is boss in the family."), authoritative (e.g., "As I was growing up I knew what my mother expected of me in my family, but I also felt free to discuss those expectations with my mother when I felt that they were unreasonable."), and permissive (e.g., "As I was growing up, my mother seldom gave me expectations and guidelines for my behavior.") parenting styles. It was used to measure students' perceptions of their fathers' and mothers' parenting styles.

Peer Group Acceptance. This scale was adapted from the Belonging subscale of Voelkl's (1996) Identification with School Questionnaire and it included 7 items. Sample items are offered here: "I feel proud of being part of my class; and School is one of my favorite places to be." It was used to assess the students' perceptions of the degree, to which they themselves felt they belong to their peer groups. It was reported in the coefficient-alpha reliability for the scores on the subscale belonging was .76 (Voelkl, 1996).

Positive Friendship Quality. This instrument was found from Rose's (2002), being adapted

from Parker and Asher's (1993) Friendship Quality Questionnaire to measure students' perceptions of their positive relationship qualities with their best friend at school. This scale included 10 items and the following are sample items: First please write down the name of your very best friend at school_____ and think of this best friend as you complete the following items: "helps me so I can get done quicker;" "makes me feel good about my ideas;" and "We can talk about how to get over being mad at each other".

Levels of Chronic Self-Concept Scale. This scale was adapted from Selenta & Lord (2005) and was designed to measure the individual, relational, and collective levels of students' chronic self-concept (for details, see Section 2.3). Sample items in individual level or comparative identity subscale are "I thrive on opportunities to demonstrate that my abilities or talents are better than others;" and "I often compete with my friends". In relational level or concern for others subscale, sample items are "If a friend was having a personal problem, I would help him/her even if it meant sacrificing my time or money" and "Knowing that a close other acknowledges and values the role that I play in their life makes me feel like a worthwhile person". Regarding collective level or group achievement focus subscale, 2 sample items are shown here: "Making a lasting contribution to groups that I belong to, such as my class, is very important to me" and "I feel great pride when my team or group does well, even if I'm not the main reason for its success". Altogether 15 items, that is, 5 items for each subscale, are included in this instrument.

Academic achievement goals. This instrument was adapted from Elliot and Church (1997) and measured performance approach goal (e.g., "It is important to me to do better than the other students."), and "My goal in this class is to get a better grade than most of the students."), mastery goal (e.g., "I want to learn as much as possible from this class." and "I hope to have gained a broader and deeper knowledge when I am done with this class."), and performance avoidance goal (e.g., "I often think to myself, 'What if I do badly in this class?'

” and “I just want to avoid doing poorly in this class.”). For assessing each goal, 6 items were included.

Anxious Solitary Behavior. Anxious solitary behavior was partly adapted from Gazelle’s measure (Gazelle & Ladd, 2003; Gazelle & Rudolph, 2004) and partly designed by the author herself, which consisted of 8 items: I am a person who “prefers to be alone”, “refuses to talk”, “is too fearful or anxious”, “is worried”, “is nervous, high-strung, or tense”, “is self-conscious or easily embarrassed”, “is shy and timid”, and “is anxious around peers”. This instrument was used to measure whether Chinese only-children hold anxious solitary behavior since they live in nuclear families and have no siblings and hence later have similar problems when communicating with their peers and teachers.

General Prosocial Orientation. Prosocial behavioral tendency was measured by a newly constructed instrument by being adapted from Cheung et al’s (1998) idea of prosocial orientation, which included 4 subscales: (1) Helping Behavior—tendency to help others in various situations (e.g. “I would spend time and money to help those in need”); (2) Cooperation and Sharing—tendency to co-operate with others to share things with others (e.g. “I welcome other classmates to join in while I am playing”); (3) Affective Relationship—tendency to maintain an affective, friendly, and sympathetic relationship with others (e.g. “I feel very sad when my family member is sick”); and (4) Normative Behavior—tendency to behave in compliance with the social norm (e.g. “I am very attentive during class lesson”). For these 4 subscales, except for the sample items given for the 4 subscales, 24 newly self-designed items were included as the new Prosocial Orientation Questionnaire. The average of the scores of the four subscales is a measure of the general tendency to perform prosocial acts.

Self-Esteem. Self-Esteem was assessed by Rosenberg’s (1965) Self-Esteem Questionnaire containing 5 items positively worded (e.g., I feel that I am a person of worth at least on an

equal basis with others) and 5 negatively worded (e.g., All in all, I am inclined to feel that I am a failure). Exploratory factor analysis in present study was conducted on the items of self-esteem scale and showed that the items fell under two factors and confirmed exactly the original two factors: positive and negative self-esteem.

Six Broad Vocational Orientations. Holland's (1959; 1962; and 1963) Six Broad Vocational Orientations were used to measure students' career orientations, which included the following 6 career orientations:

- (1) Motoric orientation (realistic): These people “enjoy activities requiring physical strength, aggressive action, motor coordination and skill” (Holland, 1963, p.36)
- (2) Intellectual orientation (investigative): These are “task-oriented people who generally prefer to 'think through, ' rather than 'act out,' problems. They have marked needs to organize and understand the world” (Holland, 1963, p.36)
- (3) Esthetic orientation (artistic): These people “prefer indirect relations with others. They prefer dealing with environmental problems through self expression in artistic media. ..They resemble persons with an intellectual orientation in their intraceptiveness and lack of sociability” (Holland, 1963, p. 37)
- (4) Supportive orientation (social): These people “prefer teaching or therapeutic roles, which may reflect a desire for attention and socialization in a structured, and therefore sage, setting. They possess verbal and interpersonal skills” (Holland, 1963, p.37)
- (5) Persuasive orientation (enterprising): These people “prefer to use their verbal skills in situations which provide opportunities for dominating, selling, or leading others. ... They avoid well-defined language or work situations as well as situations requiring long periods of intellectual effort” (Holland, 1963, p. 37)
- (6) Conforming orientation (conventional): These people “prefer structured verbal and numerical activities, and subordinate roles. They achieve their goals through conformity”

(Holland, 1963, p.37)

8.3. Procedure

8.3.1. Back Translation

The whole questionnaire was first translated from English into Chinese by the author. Then a back-translation was done independently by a second translator (who is proficient both in Chinese and English and whose first mother language is Chinese and second mother language is English) by translating the questionnaire from Chinese into English. Through comparison of this translated version in English with the original English version of the questionnaire, equivalence was reached.

8.3.2. Distributing and Collecting Questionnaires

Then the next step is to prepare for the distribution of the questionnaires. After obtaining teacher consent and student assent, the questionnaires were administered in a 45-minute session after students' regularly scheduled classes, which is normally used by students and teachers for asking and answering questions or doing exercises for deeper understanding what they have learned in regularly scheduled classes. The study was conducted in natural classes of different senior high schools and universities in middle China from the beginning of January till end of March 2009. Before the questionnaire was distributed, instructions were given in emphasizing that "this questionnaire is not a test, therefore there is no right or wrong answers and the most important thing is to provide true answers!" Instructions about how to mark their answers are also given. Immediately after instructions, Questionnaires were distributed by the author herself. Firstly, students were asked to provide some demographic information about them regarding gender, age, favorite subject, family economic status, mother and father's occupation. And then general information about their favorite teacher's gender, the subject he or she taught, in which stage (e.g., primary school, junior high, senior high or college) he or she taught and his or her age range at the time of

teaching etc. finally, students were asked to answer the questionnaire by marking their answers with a circle. In the Questionnaire, the contents were presented by following this order: Questionnaire on Teacher Interpersonal Behavior regarding favorite teacher and an average teacher (i.e., most of teachers) respectively, Parenting Authority Questionnaire regarding of father and mother's parenting styles, Family Cohesion, Peer Group Acceptance, Best Friendship Quality, Levels of Chronic Self-Concept Questionnaire, Academic Achievement Goals, Anxious Solitary Behavior, General Prosocial Orientation, Self-Esteem and Six Broad Vocational Orientations. The author was present during the process of student answering question in case there were questions or need of explanations. In about 50 minutes all questionnaires were collected.

9. Analyses and Results

9.1. Descriptive Statistics

9.1.1. Descriptive Statistics and Correlation Coefficients for All Variables

The descriptive statistics and correlation coefficients for all variables are presented in Table 1, Table 2 and Table 3. For intercorrelations between independent variables and dependent variables, see data reported in tables of Appendix I. As it is observed in Table 1, almost all of the measures had acceptable levels of reliability with the values of coefficient alpha ranging from .59 and .85, except for one of the subscales of prosocial orientation, i.e., normative behavior ($\alpha = .44$). Since prosocial orientation or prosocial behavior consisted of helping behavior, sharing and cooperative behavior, affective relations and normative behavior and the coefficient alpha of prosocial behavior was .85, it was determined that the items included in normative behavior subscale were not to be removed, but in hypotheses testing, normative behavior were not considered. Therefore it could be concluded that generally the measures used in present study had a quite good reliability.

Meanwhile, an item-by-item analysis was performed to determine if the coefficient alpha could be improved by removing items. The item-total statistics showed that most of the corrected item-total correlations range from .25 to .60. The values of “alpha if item deleted” showed that, if items 12, 13 and 38 in QTI were removed, the coefficient alpha of the subscales such as favourite teacher and average teacher’s leadership, admonishing and student responsibility/freedom could be improved; that, if items 13, 21, and 28 in Parental Authority Questionnaires for father and mother were removed, subscales of father permissive parenting style and mother permissive parenting style could be improved; and that, if item 3 and 6 in the scale of peer group acceptance were deleted, the scale of peer group acceptance could be improved. Therefore all the scale reliabilities were calculated on basis of the improved instrument by deleting the above-mentioned items.

Table 1 Descriptive Statistics

Variables	Number of items	α	M	SD
FT Leadership behavior	5	.68	3.47	.57
FT Understanding behavior	6	.74	3.47	.60
FT Uncertain behavior	6	.68	.88	.73
FT Admonishing behavior	5	.72	.71	.82
FT Helpful/Friendly behavior	6	.73	3.43	.61
FT Student Responsibility/Freedom behavior	5	.64	2.99	.73
FT Dissatisfied behavior	6	.78	.98	.80
FT Strict behavior	6	.59	2.32	.66
AT Leadership behavior	5	.73	2.51	.72
AT Understanding behavior	6	.76	2.50	.75
AT Uncertain behavior	6	.68	1.39	.74
AT Admonishing behavior	5	.76	1.50	.90
AT Helpful/Friendly behavior	6	.78	2.34	.77
AT Student Responsibility/Freedom behavior	5	.65	2.15	.72
AT Dissatisfied behavior	6	.79	1.76	.83
AT Strict behavior	5	.60	2.32	.62
Permissive parenting style of father	7	.71	2.24	.74
Authoritarian parenting style of father	10	.71	2.16	.65
Authoritative parenting style of father	10	.82	2.53	.78
Permissive parenting style of mother	7	.70	2.24	.73
Authoritarian parenting style of mother	10	.69	2.15	.63
Authoritative parenting style of mother	10	.83	2.54	.77
Family cohesion	3	.83	3.19	.84
Peer group acceptance	5	.67	2.63	.70
Best friendship quality	10	.83	2.98	.64
Individual level of self-concept	5	.68	2.29	.75
Relational level of self-concept	5	.73	3.38	.59
Collective level of self-concept	5	.82	3.28	.67
Performance academic achievement goal	6	.80	2.44	.80
Mastery academic achievement goal	6	.76	3.20	.64
Avoidance academic achievement goal	6	.79	1.98	.95
Anxious solitary behavior	8	.84	1.96	.88
Prosocial behavior	18	.85	2.87	.56
Helping behavior	5	.71	2.90	.71
Sharing and cooperation behavior	4	.78	2.95	.75
Affective relationship	4	.62	3.00	.70
Normative behavior	5	.44	2.65	.58
Positive self-esteem	5	.76	2.85	.71
Negative self-esteem	5	.71	1.87	.86
Realistic career orientation	1		2.03	1.23
Investigative career orientation	1		2.64	1.12
Artistic career orientation	1		2.23	1.15
Social career orientation	1		2.51	1.08
Enterprising career orientation	1		2.59	1.10
Conventional career orientation	1		1.80	1.24

Note. Because of missing data, N ranged from 398 to 405. FT = favourite teacher; AT = average teacher

Table 2 Zero-Order Correlations between Independent Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. father parenting style	-												
2. mother parenting style	.78**	-											
3. family cohesion	.33**	.35**	-										
4. peer group acceptance	.21**	.13*	.28**	-									
5. best friendship quality	.28**	.27**	.34**	.42**	-								
6. individual level of self-concept	.08	.10*	.10*	.15**	.05	-							
7. relational level of self-concept	.20**	.24**	.34**	.26**	.50**	.19**	-						
8. collective level of self-concept	.23**	.25**	.40**	.47**	.50**	.13**	.60**	-					
9. FT cooperative behavior	.16**	.13**	.25**	.20**	.39**	.12**	.40**	.40**	-				
10. FT opposition behavior	.06	.04	-.18**	-.12*	-.24**	.08	-.25**	-.23**	-.47**	-			
11. FT strict	.18**	.20**	.06	.06	-.04	.15**	.01	.03	.01	.20**	-		
12. AT cooperative behavior	.06	.06	.23**	.28**	.16**	.10*	.14**	.26**	.19**	-.10*	.01	-	
13. AT opposition behavior	.17**	.18**	-.11*	-.17*	-.06	.12*	-.05	-.12*	-.02	.39**	.27**	-.43**	-

Note: Because of missing data, N ranged from 398 to 405. FT = favourite teacher; AT = average teacher; ** $\rho < .01$ (2-tailed); * $\rho < .05$

(2-tailed)

Table 3 Zero-Order Correlations between Dependent Variables

variable	1	2	3	4	5	6	7	8	9	10	11	12
1. performance academic achievement goal	-											
2. mastery academic achievement goal	.18**	-										
3. avoidance academic achievement goal	.24**	-.17**	-									
4. anxious solitary behavior	.20**	-.11*	.43**	-								
5. prosocial behavior	.00	.64**	-.14**	-.21**	-							
6. helping behavior	.01	.58**	-.11*	-.11*	.88**	-						
7. sharing and cooperation behavior	-.06	.58**	-.18**	-.31**	.86**	.67**	-					
8. affective relationship	.06	.46**	.03	-.06	.77**	.57**	.57**	-				
9. positive self-esteem	.08	.47**	-.14**	-.25**	.59**	.45**	.55**	.44**	-			
10. negative self-esteem	.08	-.21**	.42**	.47**	-.22**	-.16**	-.25**	-.05	-.35**	-		

Note: Because of missing data, N ranged from 398 to 405. FT = favourite teacher; AT = average teacher; ** $\rho < .01$ (2-tailed); * $\rho < .05$ (2-tailed)

9.1.2. Profiles of Chinese Only Children's Favourite Teacher and Average Teacher Interpersonal Behavior

Moreover, on basis of the descriptive statistics of favourite teacher and average teacher, the profiles of favourite teacher and average teacher interpersonal behavior were illustrated in Figure 7 and 8. In comparison with the two figures, it was obvious that Chinese only children's favourite teachers were characterized with very high level of cooperative behavior and high level of strict behavior, but very low level uncooperative behavior, such as admonishing, dissatisfied and uncertain behavior when interacting with their students, while their average teachers, that is, most of their teachers had a profile of middle level of cooperative behavior and strict behavior, but relatively higher levels of uncooperative behavior such as admonishing, dissatisfied and uncertain behavior when interacting with their students. Thus a general conclusion could be reached about Chinese only children: It seemed that the dimension of control was not so important as the dimension of proximity because their differentiation of favourite teachers and average teachers was mainly based on whether they were cooperative or oppositional. And the dimension of control seemed to have been ignored by Chinese only children. Later in the section of exploratory factor analyses seemed proved this point.

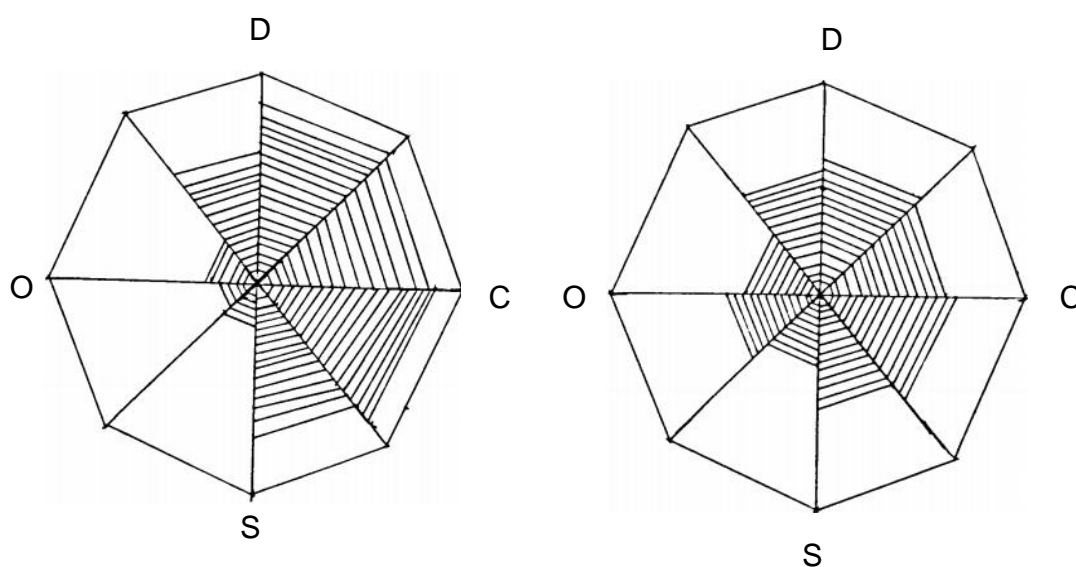


Fig. 7. Interpersonal profile of Favourite Teacher Fig. 8. Interpersonal profile of average teacher

9.1.3. Career Orientations of Chinese Only Children

From descriptive statistics in Table 1, a general picture of Chinese only children is that the most welcome career orientations are investigative ($M = 2.64$, $SD = 1.12$), enterprising ($M = 2.59$, $SD = 1.10$), and social ($M = 2.51$, $SD = 1.08$) career orientations ; and that the least welcome are conventional ($M = 1.80$, $SD = 1.24$), realistic ($M = 2.03$, $SD = 1.23$) and artistic ($M = 2.23$, $SD = 1.15$) career orientations.

9.1.4 Gender Differences

Table 4. Gender differences

Dependent variable	Gender group	M	SD	F
Individual level of self-concept	Male n=181	2.38	.72	4.23*
	Female n=224	2.22	.77	
Relational level of self-concept	Male n=181	3.32	.63	4.20*
	Female n=224	3.44	.56	
Collective level of self-concept	Male n=181	3.21	.74	3.94*
	Female n=224	3.34	.60	
Prosocial behavior	Male n=178	2.69	.60	37.83***
	Female n=223	3.02	.48	
Helping behavior	Male n=178	2.73	.72	18.71***
	Female n=223	3.03	.67	
Sharing and cooperation behavior	Male n=178	2.77	.81	21.52***
	Female n=223	3.11	.67	
Affective relationship	Male n=178	2.77	.70	38.16***
	Female n=223	3.18	.65	
Positive self-esteem	Male n=181	2.74	.76	7.83**
	Female n=224	2.94	.65	
Investigative career orientation	Male n=181	2.87	1.06	15.38***
	Female n=224	2.44	1.13	
Social career orientaion	Male n=181	2.36	1.11	5.84*
	Female n=224	2.63	1.05	

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$.

As usual, gender differences were also examined and results (see Table 4) indicated that

gender differences existed in all chronic self-concept levels: male students have significantly higher individual level of self-concept ($F(1, 403) = 4.23, p < .05$), but significantly lower relational level ($F(1, 403) = 4.20, p < .05$) and collective level of self-concept ($F(1, 403) = 3.94, p < .05$) than female students; in both general prosocial orientation ($F(1, 399) = 37.83, p < .001$) and specific prosocial behavior, such as helping behavior ($F(1, 399) = 18.71, p < .001$), sharing cooperative behavior ($F(1, 399) = 21.52, p < .001$), affective relations ($F(1, 399) = 38.16, p < .001$), male students have very significantly lower levels of prosocial behavior than female students; in positive self-esteem, male students have also very significantly lower positive self-esteem than female students ($F(1, 403) = 7.83, p < .01$); and in career orientation, male students have very significantly higher investigative ($F(1, 403) = 15.38, p < .001$), but significantly lower social career orientations ($F(1, 403) = 5.84, p < .05$) than female students. It seemed that Chinese female only-children are more socially oriented.

9.2. Exploratory Factor Analyses

9.2.1. Three Components of Favourite Teacher Interpersonal Behavior

For the purposes to see whether some constructs hold the same meaning for this Chinese sample and to simplify data analysing, a few separate exploratory factor analyse was conducted on items regarding favourite teacher interpersonal behavior, average teacher interpersonal behavior, father parenting style, mother parenting style and chronic self-concept levels, using principle component analyses and varimax rotation.

The first two principle component analyses were conducted on the 48 items of favourite teacher interpersonal behavior and average teacher interpersonal behavior respectively with varimax rotation. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analyses. For all items of favourite teacher interpersonal behavior, KMO value = .73, and all KMO values for individual items ranged from .50 and .79. Bartlett's Test of sphericity $\chi^2(28) = .001, p = .000$, indicated that correlations between items were sufficiently large for

principle component analysis. An initial analysis was run to obtain Eigen values for each component in the data. Three components had Eigen values over Kaiser's criterion of 1 and in combination explained 76.19% of the variance in favourite teacher interpersonal behavior. Table 5 showed the factor loadings after rotation. The items that cluster on the same components suggest that component 1 represents favourite teacher cooperative behavior, component 2 favourite teacher opposition behavior, component 3 favourite teacher strict behavior. The favourite teacher cooperative behavior and opposition behavior subscales had high reliabilities (Cronbach's α were .87 and .70 respectively). However, favourite teacher strict behavior subscale had relatively low

Table 5 Factor loadings ($>.30$) for favourite teacher interpersonal behavior using principle component analysis and varimax rotation

Scale Item Topics	Factor Loadings			Communality
	Factor1: FT cooperative	Factor 2: FT opposition	Factor 3: FT strict	
FT-Student Responsibility/ Freedom	.87			.81
FT Helpful/Friendly	.83			.74
FT Understanding	.78	-.37		.75
FT Leadership	.57	-.39	.52	.74
FT Uncertain		.87		.82
FT Admonishing	-.34	.76		.77
FT Dissatisfied	-.39	.66		.67
FT Strict			.88	.80
Eigen values	3.48	1.25	1.36	6.09
Percent of Variance	32.99	26.56	16.64	76.19
α	.82	.75	.59	

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. FT = favourite teacher

reliability (Cronbach's $\alpha = .59$). In comparison with this measure's original design (Wubbels

& Levy, 1993), there are only two dimensions: influence and proximity. But here in the present study. It seemed that favorite teacher strict behavior did not fall into these two dimension and was independent to be a third component, but with a relatively low scale reliability.

9.2.2. Two Components of Average Teacher Interpersonal Behavior

However, for all items of average teacher interpersonal behavior, KMO value = .82, Bartlett's Test of sphericity $\chi^2 (28) = .0015, p = .000$. And all KMO values for individual items ranged from .50 and .84. Two components were reached and in combination explained 66.43% of the variance in average teacher interpersonal behavior. Table 6 showed the factor loadings after rotation. The items that cluster on the same components suggested that compo-

Table 6 Factor loadings (>.30) for average teacher interpersonal behavior using principle component analysis and varimax rotation

Scale Item Topics	Factor Loadings		Communality
	Factor 1:	Factor 2:	
	AT cooperative	AT opposition	
AT Leadership	.85		.77
AT Understanding	.83		.78
AT helpful/Friendly	.83		.74
AT Student Responsibility/Freedom	.72		.53
AT Dissatisfied		.82	.73
AT Admonishing	.42	.76	.75
AT Uncertain		.64	.47
AT Strict	.46	.59	.56
Eigen values	3.84	1.47	5.31
Percent of Variance	48.03	18.40	66.43
α	.87	.70	

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. AT = average teacher

-nent 1 represented average teacher cooperative behavior, component 2 average teacher opposition behavior. The average teacher cooperative behavior and opposition behavior subscales had high reliabilities (Cronbach's α were .82 and .70 respectively). Meanwhile, an item-by-item analysis showed that, if items regarding average teacher strict behavior were removed, the subscale average teacher opposition behavior could reach higher reliability (Cronbach's $\alpha = .78$).

9.2.3. Different Understanding of QTI of Chinese Only Children

Firstly, it seemed that in Chinese students' understanding of teacher interpersonal behavior, only the dimension of proximity was felt, but the dimension of control, only in favourite teacher interpersonal behavior: strict behavior has a trait of being distinct.

Secondly, when the results of the above two principle component analyses regarding strict behavior were considered in combination with the descriptive statistics in Table 1 and the intercorrelation table in regression part regarding strict behavior of favourite teacher and average teacher, it seemed that there were culturally different understanding of teachers' strict behavior and that Chinese students considered teachers' strict behavior as a positive aspect of teacher interpersonal behavior.

9.2.4. One Component of Father or Mother Parenting Styles: New Profile of Parenting Style of Chinese Parents

Another two principle component analyses were run on all the items of father and mother parenting styles respectively. For all items of favourite (KMO value = .50. Bartlett's Test of sphericity $\chi^2 (3) = 253.013$, $p = .000$) and average teacher interpersonal behavior (KMO value = .51. Bartlett's Test of sphericity $\chi^2 (3) = 262.806$, $p = .000$), one component was reached respectively and only items of permissive and authoritative parenting styles loaded on this component, which explained 56.77% and 57.53% of the variance in father parenting style and mother parenting style respectively (see Table 7 and Table 8). Since permissive and

authoritative parenting style items cluster on one component and the component was named as permissive-authoritative parenting. The father permissive-authoritative parenting style scale and mother permissive-authoritative parenting style scale had high reliabilities (Cronbach's α were .80 and .81 respectively).

Table 7 Factor loadings (>.30) for father parenting style (PSF) using principle component analysis and varimax rotation

Scale Item Topics	Factor loading	Communality
	Factor 1:	
	Father parenting style	
Authoritative PSF	.91	.83
Permissive PSF	.90	.80
Authoritarian PSF		.07
Eigen values	1.70	1.70
Percent of Variance	56.77	56.77
α	.80	.80

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 8 Factor loadings (>.30) for mother parenting style (PSM) using principle component analysis and varimax rotation

Scale Item Topics	Factor loading	Communality
	Factor 1:	
	Mother parenting style	
Authoritative PSM	.91	.83
Permissive PSM	.90	.81
Authoritarian PSM		.09
Eigen values	1.73	1.73
Percent of Variance	57.53	57.53
α	.81	.81

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$.

The above analyses revealed that the parenting styles of Chinese only children's parents were not authoritarian parenting style or authoritative parenting style as previous literature concluded, but a new kind of parenting style: permissive-authoritative parenting style.

If we turn to the three theoretical dimensions (i.e., demanding, responsive and psychological control) on which the typology of permissive, authoritative and authoritarian parenting styles were named, it was obvious that the permissive-authoritative parenting style of these Chinese only children's parents were exerting a parenting style of high responsiveness, low psychological control and a level of demandingness, which is lower to some degree than the demandingness of the usual authoritative parenting style. In plain words, compared with authoritative parenting style, this permissive-authoritative parenting style is like an authoritative parenting style but with less behavioral control or more freedom given. This change of parenting style probably is a reflection of an impact of China's One-Child Policy happening in Chinese culture.

9.2.5. One Component of Chronic Self-Concept Levels: Chinese Cultural Print Still on There

Another principle component analysis was conducted on all items of chronic self-concept levels and one component was reached (see Table 9), loaded on by relational level, collective level and individual level of self-concept with loadings .88, .86, and .41 respectively (KMO value = .53, Bartlett's Test of sphericity $\chi^2(3) = 195.347$, $p = .000$.), which explained 57.53% of variance in chronic self-concept levels. Since individual level of self-concept's loading was very small (only .41) and its communality was .17, this component was named as relational-collective self-concept levels and had a high reliability (Cronbach's $\alpha = .75$).

Since the relational and collective levels of chronic self-concept loaded mostly on the scale of relational-collective chronic self-concept, it could be inferred that the impact of Chinese culture was still great on Chinese only-children's chronic self-concept. But how about Chinese only-children's career orientations? Are they still more relational and/or collective like or, to

be exact, more socially oriented? (See Regression part).

Table 9 Factor loadings (>.30) for chronic self-concept levels using principle component analysis and varimax rotation

Scale Item Topics	Factor loading	Communality
Factor 1: Relational-collective chronic self-concept level		
Relational level	.88	.77
Collective level	.86	.74
Individual level	.41	.17
Eigen values	1.68	1.68
Percent of Variance	55.88	55.88
α	.75	.75

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$.

9.2.6. Two Components of Career Orientation

The final principle component analysis was conducted on all items of chronic self-concept levels and two components were reached (see Table 10). Artistic, Investigative, and Conventional Career Choices loaded on the first component (loadings were .71, .65, and .61 respectively), named as individual-level-like career orientation; and Enterprising, Social, and Realistic Career Choices loaded on the second component (loadings were .71, .63, and .63 respectively), named as relational and collective-level-like career orientation (KMO value = .52, Bartlett's Test of sphericity $\chi^2(3) = 104.092$, $p = .000$). These two components explained 46.00 % of variance in the whole concept of career orientation. But these two components did not have high reliabilities (Cronbach's $\alpha = .41$ for individual-level-like career orientation; Cronbach's $\alpha = .34$ for relational and collective-level-like career orientation). This result was used only in one of the hypotheses testing in the next section: Career orientation would be influenced not only by family environment, but also by chronic self-concept levels.

Table 10 Factor loadings (>.30) for career orientation (CO) using principle component analysis and varimax rotation

Scale Item Topics	Factor Loadings		Communality
	Factor 1: CO1	Factor 2: CO2	
CO Artistic	.71		.51
CO Investigative	.65		.43
CO Conventional	.61		.38
CO Enterprising		.71	.58
CO Social		.63	.47
CO Realistic		.63	.39
Eigen values	1.47	1.29	2.76
Percent of Variance	24.43	21.57	46.00
α	.41	.34	

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$.

9.3. Hypotheses Testing

9.3.1. Testing of Impact of Family Environment and Chronic Self-Concept on Career Orientation (Hypothesis 1)

Hypothesis 1 predicted that career orientation would be influenced not only by family environment, but also by chronic self-concept levels and even interactions between family environment and chronic self-concept levels; and individual level of chronic self-concept would be more closely related to individual-level-like career orientation, while relational and/or collective levels of self-concept would be more closely related to relational and collective-level-like career orientation. Two multiple hierarchical regression analyses were run respectively with individual-level-like career orientation and relational and collective-level-like career orientation as dependent variables and with the following 3 blocks of variables as independent variables: family environment variables such as family cohesion, father parenting style and mother parenting style (1st step), 3 chronic self-concept levels, i.e., individual level, relational level and

collective level (2nd step), interactions between family environment variables and 3 chronic self-concept levels (3rd step).

In the regression model with individual-level-like career orientation as dependent variable (see Table 11), among the family environment variables, only family cohesion acted as a significant predictor ($\beta = .12$, $\rho = .02$) in the 1st step ($\Delta R^2 = .02$, $\rho = .049$); in the 2nd step, only individual level of chronic self-concept ($\beta = .14$, $\rho = .007$; $\Delta R^2 = .02$, $\rho = .038$); and in the 3rd step, only correlation between family cohesion and relational level of chronic self-concept ($\beta = -1.24$, $\rho = .01$; $\Delta R^2 = .04$, $\rho = .045$) acted as significant predictors of individual-level-like career orientation. The overall model was significant as well ($F(15, 389) = 2.29$, $R^2 = .08$, $\rho < .01$).

In the regression model with individual-level-like career orientation as dependent variable (see Table 11), among the family environment variables, only family cohesion acted as a significant predictor ($\beta = .12$, $\rho = .02$) in the 1st step ($\Delta R^2 = .02$, $\rho = .049$); in the 2nd step, only individual level of chronic self-concept ($\beta = .14$, $\rho = .007$; $\Delta R^2 = .02$, $\rho = .038$); and in the 3rd step, only correlation between family cohesion and relational level of chronic self-concept ($\beta = -1.24$, $\rho = .01$; $\Delta R^2 = .04$, $\rho = .045$) acted as significant predictors of individual-level-like career orientation. The overall model was significant as well ($F(9, 389) = 1.943$, $R^2 = .08$, $\rho < .05$). Therefore, it could be concluded that family cohesion, individual level of chronic-self-concept, and the interaction between family cohesion and relational level of chronic self-concept were important in predicting individual-level-like career orientation.

Meanwhile, in the regression model with relational and collective-level-like career orientation as dependent variable (see Table 11), it was shown that among the family environment variables, only father parenting style acted as a significant predictor ($\beta = .20$, $\rho = .01$) in the 1st step ($\Delta R^2 = .07$, $\rho = .000$); in the 2nd step, only collective level of chronic self-concept ($\beta = .12$, $\rho = .047$; $\Delta R^2 = .04$, $\rho = .000$); and in the 3rd step, no significant R^2 change was reached. Therefore, the regression model only include two steps of results in

Table 11 Regression of career orientation on family environment variables and self-concept levels

Step	Predictor	Individual-level-like CO									Relational and collective-level-like CO					
		B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
1	feco	.35	.15	.12*	.30	.16	.11	1.51	.85	.53	.03	.14	.01	-.18	.15	-.07
	father_PS	.05	.14	.00	-.01	.14	-.00	-.06	.88	-.04	.32	.13	.20*	.32	.12	.19*
	mother_PS	-.21	.14	-.12	-.22	.14	-.13	.53	.90	.31	.11	.13	.06	.05	.13	.03
2	sclindiv				.43	.16	.14**	-.59	.71	-.19				.23	.14	.08
	sclrelat				-.22	.25	-.06	.57	1.26	.14				.41	.23	.11
	sclcollect				.23	.23	.06	2.02	1.05	.58				.41	.21	.12*
3	feco X sclindiv							.16	.21	.20						
	feco X sclrelat							-.79	.31	-1.24*						
	feco X sclcollect							.32	.29	.53						
	father_PS X sclindiv							.15	.18	.32						
	father_PS X sclrelat							.09	.31	.23						
	father_PS X sclcollect							-.17	.28	-.44						
	mother_PS X sclindiv							-.06	.19	-.12						
	mother_PS X sclrelat							.23	.30	.59						
	mother_PS X sclcollect							-.42	.25	-1.09						
	ΔR^2				.02*			.02*			.04*			.07***		
R^2				.02			.04			.08			.07			.11

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. CO = career orientation.

Table 12 Regression of social competence on peer relations and different school groups

Step	Predictor	prosocial behavior			Sharing Cooperation behavior			Helping											
		B	SE	β	B	SE	β	B	SE	β	B	SE	β						
		B			B			B			B								
1	PGA	.14	.04	.17***	.07	.06	.09	.22	.05	.20***	.07	.08	.07	.09	.05	.09	.10	.08	.10
	BFQ	.38	.04	.43***	.40	.06	.46***	.42	.06	.36***	.53	.08	.46***	.47	.05	.43***	.45	.08	.40***
	School group	.14	.05	.13**	.01	.25	.01	.16	.07	.11*	.12	.34	.08	.20	.06	.14**	.13	.33	.09
2	BFQ X school group				.01	.08	-.13				-.20	.11	-.42				.04	.11	.09
	PGA X school group				.11	.08	.26				.25	.10	.46*				-.02	.10	-.04
	ΔR^2	.28***			.00			.23***			.01*			.23***			.00		
	R^2	28			.28			23			.24			23			.23		

Note. Because of missing data, N ranged from 400 and 405; *** $p < .001$. ** $p < .01$. * $p < .05$; PGA = peer group acceptance; BFQ = best friendship quality; here reference group is college group.

Table 11 and this two-step regression model was significant as well ($F(6, 398) = 8.19, R^2 = .11, p < .001$). Therefore, it could be concluded that father parenting style, and collective level of chronic-self-concept were capable to predict relational and collective-level-like career orientation. In a word, Hypothesis 1 was proved.

9.3.2. Testing of School Group Differences (Hypothesis 2)

Hypothesis 2 was about school group differences in the impact of peer relations and it predicted that the impact of peer relations on social competence would be different due to different school groups (senior high group and college group) because senior high group students mostly stay together as classmates longer (at least three years) than college group students. Several multiple hierarchical regression analyses were conducted with social competence variables as dependent variables and with peer relations, school groups (college group as reference group) and interactions between peer relations and school groups as independent variables. School group and peer relations variables such as peer group acceptance and best friendship quality were entered in the first step; and in the second step, interactions between peer group acceptance and school group, and between best friendship qualities were entered.

Analyses indicated that except for affective relations, Hypothesis 2 was true with other social competence variables such as prosocial behavior, helping behavior, and sharing and cooperation behavior (see Table 12). Specifically, as the results in Table 12 illustrated: firstly, in the regression model of prosocial behavior on peer relations and school groups, peer group acceptance ($\beta = .17, p < .001$), best friendship quality ($\beta = .43, p < .001$), and school group ($\beta = .13, p < .01$) acted as significant predictors in the 1st step ($\Delta R^2 = .28, p < .001$); but when the interaction variables in the 2nd step were considered, the model was not significant ($\Delta R^2 = .00, p > .05$); secondly, in the regression model of sharing cooperation behavior on peer relations and school groups, peer group acceptance ($\beta = .20, p < .001$), best

friendship quality ($\beta = .36, \rho < .001$) and school group ($\beta = .11, \rho < .05$) were significant predictors in the first step ($\Delta R^2 = .23, \rho < .001$), and in the second step ($\Delta R^2 = .01, \rho < .05$), interaction between peer group acceptance and school group acted as significant predictor ($\beta = .46, \rho < .05$) and the overall model was significant as well ($F(5, 397) = 25.73, R^2 = .24, \rho < .001$); finally, in the regression model of helping behavior on peer relations and school groups, best friendship quality ($\beta = .43, \rho < .001$) and school group ($\beta = .14, \rho < .01$) acted as significant predictors in the first step ($\Delta R^2 = .23, \rho < .001$), but the second step contributed not significantly to the model ($\Delta R^2 = .00, \rho > .05$). However, in affective relations' regression model on peer relations and school groups, among the two steps, only in the first step, best friendship quality was found to be significant predictor ($\beta = .34, \rho < .001$) and explained about 13% variance in affective relations ($\Delta R^2 = .13, \rho < .001$), but school group contributed not significantly to the model either in direct or joint effect-forms. Hence, the conclusion is that not only peer relations influence students' social competence, but also being a student of senior high group or college group would make great difference in predicting the social competence such as prosocial behavior, helping behavior and sharing cooperation behavior, but not affective relations. Senior high students have higher tendency than college students to behave prosocially, to help others, to share and cooperate with others. Moreover, results also revealed that the impact of peer group acceptance had greater impact on sharing cooperation behavior of senior high group students than on that of college group students.

9.3.3. Testing of Cross-Sex Parenting Effects (Hypothesis 3)

Hypothesis 3 predicted that there would be cross-sex parenting effects on social competence and positive self-esteem. Multiple regression analyses were run on social competence variables and positive self-esteem respectively with father parenting style, mother parenting style, gender of students (reference group is male student group), and interaction terms such as "father parenting style X gender" and "mother parenting style X

gender” as independent variables entered with forced entry method. Results indicated that (see Table 13): Firstly, the regression model of prosocial behavior showed that father parenting style ($\beta = .29, \rho < .01$), mother parenting style ($\beta = .35, \rho < .01$), student gender ($\beta = .89, \rho < .001$), and the interaction between father parenting style and student gender ($\beta = -.52, \rho < .05$) were significant predictors and the model is significant as well ($F(5, 395) = 35.20, R^2 = .31, \rho < .001$). Secondly, the regression model of positive self-esteem revealed that father parenting style ($\beta = .37, \rho < .01$) and student gender ($\beta = .54, \rho < .01$) were significant predictors and the model was significant as well ($F(5, 399) = 16.79, R^2 = .17, \rho < .001$). However, the interactions between parenting style and student gender were not significant predictor. Therefore, different from previous literature, for this Chinese only-children sample, cross-sex parenting effect existed only on prosocial behavior.

Table 13 Regression Results of Cross-Sex Parenting Effects

predictor	prosocial behavior			positive SE		
	B	SE B	β	B	SE B	β
PSF	.12	.05	.29**	.19	.06	.37**
PSM	.14	.04	.35**	.07	.06	.14
gender	1.00	.18	.89***	.77	.25	.54**
PSF X gender	.19	.06	-.52*	-.03	.08	-.12
PSM X gender	-.03	.06	-.15	-.09	.08	-.34
R ²	.31***			.17***		

Note. Because of missing data, N ranged from 401 and 405. ***. $\rho < .001$, **. $\rho < .01$, *. $\rho < .05$; reference group is male student group. PSF = parenting style of father; PSM = parenting style of mother.

Specifically, father parenting style had significantly greater impact on male students than on family students' prosocial behavior ($\beta = -.52, \rho < .05$; and male student group as reference group).

9.3.4. Impact of Different Matches of Father and Mother's Parenting Styles (Hypothesis 4)

Hypothesis 4 posited that parents or at least one parent in a family should have authoritative PS if they hope their children to have better outcomes in academic achievement goals, social

competence, or self-esteem. In order to test this hypothesis, with mother and father matching group variable as independent variable, several ANOVAs were conducted with social competence variables, academic achievement goals, positive and negative self-esteem, and career orientation (individual-level-like career orientation and relational and collective-level-like career orientation) as independent variables respectively. As it is known, through exploratory factor analyses, father and mother parenting styles loaded on one factor (father permissive-authoritative PS and mother permissive-authoritative PS). In order to create a mother-father-matched-parenting-style group variable (in short: mofa), first of all, mother parenting style group (in short: mother_group) and father parenting style group (in short: father_group) variables were created according to the factor scores by giving a value of “1” to the first half of students having lower permissive-authoritative scores, and giving a value of “2” to the other half having higher permissive-authoritative scores; secondly, based on these mother and father parenting style group variables, another new variable was created to represent the mother-father-matched-parenting-style group variable. Then with ANOVA (GLM) analyses, the newly coded variable representing for the matched father and mother parenting style was entered as independent variable, and with different dependent variables separately, very significant differences were found on prosocial behavior ($F(3, 397) = 20.84, p < .001, \eta^2 = .14$), helping behavior ($F(3, 398) = 18.80, p < .001, \eta^2 = .12$), sharing cooperation behavior ($F(3, 400) = 12.90, p < .001, \eta^2 = .09$), affective relationship ($F(3, 401) = 7.48, p < .001, \eta^2 = .06$), mastery goal ($F(3, 401) = 10.89, p < .001, \eta^2 = .08$), positive self-esteem ($F(3, 401) = 13.18, p < .001, \eta^2 = .09$), and relational and collective-level like career orientation ($F(3, 401) = 6.12, p < .001, \eta^2 = .04$); and significant difference was found on negative self-esteem ($F(3, 401) = 3.73, p < .05, \eta^2 = .03$) (see Table 14). From descriptive statistics in Table 14, it was obvious that, if both parents in a family held authoritative parenting styles but with more freedom given to their only child, best outcomes were reached in comparison with other subgroups. Therefore

Table 14 Impact of Matches of Father and Mother Parenting Style on Children's Outcomes

Outcome/father and mother PS matches				
	M	SD	F	η^2
Prosocial behavior				
A. both parents authoritarian	2.61	.04	20.84***	.14
B. mother authoritarian, father permissive-authoritative	2.96	.08		
C. mother permissive-authoritative, father authoritarian	2.96	.08		
D. both parents permissive-authoritative	3.06	.04		
Helping				
A	2.58	.05	18.80***	.12
B	3.09	.11		
C	3.01	.10		
D	3.11	.05		
Sharing and cooperation				
A	2.68	.06	12.90***	.09
B	3.08	.12		
C	3.00	.11		
D	3.17	.06		
Affective relationship				
A	2.81	.06	7.48***	.06
B	2.98	.11		
C	3.02	.10		
D	3.17	.05		
Mastery goal				
A	3.00	.05	10.89***	.08
B	3.23	.10		
C	3.25	.09		
D	3.38	.05		
Positive Self-Esteem				
A	2.63	.05	13.18***	.09
B	2.87	.11		
C	2.72	.10		
D	3.09	.05		
Negative Self-Esteem				
A	2.03	.07	3.73*	.03
B	1.72	.14		
C	1.97	.13		
D	1.74	.07		
Relational and collective-level-like career orientation				
A	2.18	.06	6.12***	.04
B	2.48	.12		
C	2.43	.11		
D	2.52	.06		

Note. Because of missing data, N ranged from 401 and 405, for group A, n ranged from 153 and 156, for B, n = 39, for C, n ranged from 42 and 43, and for D, n = 167; *** $p < .001$, ** $p < .01$, * $p < .05$

Hypothesis 4 proved to be true in that, when both parents in a family held authoritative parenting style but with more freedom given to their child, best children outcomes were produced; when both parents presented authoritarian parenting style, worst children outcomes were resulted in; when one parent figure held authoritarian, the other held authoritative but with more freedom given to their child, children outcomes produced were in the middle, that is, between the best and worst outcomes.

9.3.5. Testing of Direct and Joint Effects of Learning Environments and Self-Concept Levels on Student Outcomes (Hypothesis 5)

Hypothesis 5 predicted that the three learning environments would alone, but mostly together with students' chronic self-concept levels exert their impacts on student outcomes, such as academic achievement goals, social competence and self-esteem. In order to test this hypothesis, a series of multiple hierarchical regression analyses were conducted respectively with academic achievement goals, social competence and self-esteem as dependent variables and with the following 3 blocks of variables as independent variables: corresponding learning environment variables (1st block), individual level, relational level and collective level of self-concept (2nd block), and interaction terms between each learning environment variable and self-concept levels (3rd block). Results about these multiple hierarchical regression analyses are presented in corresponding tables.

Effects on Academic Achievement Goals

Table 15 showed the results about regression of academic achievement goals on peer relations and self-concept levels. Firstly, in the regression model of performance goal on peer relations and self-concept levels, peer group acceptance acted as a significant predictor ($\beta = .13$, $p < .05$) in the 1st step ($\Delta R^2 = .02$, $p < .01$); in the 2nd step, only individual level of chronic self-concept ($\beta = .56$, $p < .001$; $\Delta R^2 = .31$, $p < .001$) was a significant predictor; and in the 3rd step, no significant R^2 change was reached. Therefore, data reported included only the first two steps in

Table 15 and the regression model with these 2 steps was significant as well ($F(5, 399) = 39.03$, $R^2 = .33$, $\rho < .001$). Secondly, in the regression model of mastery goal on peer relations and self-concept levels, peer group acceptance ($\beta = .12$, $\rho < .05$) and best friendship quality ($\beta = .35$, $\rho < .001$) were significant predictors in the first step ($\Delta R^2 = .17$, $\rho < .001$); in the second step ($\Delta R^2 = .21$, $\rho < .001$), significant predictors were individual level ($\beta = .10$, $\rho < .05$), relational level ($\beta = .27$, $\rho < .001$) and collective level ($\beta = .34$, $\rho < .001$) of self-concept; the interaction between peer group acceptance and collective level of self-concept ($\beta = .80$, $\rho < .05$) were significant predictors in the third step ($\Delta R^2 = .04$, $\rho < .001$), and the overall regression model was also significant ($F(12, 392) = 24.37$, $R^2 = .43$, $\rho < .001$). Finally, in the regression model of avoidance goal on peer relations and self-concept levels, peer group acceptance ($\beta = .11$, $\rho < .05$) was significant predictor in the first step ($\Delta R^2 = .02$, $\rho < .05$); individual level of self-concept ($\beta = .25$, $\rho < .001$) were significant predictors in the second step ($\Delta R^2 = .02$, $\rho < .05$); and in the 3rd step, no significant R^2 change was reached. Therefore, data reported included only the first two steps in Table 15 and the regression model with these 2 steps was significant as well ($F(5, 399) = 7.16$, $R^2 = .08$, $\rho < .001$). A conclusion could be reached that peer relations and chronic self-concept levels exert their impacts on student academic achievement goals mainly through their direct effects, while interaction effect between peer relations and chronic self-concept levels (peer groups acceptance X collective level of self-concept) was found only in the impact on mastery goal. Furthermore, more attention should be given to the greater impact of self-concept levels in comparison with the impact of peer relations as a learning environment on academic achievement goals (orientation).

Table 16 showed the results about regression of academic achievement goals on favourite teacher interpersonal behavior and self-concept levels. Due to no significant interaction effects on academic achievement goals in the analyses in the third step, data in the third step were not reported in this table. Firstly, in the regression model of performance goal on favourite teacher

Table 15 Regression of Academic Achievement Goals on Peer Relations and Self-Concept Levels

Predictor	Perform goal						Mastery goal						Avoidance goal											
	Step 1			Step 2			Step 1			Step 2			Step 3			Step 1			Step 2					
	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β			
PGA	.15	.06	.13*	.07	.06	.06	.11	.05	.12*	-.02	.04	-.02	-.72	.28	-.80**	-.15	.07	-.11*	-.17	.08	-.12*			
BFQ	.05	.07	.04	.06	.06	.05	.35	.05	.35***	.10	.05	.10*	.24	.29	.25	-.06	.08	-.04	.03	.09	.02			
scldiv				.60	.05	.56***				.09	.03	.10*	.32	.17	.37				.32	.06	.25***			
screlat				.03	.07	.03				.29	.06	.27***	.31	.21	.29				-.11	.10	-.07			
scldiv										.32	.05	.34***	.04	.19	.04				-.09	.10	-.07			
PGA X scldiv													-.09	.05	-.38									
PGA X screlat													.05	.09	.24									
PGA X scldiv													.15	.07	.80*									
BFQ X scldiv													.00	.06	.01									
BFQ X screlat													-.08	.08	-.42									
BFQ X scldiv													-.01	.07	-.06									
ΔR^2	.02**			.31***			.17***			.21***			.04***			.02*			.06***					
R^2	.33						.38						.43						.08					

Note. Because of missing data, N ranged from 398 and 405. ***.p<.001, **.p<.01, *. p<.05. PGA = peer group acceptance, BFQ = best friendship

quality, scldiv = individual level of self-concept, screlat = relational level of self-concept, scldiv = collective level of self-concept.

Table 16 Regression of Academic Achievement Goals on Favourite Teacher Interpersonal Behavior and Self-Concept Levels

step	predictor	Performance goal			Mastery goal			Avoidance goal											
		B	SE	β	B	SE	β	B	SE	β	B	SE	β						
1	FT cooperative	.06	.02	.15*	.01	.02	.03	.10	.02	.32***	.03	.02	.08	.01	.03	.03	.02	.03	.05
	FT opposition	.03	.02	.08	.00	.02	-.00	-.03	.02	-.10	-.02	.02	-.07	.10	.03	.20***	.08	.03	.16**
	FT strict	.01	.06	.01	-.07	.05	-.06	.10	.05	.10*	.07	.04	.07	.11	.07	.08	.08	.07	.06
2	sclindiv				.61	.05	.56***				.08	.04	.09*				.26	.06	.21***
	sclrelat				.04	.07	.03				.29	.06	.27***				-.06	.10	-.04
	sclcollect				-.01	.06	-.01				.31	.05	.33***				-.16	.09	-.11
	ΔR^2				.02*		.31***			.15***		.25***		.05***					.05***
	R^2						.33					.40							.10

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. It was found that there were no interaction effects between favourite teachers' interpersonal behavior and self-concept, therefore the result table only show the results of the first two steps. FT = favourite teacher; sclindiv = individual level of self-concept; sclrelat = relational level of self-concept; sclcollect = collective level of self-concept.

interpersonal behavior and self-concept levels, favourite teacher cooperative behavior acted as a significant predictor ($\beta = .15$, $\rho < .05$) in the 1st step ($\Delta R^2 = .02$, $\rho < .05$); in the 2nd step, only individual level of chronic self-concept ($\beta = .56$, $\rho < .001$; $\Delta R^2 = .31$, $\rho < .001$) and the regression model with these 2 steps was significant as well ($F(6, 398) = 32.30$, $R^2 = .33$, $\rho < .001$). Secondly, in the regression model of mastery goal on favorite teacher interpersonal behavior and self-concept levels, favorite teacher cooperative behavior ($\beta = .32$, $\rho < .001$) and favorite strict behavior ($\beta = .10$, $\rho < .05$) were significant predictors in the first step ($\Delta R^2 = .15$, $\rho < .001$); in the second step ($\Delta R^2 = .25$, $\rho < .001$), individual level ($\beta = .09$, $\rho < .05$), relational level ($\beta = .27$, $\rho < .001$) and collective level ($\beta = .33$, $\rho < .001$) of self-concept acted as significant predictors and the regression model including these two steps of favorite teacher interpersonal behavior and self-concept levels was also significant ($F(6, 398) = 43.12$, $R^2 = .40$, $\rho < .001$). Finally, in the regression model of avoidance goal on favourite teacher interpersonal behavior and self-concept levels, favourite teacher opposition behavior ($\beta = .20$, $\rho < .001$) was significant predictor in the first step ($\Delta R^2 = .05$, $\rho < .001$); individual level of self-concept ($\beta = .21$, $\rho < .001$) was also a significant predictor in the second step ($\Delta R^2 = .05$, $\rho < .001$) and the model including two steps was also significant ($F(6, 398) = 7.15$, $R^2 = .10$, $\rho < .001$). A conclusion again could be reached that some aspects of favourite teacher interpersonal behavior and chronic self-concept levels exert impacts on student academic achievement goal orientation through their direct effects. It was obvious that chronic self-concept levels contribute more than or at least equally with (e.g., on avoidance goal) favourite teacher interpersonal behavior in terms of the variance explained in academic goals.

In comparison with the effect of favourite teacher interpersonal behavior and self-concept levels, table 17 revealed the results about regression of academic achievement goals on average teacher interpersonal behavior and self-concept levels. Firstly, in the regression model of performance goal on average teacher interpersonal behavior and self-concept levels, average

teacher cooperative behavior ($\beta = .18, \rho < .01$) and average teacher opposition behavior ($\beta = .15, \rho < .01$) acted as significant predictors in the 1st step ($\Delta R^2 = .03, \rho < .01$); in the 2nd step, only individual level of chronic self-concept ($\beta = .55, \rho < .001; \Delta R^2 = .30, \rho < .001$); in the third step, no significant R^2 was reached. Anyway, the regression model with the first 2 steps was significant as well ($F(5, 399) = 38.87, R^2 = .33, \rho < .001$). Secondly, in the regression model of mastery goal on average teacher interpersonal behavior and self-concept levels, average teacher cooperative behavior ($\beta = .19, \rho < .01$) was a significant predictor in the first step ($\Delta R^2 = .03, \rho < .01$); in the second step ($\Delta R^2 = .35, \rho < .001$), individual level ($\beta = .08, \rho < .05$), relational level ($\beta = .30, \rho < .001$) and collective level ($\beta = .36, \rho < .001$) of self-concept acted as significant predictors; in the third step ($\Delta R^2 = .02, \rho < .05$) and the overall model was significant as well ($F(5, 399) = 49.06, R^2 = .40, \rho < .001$). Finally, in the regression model of avoidance goal on average teacher interpersonal behavior and self-concept levels, average teacher opposition behavior ($\beta = .22, \rho < .001$) was a significant predictor in the first step ($\Delta R^2 = .05, \rho < .001$); individual level of self-concept ($\beta = .22, \rho < .001$) was also a significant predictor in the second step ($\Delta R^2 = .06, \rho < .001$); in the third step ($\Delta R^2 = .03, \rho < .05$), interaction terms AT (average teacher) cooperative behavior X individual level ($\beta = -.54, \rho < .05$) and AT opposition behavior X individual level ($\beta = -.54, \rho < .05$) were significant predictors and the overall model was significant as well ($F(11, 393) = 5.40, R^2 = .14, \rho < .001$). A conclusion again could be reached that some aspects of average teacher interpersonal behavior and chronic self-concept levels exert impacts on student academic achievement goal orientation through their direct effects and interaction effects and again chronic self-concept levels contribute more than average teacher interpersonal behavior in terms of the variance explained in academic goals. Furthermore, average teacher interpersonal behavior seemed to have more interactions with student chronic self-concept levels than favourite teacher interpersonal behavior.

In Table 18, results were revealed about the regression of academic achievement goals on

Table 17 Regression of Academic Achievement Goals on Average Teacher Interpersonal Behavior and Self-Concept Levels

Step	Predictor	Performance goal						Mastery goal								
		B	SE	β	B	SE	β	B	SE	β	B	SE	β			
1	AT cooperative	.06	.02	.18**	.03	.02	.08	.05	.01	.19**	.01	.01	.03	-.05	.07	-.21
	AT opposition	.21	.08	.15**	.05	.07	.04	.10	.06	.08	.07	.05	.07	.56	.27	.49*
2	scindiv				.59	.05	.55***				.07	.04	.08*	.25	.20	.30
	screlat				.06	.07	.04				.33	.05	.30***	-.24	.36	-.22
	sccollect				-.02	.06	-.01				.34	.05	.36***	.91	.31	.95**
3	AT cooperative scindiv	X												-.02	.01	-.30
	AT cooperative screlat	X												.07	.02	1.17**
	AT cooperative sccollect	X												-.04	.02	-.71
	AT opposition scindiv	X												-.01	.06	-.02
	AT opposition screlat	X												-.03	.11	-.10
	AT opposition sccollect	X												-.11	.09	-.38
	ΔR^2				.03**			.30***			.03**			.35***		.02*
	R^2							.33						.38		.40

(Continued)

step	predictor	Avoidance goal								
		B	SE B	β	B	SE B	β	B	SE B	β
1	AT cooperative	.00	.02	-.00	-.00	.02	-.01	.26	.13	.69*
	AT opposition	.36	.09	.22***	.29	.09	.17**	-.24	.49	-.14
2	scindiv				.27	.06	.22***	1.21	.35	.96**
	screlat				-.10	.10	-.06	-.30	.63	-.19
	sccollect				-.14	.09	-.10	-.20	.56	-.14
3	AT cooperative X scindiv							-.05	.02	-.54*
	AT cooperative X screlat							-.04	.04	-.47
	AT cooperative X sccollect							.00	.04	.02
	AT opposition X scindiv							-.25	.11	-.54*
	AT opposition X screlat							.31	.19	.72
	AT opposition X sccollect							.01	.17	.02
	ΔR^2			.05***			.06***			.03*
	R^2						.11			.14

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$; AT = average teacher; scindiv = individual level of self-concept, screlat = relational level of self-concept, sccollect = collective level of self-concept; AT cooperative = average teacher cooperative behavior; AT opposition = average teacher opposition behavior

Table 18 Regression of Academic Achievement Goals on Family Environment and Self-Concept Levels

Step	Predictor	Performance goal			Avoidance goal			B	SE B	β	B	SE B	β
		B	SE B	β	B	SE B	β						
1	feco	.08	.05	.08	.03	.05	.03	.01	.06	.01	.06	.06	.08
	father_PS	.07	.05	.11	.06	.04	.11	.01	.06	.01	.01	.05	.01
	mother_PS	-.06	.05	-.10	-.08	.04	-.14*	-.01	.06	-.02	-.01	.05	-.01
2	sclindiv				.60	.05	.56***				.30	.06	.24***
	sclrelat				.06	.07	.04				-.11	.10	-.07
	sclcollect				-.00	.06	-.00				-.20	.09	-.14*
3	feco X sclindiv												
	feco X sclrelat												
	feco X sclcollect												
	father_PS X sclindiv												
	father_PS X sclrelat												
	father_PS X sclcollect												
	mother_PS X sclindiv												
	mother_PS X sclrelat												
	mother_PS X sclcollect												
	ΔR^2			.01			.32***			.00			.07***
R^2						.33						.07	

(Continued)

Step	Predictor	Mastery goal								
		B	SE B	β	B	SE B	β	B	SE B	β
1	feco	.11	.04	.14**	-.06	.03	-.07	-.53	.18	-.70**
	father_PS	.05	.04	.11	.05	.03	.10	-.04	.19	-.09
	mother_PS	.08	.04	.17*	.05	.03	.10	.42	.19	.91*
2	sclindiv				.07	.03	.09*	.07	.15	.08
	sclrelat				.31	.05	.29***	.46	.27	.42
	sclcollect				.33	.05	.35***	.19	.22	.20
3	feco X sclindiv							-.02	.05	-.10
	feco X sclrelat							.03	.07	.15
	feco X sclcollect							.14	.06	.85*
	father_PS X sclindiv							-.01	.04	-.07
	father_PS X sclrelat							.08	.07	.70
	father_PS X sclcollect							-.04	.06	-.42
	mother_PS X sclindiv							.02	.04	.19
	mother_PS X sclrelat							-.12	.06	-1.09
	mother_PS X sclcollect							-.01	.05	-.14
	ΔR^2				.12***			.29***		
R^2							.41			.44

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. father_PS = father parenting style; mother_PS = mother parenting style; feco = family cohesion. sclindiv = individual level of self-concept, sclrelat = relational level of self-concept, sclcollect = collective level of self-concept.

family environment (i.e., family cohesion, father and mother parenting styles) and self-concept levels. Firstly, in the regression model of performance goal on family environment and self-concept levels, the model with the first step ($\Delta R^2 = .01, \rho > .05$) was not significant, in the second step ($\Delta R^2 = .32, \rho < .001$), significant predictors were found to be mother parenting style ($\beta = -.14, \rho < .05$) and individual level of self-concept ($\beta = .56, \rho < .001$), and the third step did not reach a significant R^2 change ($\rho > .05$), but the regression model including the first two steps was significant as well ($F(6, 398) = 32.82, R^2 = .33, \rho < .001$). Secondly, in the regression model of mastery goal on family environment and self-concept levels, family cohesion ($\beta = .14, \rho < .01$) and mother parenting style ($\beta = .17, \rho < .05$) were significant predictors in the first step ($\Delta R^2 = .12, \rho < .001$); in the second step ($\Delta R^2 = .29, \rho < .001$), individual level ($\beta = .09, \rho < .05$), relational level ($\beta = .29, \rho < .001$) and collective level ($\beta = .35, \rho < .001$) of self-concept acted as significant predictors; in the third step ($\Delta R^2 = .03, \rho < .05$), family cohesion ($\beta = -.70, \rho < .01$), mother parenting style ($\beta = .91, \rho < .05$), and interaction between family cohesion and collective level of self-concept ($\beta = .85, \rho < .05$) were significant predictors and the overall model was significant as well ($F(15, 389) = 19.81, R^2 = .44, \rho < .001$). Finally, in the regression model of avoidance goal on family environment and self-concept levels, the first step and third step did not reach a significant R^2 change, and only the second step reached a significant model ($F(3, 398) = 10.60, R^2 = .07, \rho < .001$) and significant predictors were individual level ($\beta = .24, \rho < .001$) and collective level ($\beta = -.14, \rho < .05$) of self-concept. In summary, family environment variables seemed to have no contribution to performance goal and avoidance goal, but family environment, especially family cohesion and mother parenting style explained 12% of variance in mastery goal. Still chronic self-concept contributed much more than family environment to all the three academic achievement goals respectively.

In sum, in terms of the direct effects of each of the three learning environments on academic goal orientation, almost all of them (except family environment on avoidance goal) made little

contribution to the explanation of the variance in either performance goal or avoidance goal (explaining variance ranging from 2% and 5%), but on mastery goal, peer relations, favourite teacher interpersonal behavior and family environment had great impact (explaining variance ranging from 12% and 15%). In terms of the direct effects of chronic self-concept on academic orientation, greater impacts were found on performance goal and mastery goal (explaining variance ranging from 21% and 35%), while on avoidance goal, the impact was relative much smaller (about around 5% of variance explained). Finally, except for favourite teacher interpersonal behavior, the interaction effects between chronic self-concept and each of the 3 learning environments existed mainly on mastery goal and avoidance goal, but the effect size was quite small although significant (around 2 or 3% of variance explained).

Effects on Social Competence

Table 19 presented results of regression of social competence on peer relations and chronic self-concept levels. Firstly, in the regression model of anxious solitary behavior on peer relations and self-concept levels, peer group acceptance acted as a significant predictor ($\beta = -.25$, $\rho < .001$) in the 1st step ($\Delta R^2 = .09$, $\rho < .001$); in the 2nd step ($\Delta R^2 = .03$, $\rho < .01$), peer group acceptance kept to be a significant predictor ($\beta = -.23$) and new predictor was individual level of chronic self-concept ($\beta = .16$, $\rho < .01$); and in the 3rd step, no significant R^2 change was reached. Therefore, data reported included only the first two steps in Table 19 and the regression model with the first 2 steps was significant as well ($F(5, 399) = 11.04$, $R^2 = .12$, $\rho < .001$). Secondly, in the regression model of prosocial behavior on peer relations and self-concept levels, peer group acceptance ($\beta = .16$, $\rho < .01$) and best friendship quality ($\beta = .42$, $\rho < .001$) were significant predictors in the first step ($\Delta R^2 = .26$, $\rho < .001$); in the second step ($\Delta R^2 = .15$, $\rho < .001$), best friendship quality kept to be significant predictor ($\beta = .21$, $\rho < .001$) and new significant predictors were relational level ($\beta = .27$, $\rho < .001$) and collective level ($\beta = .26$, $\rho < .001$) of self-concept; relational level of self-concept ($\beta = -.49$, $\rho < .05$) and the interaction between peer

(Continued)

Step	predictor	helping						sharing and cooperation										
		B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β		
1	PGA	.08	.05	.08	.00	.05	.00	-.56	.33	-.56	.21	.05	.20***	.12	.05	.12*		
	BFQ	.46	.05	.42***	.26	.06	.23***	-.00	.35	-.00	.41	.06	.35***	.20	.06	.17**		
2	scindiv				-.05	.04	-.05	.38	.21	.41				-.06	.04	-.06		
	screlat				.27	.07	.23***	-.62	.25	-.51*				.26	.07	.20***		
	sccollect				.23	.06	.22***	-.08	.23	-.07				.27	.07	.24***		
3	PGA X BFQ							-.07	.08	-.31								
	PGA X scindiv							-.00	.06	-.01								
	PGA X screlat							.18	.11	.81								
	PGA X sccollect							.04	.09	.20								
	BFQ X scindiv							-.13	.07	-.52*								
	BFQ X screlat							.15	.10	.67								
	BFQ X sccollect							.08	.09	.38								
	ΔR^2													.21***			.10***	
R^2																.31	.34	.32

Continued

Step	Predictor	Affective relationship								
		B	SE B	β	B	SE B	β	B	SE B	β
1	PGA	.04	.05	.04	-.04	.05	-.04	-.79	.34	-.80*
	BFQ	.37	.06	.34***	.15	.06	.14**	-.22	.35	-.20
2	scindiv				.07	.04	.07	.32	.21	.34
	screlat				.38	.07	.32***	-.53	.26	-.45*
	sccollect				.14	.06	.14*	.08	.23	.08
3	PGA X BFQ							.00	.08	.02
	PGA X scindiv							-.02	.06	-.09
	PGA X screlat							.16	.11	.70
	PGA X sccollect							.08	.09	.38
	BFQ X scindiv							-.05	.07	-.22
	BFQ X screlat							.18	.10	.86
	BFQ X sccollect							-.04	.09	-.18
	ΔR^2			.13***				.13***		.03**
R^2							.26		.29	

Note. Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. PGA = peer group acceptance, BFQ = best friendship

quality, scindiv = individual level of self-concept, screlat = relational level of self-concept, sccollect = collective level of self-concept

group acceptance and relational level of self-concept ($\beta = .90, \rho < .05$) were significant predictors in the third step ($\Delta R^2 = .03, \rho < .01$), and the overall regression model was significant as well ($F(12, 388) = 25.66, R^2 = .44, \rho < .001$). Thirdly, in the regression model of helping behavior on peer relations and self-concept levels, best friendship quality ($\beta = .42, \rho < .001$) was significant predictor in the first step ($\Delta R^2 = .21, \rho < .001$); best friendship quality ($\beta = .23, \rho < .001$) kept to be significant predictor and new predictors were relational level ($\beta = .23, \rho < .001$) and collective level ($\beta = .22, \rho < .001$) of self-concept in the second step ($\Delta R^2 = .10, \rho < .001$); and in the 3rd step ($\Delta R^2 = .03, \rho < .01$), relational level kept to be a significant predictor ($\beta = -.51, \rho < .05$) and new predictor was the interaction between best friendship quality and individual level of self-concept ($\beta = -.52, \rho < .05$), and the overall model was significant as well ($F(12, 389) = 16.93, R^2 = .34, \rho < .001$). Fourthly, in the regression model of sharing and cooperation behavior on peer relations and self-concept levels, peer group acceptance ($\beta = .20, \rho < .001$) and best friendship quality ($\beta = .35, \rho < .001$) acted as significant predictors in the 1st step ($\Delta R^2 = .22, \rho < .001$); in the 2nd step ($\Delta R^2 = .10, \rho < .001$), peer group acceptance ($\beta = .12, \rho < .05$) and best friendship quality ($\beta = .17, \rho < .01$) kept to be significant predictors and new predictors were relational level ($\beta = .20, \rho < .001$) and collective level ($\beta = .24, \rho < .001$) of chronic self-concept; in the 3rd step, no significant R^2 change was reached. Therefore, data reported included only the first two steps in Table 19 and the regression model with the first 2 steps was significant as well ($F(5, 398) = 37.65, R^2 = .32, \rho < .001$). Finally, in the regression model of affective relationship on peer relations and self-concept levels, best friendship quality ($\beta = .34, \rho < .001$) was a significant predictor in the first step ($\Delta R^2 = .13, \rho < .001$); in the second step ($\Delta R^2 = .13, \rho < .001$), best friendship quality kept to be significant predictor ($\beta = .14, \rho < .01$) and new significant predictors were relational level ($\beta = .32, \rho < .001$) and collective level ($\beta = .14, \rho < .05$) of self-concept; in the third step ($\Delta R^2 = .03, \rho < .01$) peer group acceptance ($\beta = -.80, \rho < .05$) and relational level of self-concept ($\beta = -.45, \rho < .05$) were significant predictors and the interactions between peer

relations and self-concept levels were no significant predictors, and the overall regression model was significant as well ($F(11, 393) = 14.88, R^2 = .29, \rho < .001$). Since it is said in China that a teacher has two tasks: one is to transmit knowledge and to show the way about how to gain and reflect knowledge and the other is to educate his students to act prosocially. In that sense, teacher interpersonal behavior may exert influence on students' social competence. Next task is to test a sub-hypothesis of Hypothesis 5: Alone or together with students' chronic self-concept levels, favourite teacher interpersonal behavior would also influence students' social competence and especially they would have more impact on students' prosocial behavior.

Table 20 showed the results of regression of social competence on favourite teacher interpersonal behavior and self-concept levels. Firstly, in the regression model of anxious solitary behavior on favourite teacher interpersonal behavior and self-concept levels, favourite teacher opposition behavior ($\beta = .15, \rho < .01$) and favorite teacher strict behavior ($\beta = .15, \rho < .01$) acted as significant predictors in the 1st step ($\Delta R^2 = .06, \rho < .001$); the 3rd step did not reach a significant R^2 change and results were not reported. The regression model only including the first two steps was significant as well ($F(6, 398) = 8.40, R^2 = .12, \rho < .001$). Secondly, in regression model of prosocial behavior on favorite teacher interpersonal behavior and self-concept levels, favorite teacher cooperative behavior ($\beta = .26, \rho < .001$) and favorite teacher strict behavior ($\beta = .15, \rho < .01$) were significant predictors in the first step ($\Delta R^2 = .11, \rho < .001$); in the second step ($\Delta R^2 = .28, \rho < .001$), favorite strict behavior ($\beta = .14, \rho < .01$), relational level ($\beta = .32, \rho < .001$) and collective level ($\beta = .34, \rho < .001$) of self-concept acted as significant predictors; in the third step ($\Delta R^2 = .04, \rho < .01$), significant predictors were favorite teacher opposition behavior ($\beta = .70, \rho < .05$), interaction between favorite teacher cooperative behavior and individual level of self-concept ($\beta = -.88, \rho < .01$), and interaction between favorite teacher strict behavior and relational level of self-concept ($\beta = -.81, \rho < .05$) and the overall regression model was significant as well ($F(15, 385) = 19.48, R^2 = .43, \rho < .001$). Thirdly, in regression

Table 20 Regression of Social Competence on Favourite Teacher Interpersonal Behavior and Self-Concept Levels

step	predictor	Anxious solitary behavior						prosocial behavior								
		B	SE	β	B	SE	β	B	SE	β	B	SE	β			
1	FT cooperative	-.01	.02	-.03	.02	.03	.04	.07	.02	.26***	.01	.01	.02	.07	.06	.24
	FT opposition	.07	.03	.15**	.05	.03	.11*	-.03	.02	-.09	-.01	.01	-.03	.20	.09	.70*
	FT strict	.20	.07	.15**	.20	.07	.15**	.13	.04	.15**	.12	.04	.14**	.30	.24	.35
2	scldiv				.12	.06	.10*				-.04	.03	-.05	.46	.26	.62
	screlat				-.01	.09	-.01				.31	.05	.32***	.34	.41	.36
	scollect				-.32	.08	-.24***				.29	.04	.34***	.46	.37	.55
3	FT cooperative X scldiv												-.04	.02	-.88**	
	FT cooperative X screlat												.04	.03	.84	
	FT cooperative X scollect												-.03	.02	-.66	
	FT opposition X scldiv												-.02	.02	-.16	
	FT opposition X screlat												-.05	.03	-.57	
	FT opposition X scollect												-.00	.03	-.02	
	FT strict X scldiv												.05	.04	.24	
	FT strict X screlat												-.17	.08	-.81*	
	FT strict X scollect												.09	.07	.43	
	ΔR^2													.06***		.06***
R^2													.11***		.11***	
													.28***		.28***	
													.39		.39	
													.04**		.04**	
													.43		.43	

(Continued)

Step	Predictor	Helping						Sharing and cooperation									
		B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β				
1	FT cooperative	.08	.02	.22***	.01	.02	.02	.12	.09	.35	.08	.02	.22***	.01	.02	.02	
	FT opposition	-.02	.02	-.06	-.00	.02	-.01	.33	.12	.89**	-.05	.02	-.14*	-.03	.02	-.09	
	FT strict	.13	.05	.12*	.12	.05	.11*	.16	.33	.15	.14	.06	.13*	.13	.05	.12**	
2	scindiv				-.08	.04	-.08	.13	.35	.13				-.06	.04	-.06	
	screlat				.35	.07	.29***	.75	.56	.63				.30	.07	.23***	
	scollect				.30	.06	.28***	.54	.51	.51				.37	.06	.33***	
3	FT cooperative X scindiv							-.03	.02	-.45							
	FT cooperative X screlat							.03	.04	.41							
	FT cooperative X scollect							-.04	.03	-.73							
	FT opposition X scindiv							-.01	.02	-.04							
	FT opposition X screlat							-.10	.04	-.86*							
	FT opposition X scollect							.00	.04	.04							
	FT strict X scindiv							.08	.06	.29							
	FT strict X screlat							-.18	.11	-.67							
	FT strict X scollect							.12	.10	.46							
	ΔR^2				.08***			.21***			.04*			.10***			.20***
	R^2							.29			.33						.30

(Continued)

Step	Predictor	Affective relationship								
		B	SE B	β	B	SE B	β	B	SE B	β
1	FT cooperative	.09	.02	.25***	.02	.02	.06	.09	.09	.26
	FT opposition	.01	.02	.02	.02	.02	.05	.28	.12	.78*
2	FT strict	.15	.05	.14**	.12	.05	.12**	.11	.33	.10
	sclindiv				.03	.04	.03	.59	.36	.64
	sclrelat				.43	.07	.37***	.42	.56	.36
	sclcollect				.16	.06	.15**	.26	.51	.25
3	FT cooperative X sclindiv							-.05	.02	-.79*
	FT cooperative X sclrelat							.02	.04	.36
	FT cooperative X sclcollect							-.01	.03	-.15
	FT opposition X sclindiv							-.03	.02	-.26
	FT opposition X sclrelat							-.09	.04	-.83*
	FT opposition X sclcollect							.04	.04	.34
	FT strict X sclindiv							.07	.06	.26
	FT strict X sclrelat							.00	.11	.01
	FT strict X sclcollect							-.05	.10	-.18
	ΔR^2			.08***				.19***		.04*
	R^2							.27		.31

Note. Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. FT = favourite teacher; sclindiv = individual level of self-concept, sclrelat = relational level of self-concept, sclcollect = collective level of self-concept

model of helping behavior on favorite teacher interpersonal behavior and self-concept levels, favorite teacher cooperative behavior ($\beta = .22, \rho < .001$) and favorite teacher strict behavior ($\beta = .12, \rho < .05$) were significant predictors in the first step ($\Delta R^2 = .08, \rho < .001$); in the second step ($\Delta R^2 = .21, \rho < .001$), favorite strict behavior ($\beta = .11, \rho < .05$), relational level ($\beta = .29, \rho < .001$) and collective level ($\beta = .28, \rho < .001$) of self-concept acted as significant predictors; in the third step ($\Delta R^2 = .04, \rho < .05$), significant predictors were favorite teacher opposition behavior ($\beta = .89, \rho < .01$), and interaction between favorite teacher opposition behavior and relational level of self-concept ($\beta = -.86, \rho < .05$) and the overall regression model was significant as well ($F(15, 386) = 12.27, R^2 = .33, \rho < .001$). Fourthly, in the regression model of sharing and cooperation behavior on favourite teacher interpersonal behavior and self-concept levels, favourite teacher cooperative behavior ($\beta = .22, \rho < .001$), opposition behavior ($\beta = -.14, \rho < .05$) and strict behavior ($\beta = .13, \rho < .05$) were significant predictors in the first step ($\Delta R^2 = .10, \rho < .001$); favorite teacher strict behavior kept to be a significant predictor ($\beta = .12, \rho < .01$) and relational level ($\beta = .23, \rho < .001$) and collective level of self-concept ($\beta = .33, \rho < .001$) were also significant predictors in the second step ($\Delta R^2 = .20, \rho < .001$); the third step did not reach a significant R^2 change; and the model including the first two steps was also significant ($F(6, 397) = 28.50, R^2 = .30, \rho < .001$). Finally, in regression model of affective relationship on favorite teacher interpersonal behavior and self-concept levels, favorite teacher cooperative behavior ($\beta = .25, \rho < .001$) and favorite teacher strict behavior ($\beta = .14, \rho < .01$) were significant predictors in the first step ($\Delta R^2 = .08, \rho < .001$); in the second step ($\Delta R^2 = .19, \rho < .001$), favorite strict behavior ($\beta = .12, \rho < .01$), relational level ($\beta = .37, \rho < .001$) and collective level ($\beta = .15, \rho < .01$) of self-concept acted as significant predictors; in the third step ($\Delta R^2 = .04, \rho < .05$), significant predictors were favorite teacher opposition behavior ($\beta = .78, \rho < .05$), interaction between favorite teacher cooperative behavior and individual level of self-concept ($\beta = -.79, \rho < .05$) and interaction between opposition behavior and relational level of self-concept; and the

Table 21 Regression of Social Competence on Average Teacher Interpersonal Behavior and Self-Concept Levels

step	predictor	Anxious solitary behavior						Prosocial behavior																			
		B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β											
1	AT cooperative	-.04	.02	-.12*	-.03	.02	-.09	.24	.12	.68*	.03	.01	.12*	-.00	.01	-.02	-.21	.06	-.95**								
	AT opposition	.22	.08	.14**	.18	.08	.12*	.38	.45	.24	.13	.06	.13*	.13	.05	.13**	.88	.24	.87***								
2	scldiv				.15	.06	.13**	.63	.33	.53				-.04	.03	-.05	.10	.17	.13								
	screlat				-.04	.09	-.03	-.14	.59	-.09				.31	.05	.33***	.16	.31	.17								
	scollect				-.27	.08	-.20	.32	.52	.24				.32	.04	.38***	.27	.27	.33								
3	AT cooperative X scldiv							-.00	.02	-.03							-.01	.01	-.18								
	AT cooperative X screlat							-.02	.04	-.22							.06	.02	1.10**								
	AT cooperative X scollect							-.06	.04	-.79							.01	.02	.19								
	AT opposition X scldiv							-.25	.10	-.58*							-.02	.05	-.08								
	AT opposition X screlat							.14	.18	.35							-.19	.09	-.74*								
	AT opposition X scollect							-.04	.16	-.10							-.02	.08	-.06								
	ΔR^2																	.05***		.06***		.03*		.02*		.37***	
R^2																			.11			.14			.39		.44

(Continued)

step	predictor	helping									Sharing and cooperation									
		B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β	
			B		B		B		B		B		B		B		B		B	
1	AT cooperative	.04	.02	.16**	.01	.01	.05	-.17	.08	-.61*	.03	.02	.09	-.01	.01	-.03	-.35	.09	-1.16***	
	AT opposition	.21	.07	.17**	.22	.06	.17***	1.14	.32	.90***	.10	.07	.07	.11	.06	.09	.78	.34	.58*	
2	sclindiv				-.09	.04	-.09*	.04	.23	.04			-.07	.04	-.07	.03	.24	.03		
	sclrelat				.36	.06	.30***	.17	.42	.14			.32	.07	.25***	-.29	.44	-.23		
	sclcollect				.32	.06	.30***	.48	.37	.46			.42	.06	.37***	.47	.39	.42		
3	AT cooperative X sclindiv							-.01	.02	-.11						-.01	.02	-.13		
	AT cooperative X sclrelat							.08	.03	1.15**						.10	.03	1.42**		
	AT cooperative X sclcollect							-.02	.03	-.30						.01	.03	.09		
	AT opposition X sclindiv							-.03	.07	-.09						-.00	.07	-.01		
	AT opposition X sclrelat							-.26	.13	-.78*						-.15	.13	-.43		
	AT opposition X sclcollect							.00	.11	.01						-.04	.12	-.12		
	ΔR^2			.03**			.27***			.04**			.00			.29***			.05***	
	R^2						.30			.34						.29			.34	

(Continued)

step	predictor	Affective relationship					
		B	SE B	β	B	SE B	β
1	AT cooperative	.01	.02	.05	-.02	.01	-.06
	AT opposition	.16	.07	.13*	.15	.06	.12*
2	sclindiv				.05	.04	.05
	sclrelat				.43	.06	.36***
	sclcollect				.21	.06	.20***
3	AT cooperative X sclindiv						
	AT cooperative X sclrelat						
	AT cooperative X sclcollect						
	AT opposition X sclindiv						
	AT opposition X sclrelat						
	AT opposition X sclcollect						
	ΔR^2			.01			.26***
	R^2						.27

Note. Because of missing data, N ranged from 398 to 405. * $\rho < .05$. ** $\rho < .01$. *** $\rho < .001$. AT = average teacher; sclindiv = individual level of self-concept, sclrelat = relational level of self-concept, sclcollect = collective level of self-concept

Overall regression model was significant as well ($F(15, 389) = 11.13, R^2 = .31, \rho < .001$).

In comparison with the effect of favourite teacher interpersonal behavior and self-concept levels, table 21 revealed the results about regression of social competence on average teacher interpersonal behavior and self-concept levels. Firstly, in the regression model of anxious solitary behavior on average teacher interpersonal behavior and self-concept levels, average

teacher cooperative behavior ($\beta = -.12, \rho < .05$) and average teacher opposition behavior ($\beta = .14, \rho < .01$) acted as significant predictors in the 1st step ($\Delta R^2 = .05, \rho < .001$); in the 2nd step ($\Delta R^2 = .06, \rho < .001$), significant predictors were average teacher opposition behavior and individual level of chronic self-concept ($\beta = .13, \rho < .01$); in the third step ($\Delta R^2 = .03, \rho < .05$), significant predictors were average teacher cooperative behavior ($\beta = .68, \rho < .05$) and interaction between average teacher opposition behavior and individual level of self-concept; and the overall regression model was significant as well ($F(11, 393) = 5.60, R^2 = .14, \rho < .001$).

Secondly, in the regression model of prosocial behavior on average teacher interpersonal behavior and self-concept levels, average teacher cooperative behavior ($\beta = .12, \rho < .05$) and opposition behavior ($\beta = .13, \rho < .05$) were significant predictors in the first step ($\Delta R^2 = .02, \rho < .05$); in the second step ($\Delta R^2 = .37, \rho < .001$), significant predictors were average teacher opposition behavior ($\beta = .13, \rho < .01$), relational level ($\beta = .33, \rho < .001$) and collective level ($\beta = .38, \rho < .001$) of self-concept; in the third step ($\Delta R^2 = .05, \rho < .001$), average teacher cooperative ($\beta = -.95, \rho < .01$), opposition behavior ($\beta = .87, \rho < .001$), interaction between average teacher cooperative behavior and relational level of self-concept ($\beta = 1.10, \rho < .01$), and interaction between average teacher opposition behavior and relational level of self-concept ($\beta = -.74, \rho < .05$) were significant predictors; and the overall model was significant as well ($F(11, 389) = 27.26, R^2 = .44, \rho < .001$).

Thirdly, in the regression model of helping behavior on average teacher interpersonal behavior and self-concept levels, average teacher cooperative behavior ($\beta = .16, \rho < .01$) and opposition behavior ($\beta = .17, \rho < .01$) were significant predictors in the first step ($\Delta R^2 = .03, \rho < .01$); in the second step ($\Delta R^2 = .27, \rho < .001$), significant predictors were average teacher opposition behavior ($\beta = .17, \rho < .001$), individual level ($\beta = -.09, \rho < .05$), relational level ($\beta = .30, \rho < .001$) and collective level ($\beta = .30, \rho < .001$) of self-concept; in the third step ($\Delta R^2 = .04, \rho < .01$), average teacher cooperative ($\beta = -.61, \rho < .05$), opposition behavior ($\beta = .90, \rho < .001$), interaction between average teacher cooperative behavior and rela-

Table 22 Regression of Social Competence on Family Environment and Self-Concept Levels

Step	Predictor	Anxious solitary behavior						Prosocial behavior					
		B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
1	feco	-.14	.06	-.14*	-.07	.06	-.07	.07	.03	.11*	-.06	.03	-.09*
	father_PS	-.04	.05	-.06	-.03	.05	-.05	.04	.03	.11	.04	.02	.10
	mother_PS	.02	.05	.03	.03	.05	.04	.13	.03	.32***	.10	.02	.25***
2	sclindiv				.17	.06	.14**				-.03	.03	-.05
	sclrelat				-.02	.09	-.02				.28	.05	.30***
	sclcollect				-.29	.08	-.22***				.28	.04	.33***
	ΔR^2				.02*		.06***				.21***		.25***
	R^2						.08						.46

Continued													
Step	Predictor	Helping behavior						Sharing and cooperation					
		B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
1	feco	.11	.04	.13*	-.03	.04	-.03	.10	.04	.11*	-.06	.04	-.07
	father_PS	.08	.04	.15*	.07	.03	.14*	.05	.04	.09	.04	.04	.08
	mother_PS	.12	.04	.24**	.09	.03	.18**	.13	.04	.24**	.10	.04	.18**
2	sclindiv				-.07	.04	-.08				-.07	.04	-.07
	sclrelat				.32	.06	.26***				.29	.07	.23***
	sclcollect				.27	.06	.25***				.37	.06	.33***
	ΔR^2				.18***		.17***				.14***		.20***
	R^2						.35						.34

Continued

		Affective relationship					
Predictor		B	SE	β	B	SE	β
Step		B			B		
1	feco	.00	.04	.00	-.14	.04	-.17***
	father_PS	.01	.04	.02	.01	.03	.01
	mother_PS	.15	.04	.29***	.11	.03	.22**
2	scindiv				.05	.04	.05
	screlat				.42	.06	.36***
	scollect				.19	.06	.18**
	ΔR^2			.10***			.21***
	R^2						.31

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. feco = family cohesion, father_PS = father parenting style, mother_PS = mother parenting style, scindiv = individual level of self-concept, screlat = relational level of self-concept, scollect = collective level of self-concept

relational level of self-concept ($\beta = 1.15$, $p < .01$), and interaction between average teacher opposition behavior and relational level of self-concept ($\beta = -.78$, $p < .05$) were significant predictors; and the overall model was significant as well ($F(11, 390) = 17.69$, $R^2 = .34$, $p < .001$). Fourthly, in the regression model of sharing and cooperation behavior on average teacher interpersonal behavior and self-concept levels, average teacher interpersonal behavior did not contribute to the explanation of variance in sharing and cooperative behavior in the first step ($\Delta R^2 = .00$, $p > .05$); in the second step ($\Delta R^2 = .29$, $p < .001$), significant predictors were relational level ($\beta = .25$, $p < .001$) and collective level ($\beta = .37$, $p < .001$) of self-concept; in the third step ($\Delta R^2 = .05$, $p < .001$), average teacher cooperative ($\beta = -1.16$, $p < .001$), opposition behavior ($\beta = .58$, $p < .05$), and interaction between average teacher cooperative behavior and relational level of self-concept ($\beta = 1.42$, $p < .01$) were significant predictors; and the overall model was significant as well ($F(11, 392) = 18.23$, $R^2 = .34$, $p < .001$). Finally, in the regression model of affective

relationship on average teacher interpersonal behavior and self-concept levels, first step and third step regression did not reach a significant R^2 change ($\rho > .05$); only in the second step ($\Delta R^2 = .26$, $\rho < .001$), significant predictors were found to be average teacher opposition behavior ($\beta = .12$, $\rho < .05$), relational level ($\beta = .36$, $\rho < .001$) and collective level of self-concept ($\beta = .20$, $\rho < .001$); and the regression model including the first two steps was significant as well ($F(5, 399) = 29.65$, $R^2 = .27$, $\rho < .001$).

In Table 22, results were revealed about the regression of social competence on family environment (i.e., family cohesion, father and mother parenting styles) and self-concept levels. Since in all the regression models of social competence variables, third step did not reach a significant R^2 change, data were not reported in the Table 22. Firstly, in the regression model of anxious solitary behavior on family environment and self-concept levels, family cohesion was a significant predictor in the first step ($\Delta R^2 = .02$, $\rho < .05$); in the second step ($\Delta R^2 = .06$, $\rho < .001$), significant predictors were found to be collective level ($\beta = -.22$, $\rho < .001$) and individual level of self-concept ($\beta = .14$, $\rho < .01$); the third step did not reach a significant R^2 change ($\rho > .05$), but the regression model including the first two steps was significant as well ($F(6, 398) = 5.82$, $R^2 = .08$, $\rho < .001$). Secondly, in the regression model of prosocial behavior on family environment and self-concept levels, family cohesion ($\beta = .11$, $\rho < .05$) and mother parenting style ($\beta = .32$, $\rho < .001$) were significant predictors in the first step ($\Delta R^2 = .21$, $\rho < .001$); in the second step ($\Delta R^2 = .25$, $\rho < .001$), family cohesion ($\beta = -.09$, $\rho < .05$), mother parenting style ($\beta = .25$, $\rho < .001$), relational level ($\beta = .30$, $\rho < .001$) and collective level ($\beta = .33$, $\rho < .001$) of self-concept acted as significant predictors; in the third step no significant R^2 change was reached, but the regression model including the first two steps was significant as well ($F(6, 394) = 56.52$, $R^2 = .46$, $\rho < .001$). Thirdly, in the regression model of helping behavior on family environment and self-concept levels, family cohesion ($\beta = .13$, $\rho < .05$), father parenting style ($\beta = .15$, $\rho < .05$) and mother parenting style ($\beta = .24$, $\rho < .01$) were significant predictors in the first step ($\Delta R^2 =$

.18, $\rho < .001$); father parenting style ($\beta = .14$, $\rho < .05$), mother parenting style ($\beta = .18$, $\rho < .01$), relational level ($\beta = .26$, $\rho < .001$) and collective level ($\beta = .25$, $\rho < .001$) were significant predictors in the second step ($\Delta R^2 = .17$, $\rho < .001$); the third step did not reach a significant R^2 change, but the regression model including only the first two steps was significant as well ($F(6, 395) = 35.46$, $R^2 = .35$, $\rho < .001$). Fourthly, the regression model of sharing and cooperation behavior on family environment and self-concept levels, family cohesion ($\beta = .11$, $\rho < .05$) and mother parenting style ($\beta = .24$, $\rho < .01$) were significant predictors in the first step ($\Delta R^2 = .14$, $\rho < .001$); mother parenting style ($\beta = .18$, $\rho < .01$), relational level ($\beta = .23$, $\rho < .001$) and collective level ($\beta = .33$, $\rho < .001$) were significant predictors in the second step ($\Delta R^2 = .20$, $\rho < .001$); the third step did not reach a significant R^2 change, but the regression model including only the first two steps was significant as well ($F(6, 397) = 33.47$, $R^2 = .34$, $\rho < .001$). Finally, in the regression model of affective relationship on family environment and self-concept levels, mother parenting style ($\beta = .29$, $\rho < .001$) was a significant predictor in the first step ($\Delta R^2 = .10$, $\rho < .001$); family cohesion ($\beta = -.17$, $\rho < .001$), mother parenting style ($\beta = .22$, $\rho < .01$), relational level ($\beta = .36$, $\rho < .001$) and collective level ($\beta = .18$, $\rho < .01$) were significant predictors in the second step ($\Delta R^2 = .31$, $\rho < .001$); the third step did not reach a significant R^2 change, but the regression model including only the first two steps was significant as well ($F(6, 398) = 28.75$, $R^2 = .31$, $\rho < .001$).

In sum, in terms of the direct effects of each of the three learning environments, although all of them have direct effect on anxious solitary behavior (ΔR^2 ranging between .02 and .09), peer relations and teacher interpersonal behavior had larger effect than family effect; while on prosocial behaviors, peer relations were largest contributor (ΔR^2 ranging between .13 and .26), the second contributor was family environment (ΔR^2 ranging between .10 and .21), the third was favourite teacher interpersonal behavior (ΔR^2 ranging between .06 and .11) and average teacher interpersonal behavior was least contributor (ΔR^2 ranging between .00 and .05). Chronic

self-concept levels contributed not much directly to anxious solitary behavior (ΔR^2 ranging between .03 and .06) and contributed much directly to prosocial behaviors (ΔR^2 ranging between .10 and .37). Finally, interaction effects between chronic self-concept levels and learning environments such as teacher interpersonal behaviors and peer relations existed on prosocial behaviors, but on anxious solitary behavior existed only interaction effect between average teacher interpersonal behavior and chronic self-concept levels.

Effects on Self-Esteem

Table 23 showed the results about regression of self-esteem on peer relations and self-concept levels. Firstly, in the regression model of positive self-esteem on peer relations and self-concept levels, peer group acceptance ($\beta = .23, \rho < .001$) and best friendship quality ($\beta = .34, \rho < .001$) acted as significant predictors in the 1st step ($\Delta R^2 = .23, \rho < .001$); in the 2nd step ($\Delta R^2 = .05, \rho < .001$), peer group acceptance ($\beta = .18, \rho < .001$) and best friendship quality ($\beta = .22, \rho < .001$) kept to be significant predictors and one new significant predictor was found to be relational level of chronic self-concept ($\beta = .19, \rho < .01$); in the 3rd step, no significant R^2 change was reached. Therefore, data reported included only the first two steps in Table 23 and the regression model with these 2 steps was significant as well ($F(5, 399) = 31.55, R^2 = .28, \rho < .001$). Secondly, in the regression model of negative self-esteem on peer relations and self-concept levels, peer group acceptance ($\beta = -.27, \rho < .001$) was significant predictor in the first step ($\Delta R^2 = .09, \rho < .001$); in the second step ($\Delta R^2 = .04, \rho < .01$), peer group acceptance ($\beta = -.29, \rho < .001$) kept to be significant predictor and one new significant predictor was individual level ($\beta = .19, \rho < .001$); in the third step ($\Delta R^2 = .04, \rho < .01$), best friendship quality ($\beta = .79, \rho < .05$) kept to be significant predictor; and the overall regression model was also significant ($F(12, 392) = 6.56, R^2 = .17, \rho < .001$).

Table 24 showed the results about regression of self-esteem on favourite teacher interpersonal behavior and self-concept levels. Firstly, in the regression model of negative self-esteem on

Table 23 Regression of Self-Esteem on Peer Relations and Self-Concept Levels

Step	Predictor	Positive Self-Esteem						Negative Self-E								
		B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β			
1	PGA	.23	.05	.23***	.18	.05	.18***	-.33	.06	-.27***	-.35	.07	-.29***	.13	.45	.11
	BFQ	.38	.05	.34***	.24	.06	.22***	-.09	.07	-.07	-.02	.08	-.02	1.06	.47	.79*
2	sclindiv				.05	.04	.05				.21	.06	.19***	.25	.28	.22
	sclrelat				.23	.07	.19**				-.15	.09	-.10	.25	.34	.17
	sclcollect				.10	.06	.09				-.02	.08	-.02	.09	.31	.07
3	PGA X BFQ													-.16	.11	-.58
	PGA X sclindiv													.06	.08	.20
	PGA X sclrelat													-.04	.15	-.14
	PGA X sclcollect													-.01	.12	-.02
	BFQ X sclindiv													-.07	.09	-.24
	BFQ X sclrelat													-.10	.14	-.39
	BFQ X sclcollect													-.06	.12	-.22
	ΔR^2			.23***			.05***			.09***			.04**			
R^2						.28						.13				.17

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. PGA = peer group acceptance, BFQ = best friendship quality, sclindiv = individual level of self-concept, sclrelat = relational level of self-concept, sclcollect = collective level of self-concept

Table 24 Regression of Self-Esteem on Favourite Teacher Interpersonal Behavior and Self-Concept Levels

step	predictor	Negative self-esteem						Positive self-esteem								
		B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β			
1	FT cooperative	.02	.02	.05	.05	.03	.12	.10	.02	.28***	.04	.02	.11*	.04	.09	.12
	FT opposition	.10	.03	.23***	.09	.03	.20**	.00	.02	.01	.01	.02	.04	.29	.12	.77*
	FT strict	.04	.07	.03	.03	.06	.03	.13	.05	.12*	.11	.05	.11*	.59	.34	.55
2	sclindiv				.14	.06	.13*				.03	.04	.03	.07	.37	.08
	sclrelat				-.12	.09	-.08				.28	.07	.24***	.43	.59	.36
	sclcollect				-.21	.08	-.16**				.24	.06	.22***	.66	.53	.62
3	FT cooperative X sclindiv													-.01	.02	-.07
	FT cooperative X sclrelat													.06	.04	.93
	FT cooperative X sclcollect													-.06	.03	-.98
	FT opposition X sclindiv													.00	.02	.02
	FT opposition X sclrelat													-.07	.04	-.59
	FT opposition X sclcollect													-.02	.04	-.16
	FT strict X sclindiv													.01	.06	.03
	FT strict X sclrelat													-.28	.11	-1.05*
	FT strict X sclcollect													.14	.11	.54
ΔR^2				.05***			.05***			.09***			.14***			.04*
R^2							.10						.23			.27

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. FT = favourite teacher, sclindiv = individual level of self-concept, sclrelat = relational level of self-concept, sclcollect = collective level of self-concept

Table 25 Regression of Self-Esteem on Average Teacher Interpersonal Behavior and Self-Concept Levels

Step	Predictor	Positive self-esteem						Negative self-esteem								
		B	SE	β	B	SE	β	B	SE	β	B	SE	β			
1	AT cooperative	.02	.02	.08	-.01	.01	-.04	-.17	.09	-.59	-.01	.02	-.04	-.00	.02	-.01
	AT opposition	.19	.07	.15**	.18	.06	.14**	1.27	.33	1.01***	.23	.08	.15**	.18	.08	.12*
2	scindiv				.04	.04	.04	.28	.24	.30				.16	.06	.14**
	screlat				.30	.07	.25***	.21	.43	.17				-.14	.09	-.09
	scollect				.29	.06	.28***	.44	.38	.42				-.18	.08	-.14*
3	AT cooperative X scindiv							-.02	.02	-.28						
	AT cooperative X screlat							.06	.03	.97*						
	AT cooperative X scollect							-.01	.03	-.09						
	AT opposition X scindiv							-.03	.07	-.09						
	AT opposition X screlat							-.25	.13	-.77						
	AT opposition X scollect							-.05	.12	-.16						
	ΔR^2			.02*			.22***			.04**			.03**			.05***
	R^2						.24			.28						.08

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. AT = average teacher, scindiv = individual level of self-concept, screlat = relational level of self-concept, scollect = collective level of self-concept

Table 26 Regression of Self-Esteem on Family Environment and Self-Concept Levels

Step	Predictor	Positive self-esteem						Negative self-esteem											
		B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β			
1	feco	.08	.04	.09	-.05	.04	-.06	-.53	.22	-.63*	-.10	.05	-.09	-.04	.06	-.04	.33	.30	.32
	father_PS	.16	.04	.32***	.16	.04	.31***	.30	.22	.58	-.06	.05	-.10	-.06	.05	-.09	.43	.31	.69
	mother_PS	.02	.04	.04	-.01	.04	-.02	.21	.23	.41	-.03	.05	-.05	-.02	.05	-.04	-.17	.31	-.27
2	Sclindiv				.04	.04	.05	.17	.18	.18				.19	.06	.17**	-.07	.25	-.06
	sclrelat				.28	.07	.23***	.45	.32	.37				-.11	.09	-.07	-.02	.44	-.01
	sclcollect				.23	.06	.22***	.05	.27	.05				-.17	.08	-.13*	.69	.37	.54
3	fecoXsclindiv							-.06	.05	-.24							-.03	.07	-.09
	feco Xsclrelat							.12	.08	.65							-.05	.11	-.22
	fecoXsclcollect							.07	.07	.36							-.05	.10	-.22
	father_PS X sclindiv							-.11	.05	-.78*							.13	.06	.78*
	father_PS X sclrelat							.13	.08	1.08							-.13	.11	-.87
	father_PS X sclcollect							-.11	.07	-.92							-.10	.10	-.74
	mother_PS X sclindiv							.12	.05	.85*							-.07	.07	-.40
	mother_PS X sclrelat							-.24	.08	-1.99**							.13	.10	.94
	mother_PS X sclcollect							.10	.06	.86							-.05	.09	-.35
	ΔR^2			.15***			.14***			.04**			.04**			.05***			.05*
	R^2						.29			.33						.09			.14

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. feco = family cohesion, father_PS = father parenting style, mother_PS = mother parenting style, sclindiv = individual level of self-concept, sclrelat = relational level of self-concept, sclcollect = collective level of self-concept

favourite teacher interpersonal behavior and self-concept levels, favourite teacher opposition behavior acted as a significant predictor ($\beta = .23, \rho < .001$) in the 1st step ($\Delta R^2 = .05, \rho < .001$); in the 2nd step ($\Delta R^2 = .05, \rho < .001$), favorite teacher opposition behavior ($\beta = .20, \rho < .01$) kept to be one of the significant predictors and new significant predictors were individual level ($\beta = .13, \rho < .05$) and collective level ($\beta = -.16, \rho < .01$) of chronic self-concept; due to no significant interaction effects on negative self-esteem in the analysis in the third step, data in the third step were not reported in Table 24; and the regression model with the first 2 steps was significant as well ($F(6, 398) = 7.16, R^2 = .10, \rho < .001$). Secondly, in the regression model of positive self-esteem on favorite teacher interpersonal behavior and self-concept levels, favorite teacher cooperative behavior ($\beta = .28, \rho < .001$) and favorite strict behavior ($\beta = .12, \rho < .05$) were significant predictors in the first step ($\Delta R^2 = .09, \rho < .001$); in the second step ($\Delta R^2 = .14, \rho < .001$), favorite teacher cooperative behavior ($\beta = .11, \rho < .05$) and favorite strict behavior ($\beta = .11, \rho < .05$) kept to be significant predictors and new predictors were relational level ($\beta = .24, \rho < .001$) and collective level ($\beta = .22, \rho < .001$) of self-concept; in the third step ($\Delta R^2 = .04, \rho < .05$), favorite teacher opposition behavior ($\beta = .77, \rho < .05$) and the interaction between favorite teacher strict behavior and relational level of self-concept ($\beta = -1.05, \rho < .05$) were significant predictors; and the overall regression model was significant as well ($F(15, 389) = 9.56, R^2 = .27, \rho < .001$).

In comparison with the effect of favourite teacher interpersonal behavior and self-concept levels, table 25 revealed the results about regression of self-esteem on average teacher interpersonal behavior and self-concept levels. Firstly, in the regression model of positive self-esteem on average teacher interpersonal behavior and self-concept levels, average teacher opposition behavior ($\beta = .15, \rho < .01$) acted as significant predictor in the 1st step ($\Delta R^2 = .02, \rho < .05$); in the 2nd step ($\Delta R^2 = .22, \rho < .001$), average teacher opposition behavior ($\beta = .14, \rho < .01$), relational level ($\beta = .25, \rho < .001$) and collective level ($\beta = .28, \rho < .001$) of chronic self-concept

were significant predictors; in the third step ($\Delta R^2 = .04$, $\rho < .01$), significant predictors were average teacher opposition behavior ($\beta = 1.01$, $\rho < .001$), and interaction between average teacher cooperative behavior and relational level of self-concept ($\beta = .97$, $\rho < .05$); and the overall regression model was significant as well ($F(11, 393) = 13.62$, $R^2 = .28$, $\rho < .001$). Secondly, in the regression model of negative self-esteem on average teacher interpersonal behavior and self-concept levels, average teacher opposition behavior ($\beta = .15$, $\rho < .01$) was a significant predictor in the first step ($\Delta R^2 = .03$, $\rho < .01$); in the second step ($\Delta R^2 = .05$, $\rho < .001$), average teacher opposition behavior ($\beta = .12$, $\rho < .05$), individual level ($\beta = .14$, $\rho < .01$) and collective level ($\beta = -.14$, $\rho < .05$) of self-concept acted as significant predictors; in the third step, no significant R^2 change was reached and data were not reported in Table 25; and the regression model including the first 2 steps was significant as well ($F(5, 399) = 7.02$, $R^2 = .08$, $\rho < .001$).

In Table 26, results were revealed about the regression of self-esteem on family environment (i.e., family cohesion, father and mother parenting styles) and self-concept levels. Firstly, in the regression model of positive self-esteem on family environment and self-concept levels, in the first step ($\Delta R^2 = .15$, $\rho < .001$), father parenting style was significant predictor ($\beta = .32$, $\rho < .001$); in the second step ($\Delta R^2 = .14$, $\rho < .001$), significant predictors were found to be father parenting style ($\beta = .31$, $\rho < .001$), relational level ($\beta = .23$, $\rho < .001$) and collective level of self-concept ($\beta = .22$, $\rho < .001$); in the third step ($\Delta R^2 = .04$, $\rho < .01$), significant predictors were family cohesion ($\beta = -.63$, $\rho < .05$), interaction between father parenting style and individual level of self-concept ($\beta = -.78$, $\rho < .05$), interaction between mother parenting style and relational level of self-concept ($\beta = -1.99$, $\rho < .01$), and interaction between mother parenting style and individual level of self-concept ($\beta = .85$, $\rho < .05$); and the overall regression model was significant as well ($F(15, 389) = 12.75$, $R^2 = .33$, $\rho < .001$). Secondly, in the regression model of negative self-esteem on family environment and self-concept levels, in the first step ($\Delta R^2 = .04$, $\rho < .01$); in the second step ($\Delta R^2 = .05$, $\rho < .001$), individual level ($\beta = .17$, $\rho < .01$) and collective level ($\beta = -.13$, $\rho < .05$) of self-

concept acted as significant predictors; in the third step ($\Delta R^2 = .05$, $\rho < .05$), the significant predictor was the interaction between father parenting style and individual level of self-concept ($\beta = .78$, $\rho < .05$); and the overall regression model was significant as well ($F(15, 389) = 3.92$, $R^2 = .14$, $\rho < .001$).

In short, in terms of significant direct effects of the learning environments, peer relations ($\Delta R^2 = .23$), family environment ($\Delta R^2 = .15$) and favourite teacher interpersonal behavior ($\Delta R^2 = .09$) had greatest impacts on positive self-esteem while average teacher ($\Delta R^2 = .02$) interpersonal behavior had least impacts on positive self-esteem; on negative self-esteem, peer relations, favourite teacher interpersonal behavior, family environment and average teacher interpersonal behavior contributed no much (ΔR^2 ranging between .03 and .09); chronic self-concept levels contributed more greatly on positive self-esteem than on negative self-esteem. Interaction effects between chronic self-concept levels and the three learning environments existed on positive self-esteem while on negative self-esteem, only interaction between chronic self-concept levels and peer relations and family environment existed.

9.3.6. Testing of Three Learning Environments' Direct and Interaction Effects on Student Outcomes (Hypothesis 6)

Hypothesis 6 posited that These 3 learning environments would not only have direct, but also joint effects on student outcomes, such as academic achievement goals, social competence and self-esteem as outcome variables. Hierarchical multiple regression analyses were conducted with respectively academic achievement goals, social competence, and self-esteem as dependent variables, and with two steps variables entered as independent variables: in the first step, 3 learning environments variables including peer group acceptance, best friendship quality, favourite teacher cooperative behavior, favourite teacher opposition behavior, favourite teacher strict behavior, average teacher cooperative behavior, average teacher opposition behavior, family cohesion, father parenting style and mother parenting style entered into the first block;

and in the second step, two way interactions variables between these three learning environments entered into the second block. Please note that only two-way interactions are considered here!

Table 27 showed the results about regression of academic achievement goals on three learning environments. Firstly, in the regression model of performance goal, peer group acceptance ($\beta = .11, \rho < .05$), average teacher cooperative behavior ($\beta = .14, \rho < .05$) and average teacher opposition behavior ($\beta = .16, \rho < .05$) acted as significant predictors in the 1st step ($\Delta R^2 = .06, \rho < .01$); in the 2nd step ($\Delta R^2 = .18, \rho < .001$), significant predictors were family cohesion ($\beta = 1.86, \rho < .01$), average teacher cooperative behavior ($\beta = 1.02, \rho < .01$), interaction terms such as “AT (average teacher) cooperative behavior X family cohesion” ($\beta = -.99, \rho < .05$), “AT opposition behavior X father parenting style” ($\beta = -1.35, \rho < .05$), “AT opposition behavior X family cohesion” ($\beta = -.72, \rho < .05$), “BFQ (i.e., best friendship quality) X father parenting style” ($\beta = 1.35, \rho < .05$), “BFQ X FT (i.e., favorite teacher) strict behavior” ($\beta = -.91, \rho < .05$), “father parenting style X FT strict behavior” ($\beta = 1.50, \rho < .01$), “family cohesion X FT opposition behavior” ($\beta = -.74, \rho < .01$), “family cohesion X FT strict behavior” ($\beta = -.67, \rho < .05$), “FT opposition X mother parenting style” ($\beta = .95, \rho < .05$); and the overall regression model was significant as well ($F(40, 364) = 2.85, R^2 = .24, \rho < .001$). Secondly, in the regression model of mastery goal, significant predictors were best friendship quality ($\beta = .20, \rho < .001$), mother parenting style ($\beta = .17, \rho < .01$), FT cooperative behavior ($\beta = .17, \rho < .01$) and FT opposition behavior ($\beta = -.13, \rho < .05$) in the first step ($\Delta R^2 = .28, \rho < .001$); in the second step ($\Delta R^2 = .11, \rho < .01$), significant predictors were family cohesion ($\beta = 1.24, \rho < .05$), FT strict behavior ($\beta = -.69, \rho < .05$), AT cooperative behavior ($\beta = 1.11, \rho < .01$), AT opposition behavior ($\beta = .75, \rho < .05$), and interaction terms such as “AT cooperative behavior X BFQ” ($\beta = -.94, \rho < .05$), “AT cooperative behavior X family cohesion” ($\beta = -1.10, \rho < .01$), “father parenting style X FT strict behavior” ($\beta = .99, \rho < .05$) and “family cohesion X FT cooperative behavior” ($\beta =$

(Continued)

Step	Predictor	Performance goal			Mastery goal			Avoidance goal								
		B	SE B	β	B	SE B	β	B	SE B	β						
	Atopposition X mother_PS			.14	.11	.71			-	.08	-.15			.10	.13	.41
	Atopposition X PGA			.02	.14	.06			.05	.10	.13			-.16	.17	-.31
	BFQ X father_PS			.19	.09	1.35*			.05	.07	.50			-.07	.11	-.46
	BFQ X Ftopposition			.08	.05	.58			-	.04	-.27			.09	.06	.54
	BFQ X Ftcooperative			.01	.04	.07			.03	.02	.35			.08	.05	.94
	BFQ X Ftstrict			-.30	.12	-.91*			.08	.08	.32			.06	.14	.15
	BFQX mother_PS			-.15	.09	-1.10			-	.07	-.57			-.08	.11	-.50
	father_PS X Ftopposition			-.02	.03	-.33			.06	.02	-.08			.04	.04	.47
	father_PS X Ftcooperative			-.01	.03	-.18			.01	.00	.13			.08	.03	1.82*
	father_PS X Ftstrict			.24	.08	1.50**			.13	.06	.99*			.09	.09	.46
	father_PS X PGA			-.05	.08	-.35			.08	.05	.70			-.09	.09	-.53
	cohesion X Ftopposition			-.10	.04	-.74**			.03	.03	.24			-.06	.04	-.41
	cohesion X Ftcooperativ			-.05	.03	-.93			-	.02	-1.01*			-.03	.04	-.48
	cohesion X Ftstrict			-.18	.09	-.67*			.05	.06	-.20			-.16	.10	-.53

(Continued)

Step	Predictor	Performance goal			Mastery goal			Avoidance goal																																			
		B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β																														
	cohesion X PGA				-.11	.08	-.46				.07	.06	.40				.08	.10	.28																								
	FTopposition X mother_PS				.07	.03	.95*				.00	.02	-.02				-.08	.04	-.93*																								
	FTopposition X PGA				-.04	.04	-.29				-.00	.03	-.04				.03	.05	.16																								
	FTcooperativ X mother_PS				.03	.03	.84				.01	.02	.26				-.09	.04	-2.12*																								
	FTcooperativ X PGA				.03	.03	.44				-.02	.03	-.36				.01	.04	.15																								
	FTstrict X mother_PS				.01	.08	.09				-.06	.06	-.48				.01	.09	.04																								
	mother_PS X PGA				.01	.07	.05				-.08	.05	-.67				.04	.09	.25																								
	FTstrictX PGA				-.10	.10	-.30				.09	.07	.36				-.12	.12	-.33																								
	ΔR^2						.06**						.18***				.28***		.11**				.08***			.13**																	
	R^2																										.24								.39								.21

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. PGA = peer group acceptance, BFQ = best friendship quality, FT = favourite teacher, AT = average teacher, feco = family cohesion, mother_PS = mother parenting style, father_PS = father parenting style.

Table 28 Regression of social competence on Three Learning Environments

Predictor	Anxious behavior			solitary						helping					
	Step 1			Step 1			Step 2			Step 1			Step 2		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
PGA	-.28	.07	-.23***	.13	.04	.17***	-.34	.33	-.42	.07	.05	.07	-.72	.44	-.72
BFQ cohesion	-.06	.08	-.04	.26	.04	.30***	.89	.37	1.02*	.34	.06	.31***	1.14	.50	1.03*
father_PS	-.02	.06	-.02	-.02	.03	-.04	.41	.32	.61	.01	.04	.01	.68	.43	.81
mother_PS	-.02	.05	-.04	.01	.03	.03	.10	.27	.23	.05	.04	.09	.20	.37	.39
FTcooperative	-.03	.05	-.04	.12	.03	.30***	-.26	.29	-.64	.10	.04	.20**	-.57	.40	-1.11
FTopposition	.02	.03	.05	.02	.01	.07	.09	.07	.32	.01	.02	.02	.11	.10	.31
FTstrict	.05	.03	.12*	-.04	.02	-.12*	.03	.09	.12	-.04	.02	-.12*	.07	.13	.18
ATcooperative	.23	.07	.17**	.07	.04	.08	-.04	.22	-.04	.06	.05	.06	-.35	.30	-.32
ATopposition	-.03	.02	-.08	-.01	.01	-.03	.07	.07	.31	.01	.01	.04	.15	.09	.53
ATcooperative X BFQ	.06	.10	.04	.07	.05	.07	.39	.29	.38	.15	.07	.12*	.39	.39	.31
ATcooperative X father_PS							-.02	.02	-.42				-.02	.03	-.35
ATcooperative X cohesion							-.01	.01	-.19				-.03	.02	-.75
ATcooperative X mother_PS							-.04	.02	-.79*				-.07	.02	-1.17**
ATcooperative X PGA							.03	.01	1.13**				.06	.02	1.71***
ATopposition X BFQ							-.01	.02	-.20				-.01	.02	-.16
ATopposition X father_PS							-.01	.09	-.03				-.09	.13	-.26
ATopposition X cohesion							-.06	.06	-.40				-.11	.08	-.61
ATopposition X mother_PS							.07	.07	.27				.03	.09	.11
ATopposition X PGA							-.01	.06	-.08				.09	.08	.48
							-.07	.08	-.22				.01	.11	.03

(Continued)

Step	Predictor	Sharing and cooperation						Affective relationship					
		Step 1			Step 2			Step 1			Step 2		
		B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
1	PGA	.22	.05	.21***	-.65	.46	-.61	.07	.05	.07	-.09	.49	-.09
	BFQ	.29	.06	.25***	1.14	.52	.97*	.29	.06	.27***	.39	.55	.36
	cohesion	-.03	.04	-.04	.69	.45	.78	-.08	.04	-.10	.30	.47	.37
	father_PS	.01	.04	.01	-.07	.39	-.13	-.03	.04	-.05	.27	.41	.54
	mother_PS	.13	.04	.24**	-.03	.42	-.06	.13	.04	.26***	-.07	.44	-.15
	FTcooperative	.02	.02	.05	.21	.11	.57*	.05	.02	.14*	.15	.11	.45
	FTopposition	-.07	.02	-.17**	.06	.13	.16	-.00	.02	-.00	.13	.14	.35
	FTstrict	.07	.05	.07	-.17	.32	-.15	.11	.05	.10*	.35	.33	.33
	ATcooperative	-.01	.02	-.05	.07	.09	.24	-.02	.02	-.07	.01	.10	.04
	ATopposition	.09	.07	.07	.51	.41	.39	.05	.07	.04	-.03	.43	-.03
2	ATcooperative X BFQ				-.01	.03	-.19				-.02	.03	-.26
	ATcooperative X father_PS				-.02	.02	-.48				.01	.02	.37
	ATcooperative X cohesion				-.06	.02	-.94*				-.02	.03	-.34
	ATcooperative X mother_PS				.04	.02	1.11*				.02	.02	.41
	ATcooperative X PGA				.01	.02	.13				-.02	.02	-.36
	ATopposition X BFQ				-.06	.13	-.16				.10	.14	.30
	ATopposition X father_PS				-.02	.08	-.10				-.01	.09	-.07
	ATopposition X cohesion				.10	.10	.29				.04	.10	.11
	ATopposition X mother_PS				-.10	.09	-.55				.03	.09	.16
	ATopposition X PGA				.02	.11	.05				-.17	.12	-.46
	BFQ X father_PS				.00	.07	.01				-.11	.08	-.91
	BFQ X FTopposition				-.08	.04	-.58*				-.05	.04	-.39
	BFQ X FTcooperative				-.04	.03	-.59				.01	.03	.21
	BFQ X FTstrict				-.03	.09	-.09				-.07	.10	-.24
BFQ X mother_PS				.02	.08	.14				.10	.08	.95*	

(Continued)

Step	Predictor	Sharing and cooperation						Affective relationship					
		Step 1			Step 2			Step 1			Step 2		
		B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
	father_PS X FTopposition				-.01	.03	-.10				-.01	.03	-.11
	father_PS X FTcooperative				.01	.02	.30				-.00	.02	-.05
	father_PS X FTstrict				.02	.06	.10				-.12	.07	-.96*
	father_PS X PGA				.04	.06	.26				.08	.06	.62
	cohesion X FTopposition				.04	.03	.35				-.01	.03	-.06
	cohesion X FTcooperativ				-.04	.02	-.82				-.01	.02	-.25
	cohesion X FTstrict				.02	.07	.09				.01	.07	.04
	cohesion X PGA				.03	.07	.15				-.04	.07	-.21
	FTopposition X mother_PS				-.01	.03	-.13				-.00	.03	-.03
	FTopposition X PGA				.02	.03	.13				.03	.03	.24
	FTcooperativ X mother_PS				-.00	.03	-.10				-.02	.03	-.77
	FTcooperativ X PGA				.01	.03	.07				.01	.03	.16
	FTstrict X mother_PS				-.05	.06	-.33				.03	.07	.22
	mother_PS X PGA				.02	.06	.14				-.01	.06	-.07
	FTstrict X PGA				.14	.08	.47				.14	.08	.49
	ΔR^2						.32***						.12***
	R^2						.44						.22***
													.08**
													.30

Note: Because of missing data, N ranged from 398 to 405. * $\rho < .05$. ** $\rho < .01$. *** $\rho < .001$. PGA = peer group acceptance, BFQ = best friendship quality, FT = favourite teacher, AT = average teacher, feco = family cohesion, mother_PS = mother parenting style, father_PS = father parenting style.

-1.01, $\rho < .05$); and overall regression model was significant as well ($F(40, 364) = 5.66$, $R^2 = .39$, $\rho < .001$). Finally, in the regression model of avoidance goal, significant predictors were FT opposition behavior ($\beta = .14$, $\rho < .05$) and AT opposition behavior ($\beta = .15$, $\rho < .05$) in the first step ($\Delta R^2 = .08$, $\rho < .001$); in the second step ($\Delta R^2 = .13$, $\rho < .001$), significant predictors were BFQ ($\beta = -1.27$, $\rho < .05$), mother parenting style ($\beta = 2.29$, $\rho < .05$), interaction terms such as “AT opposition behavior X BFQ” ($\beta = .97$, $\rho < .05$), “father parenting style X FT cooperative behavior” ($\beta = 1.82$, $\rho < .05$), “FT opposition behavior X mother parenting style” ($\beta = -.93$, $\rho < .05$), and “FT cooperative behavior X mother parenting style” ($\beta = -2.12$, $\rho < .05$); and overall regression model was significant as well ($F(40, 364) = 2.51$, $R^2 = .21$, $\rho < .001$).

Table 28 showed the results about regression of social competence on three learning environments. Firstly, in the regression model of anxious solitary behavior, peer group acceptance ($\beta = -.23$, $\rho < .001$), FT opposition behavior ($\beta = .12$, $\rho < .05$) and FT strict behavior ($\beta = .17$, $\rho < .01$) acted as significant predictors in the 1st step ($\Delta R^2 = .15$, $\rho < .001$); in the 2nd step ($\Delta R^2 = .06$, $\rho > .05$), there were no significant interaction effects. And the regression model was significant ($F(40, 364) = 3.59$, $R^2 = .15$, $\rho < .001$). Anxious solitary behavior as a negative student outcome might be resulted in by no interactions or no exchange of information among the learning environments, such as between parents and teachers, between peer relations and parents and between peer relations and teachers, etc. Secondly, in the regression model of prosocial behavior, significant predictors were peer group acceptance ($\beta = .17$, $\rho < .001$), BFQ ($\beta = .30$, $\rho < .001$), mother parenting style ($\beta = .30$, $\rho < .001$), and FT opposition behavior ($\beta = -.12$, $\rho < .05$) in the first step ($\Delta R^2 = .39$, $\rho < .001$); in the second step ($\Delta R^2 = .11$, $\rho < .001$), significant predictors were found to be BFQ ($\beta = 1.02$, $\rho < .05$), and interaction terms such as “AT cooperative behavior X family cohesion” ($\beta = -.79$, $\rho < .05$), “AT cooperative behavior X mother parenting style” ($\beta = 1.13$, $\rho < .01$) and “FT strict behavior X peer group acceptance” ($\beta = .79$, $\rho < .01$); and the overall regression model was significant as well ($F(40, 360) = 9.16$, $R^2 =$

.50, $\rho < .001$). Thirdly, in the regression model of helping behavior, significant predictors were BFQ ($\beta = .31$, $\rho < .001$), mother parenting style ($\beta = .20$, $\rho < .01$), FT opposition behavior ($\beta = -.12$, $\rho < .05$) and AT opposition behavior ($\beta = .12$, $\rho < .05$) in the first step ($\Delta R^2 = .31$, $\rho < .001$); in the second step ($\Delta R^2 = .11$, $\rho < .001$), significant predictors were BFQ ($\beta = 1.03$, $\rho < .05$), interaction terms such as “AT cooperative behavior X family cohesion” ($\beta = -1.17$, $\rho < .01$), “AT cooperative behavior X mother parenting style” ($\beta = 1.71$, $\rho < .001$) and “FT strict behavior X peer group acceptance” ($\beta = .91$, $\rho < .01$); and the overall regression model was significant as well ($F(40, 361) = 6.58$, $R^2 = .42$, $\rho < .001$). Fourthly, in the regression model of sharing and cooperation behavior, significant predictors were peer group acceptance ($\beta = .21$, $\rho < .001$), best friendship quality ($\beta = .25$, $\rho < .001$), mother parenting style ($\beta = .24$, $\rho < .01$), FT opposition behavior ($\beta = -.17$, $\rho < .01$) in the first step ($\Delta R^2 = .32$, $\rho < .001$); in the second step ($\Delta R^2 = .12$, $\rho < .001$), significant predictors were BFQ ($\beta = .97$, $\rho < .05$), FT cooperative behavior ($\beta = .57$, $\rho < .05$), and interaction terms such as “AT cooperative behavior X family cohesion” ($\beta = -.94$, $\rho < .05$), “AT cooperative behavior X mother parenting style” ($\beta = 1.11$, $\rho < .05$), and “FT opposition behavior X BFQ” ($\beta = -.58$, $\rho < .05$); and the overall regression model was significant as well ($F(40, 363) = 6.98$, $R^2 = .44$, $\rho < .001$). Finally, in the regression model of affective relationship, significant predictors were BFQ ($\beta = .27$, $\rho < .001$), mother parenting style ($\beta = .26$, $\rho < .001$) and FT cooperative behavior ($\beta = .14$, $\rho < .05$) and FT strict behavior ($\beta = .10$, $\rho < .05$) in the first step ($\Delta R^2 = .22$, $\rho < .001$); in the 2nd step ($\Delta R^2 = .08$, $\rho < .01$), significant predictors were interaction terms such as “BFQ X mother parenting style” ($\beta = .95$, $\rho < .05$) and “FT strict behavior X father parenting style” ($\beta = -.96$, $\rho < .05$); and the overall regression model was significant ($F(40, 364) = 3.51$, $R^2 = .30$, $\rho < .001$).

Results about regression of self-esteem on the three learning environments were reported in Table 29. Firstly, in the regression model of positive self-esteem, significant predictors were peer group acceptance ($\beta = .24$, $\rho < .001$), BFQ ($\beta = .25$, $\rho < .001$), father parenting style ($\beta = .21$, $\rho <$

.01) and FT cooperative behavior ($\beta = .10, \rho < .05$) in the 1st step ($\Delta R^2 = .33, \rho < .001$); in the 2nd step ($\Delta R^2 = .11, \rho < .001$), significant predictors were father parenting style ($\beta = 1.68, \rho < .05$), average teacher opposition behavior ($\beta = .86, \rho < .01$) and interaction terms such as “AT opposition behavior X mother parenting style” ($\beta = -.91, \rho < .05$), “FT opposition behavior X mother parenting style” ($\beta = .98, \rho < .01$) and “FT cooperative behavior X mother parenting style” ($\beta = 1.89, \rho < .05$); and the regression model was significant as well ($F(40, 364) = 7.04, R^2 = .44, \rho < .001$). Secondly, in the regression model of negative self-esteem, peer group acceptance ($\beta = -.26, \rho < .001$), FT cooperative behavior ($\beta = .12, \rho < .05$) and favorite opposition behavior ($\beta = .21, \rho < .01$) were significant predictors in the first step ($\Delta R^2 = .16, \rho < .001$); in the second step no significant R^2 was reached ($\Delta R^2 = .06, \rho > .05$). There were no interaction effects on negative self-esteem, which reflected that without interactions between the learning environments, there would be problems.

In sum, if we consider the direct and joint effects of the three learning environments, more fruitful results were accomplished in terms of the variance explained in the outcome variables. Specifically, as was seen, direct effects of the three learning environments existed on every outcome variable (ΔR^2 ranging between .06 and .39), but if the interaction effects between these three learning environments were considered, except on anxious solitary behavior and negative self-esteem, the interaction effects existed on performance goal ($\Delta R^2 = .18$), mastery goal ($\Delta R^2 = .11$), avoidance goal ($\Delta R^2 = .13$), prosocial behaviors (ΔR^2 ranging between .08 and .12) and positive self-esteem ($\Delta R^2 = .11$).

Table 29 Regression of Self-Esteem on Three Learning Environments

Step	Predictor	Positive Self-Esteem						Negative Self-Esteem		
		B	SE B	β	B	SE B	β	B	SE B	β
1	PGA	.24	.05	.24***	.16	.44	.16	-.32	.07	-.26***
	BFQ	.28	.06	.25***	.66	.49	.60	-.02	.08	-.02
	cohesion	-.03	.04	-.03	.38	.43	.45	.01	.05	.01
	father_PS	.11	.04	.21**	.86	.37	1.68*	-.05	.05	-.08
	mother_PS	.02	.04	.03	-.73	.39	-1.42	-.07	.05	-.11
	FTcooperative	.04	.02	.10*	-.01	.10	-.03	.05	.03	.12*
	FTopposition	-.01	.02	-.04	-.02	.12	-.06	.09	.03	.21**
	FTstrict	.07	.05	.07	-.25	.30	-.23	.09	.07	.07
	ATcooperative	-.02	.01	-.08	.14	.09	.50	.00	.02	.01
	ATopposition	.11	.07	.09	1.08	.39	.86**	.09	.09	.06
	2	ATcooperative X BFQ				-.04	.03	-.53		
ATcooperative X father_PS					-.00	.02	-.04			
ATcooperative X cohesion					-.04	.02	-.63			
ATcooperative X mother_PS					.01	.02	.29			
ATcooperative X PGA					.01	.02	.18			
ATopposition X BFQ					-.19	.12	-.55			
ATopposition X father_PS					.00	.08	.00			
ATopposition X cohesion					.17	.09	.55			
ATopposition X mother_PS					-.16	.08	-.91*			
ATopposition X PGA					-.02	.11	-.04			
BFQ X father_PS					-.10	.07	-.80			
BFQ X FTopposition					.02	.04	.14			
BFQ X FTcooperative					.04	.03	.59			
BFQ X FTstrict					.11	.09	.38			
BFQ X mother_PS					-.01	.07	-.12			
father_PS X FTopposition				-.04	.02	-.69				

(Continued)

Step	Predictor	Positive Self-Esteem			Negative Self-Esteem					
		B	SE B	β	B	SE B	β	B	SE B	β
	father_PS X FTcooperative				-.04	.02	-1.11			
	father_PS X FTstrict				.04	.06	.29			
	father_PS X PGA				.02	.06	.17			
	cohesion X FTopposition				-.02	.03	-.17			
	cohesion X FTcooperativ				-.04	.02	-.73			
	cohesion X FTstrict				.06	.07	.26			
	cohesion X PGA				.02	.06	.10			
	FTopposition X mother_PS				.07	.03	.98**			
	FTopposition X PGA				-.04	.03	-.32			
	FTcooperativ X mother_PS				.06	.03	1.89*			
	FTcooperativ X PGA				-.03	.03	-.53			
	FTstrict X mother_PS				-.11	.06	-.76			
	mother_PS X PGA				.08	.06	.58			
	FTstrict X PGA				.03	.08	.10			
	ΔR^2						.11***			.16***
	R^2						.44			.16

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. PGA = peer group acceptance, BFQ = best friendship quality, FT = favourite teacher, AT = average teacher, feco = family cohesion, mother_PS = mother parenting style, father_PS = father parenting style

10. Conclusion and Discussion

10.1. Conclusion

From gender difference analyses, it seems that Chinese female only-children are more socially oriented than Chinese male only-children when considering their chronic self-concept levels, prosocial orientation and specific prosocial behavior, and career orientation.

From the exploratory factor analysis results, a series of conclusion could be reached as follows. The Questionnaire on Teacher Interpersonal Behavior, which was developed in Western world, was differently understood by Chinese only-children since 3 factors were reached for favourite teacher interpersonal behavior and 2 factors for average teacher interpersonal behavior while the original theoretical model, on which this questionnaire was developed, has two dimensions: control and proximity. But for Chinese only-children, it seems only one dimension, proximity existed obviously. Moreover, Chinese only-children's understanding of the strict behavior subscale showed typical deviation from the original meaning in that strict behavior was perceived by them as a very positive aspect of teacher interpersonal behavior, especially of favourite teacher interpersonal behavior in terms of the impact on student outcomes. The factor analyses of Parenting Authority Questionnaire produced only one factor with only permissive and authoritative parenting style loading on both for father and mother parenting styles of Chinese only-children. This result was totally different from the previous research results about Chinese students because it proved that the parenting styles held by Chinese only-children's parents were not authoritarian parenting style, but a mixture of authoritative and permissive parenting style. It could be inferred that probably due to the effects of China's One-Child Family Planning Policy, Chinese parents' parenting style in Mainland China have been altered from the traditional authoritarian parenting style into a parenting style of authoritative parenting style but with more freedom given to their children. Furthermore, the factor analyses of chronic self-concept levels and

career orientation scales revealed that, although China's One-Child Policy as a public policy has been implementing for 30 years, the chronic self-concept levels of these Chinese only-children still bear a deep print of Chinese culture influence; but that their career orientations reflected the impacts from not only Chinese culture, but also China's One-Child Policy because Chinese only-children had not only individual-level-like, but also relational and collective-level-like career orientations.

As previous literature, the present study found the impact of family environment on career orientation. But one new result is worthy of note. On career orientations of Chinese only-children, their chronic self-concept levels played a role as well. Specifically the conclusions regarding this aspect were that family cohesion, individual level of chronic self-concept, and the interaction between family cohesion and relational level of chronic self-concept were important in predicting individual-level-like career orientation; and that father parenting style, and collective level of chronic-self-concept were capable to predict relational and collective-level-like career orientation.

Concerning school group differences, senior high students were found to have higher tendency than college students to behave prosocially, to help others, to share and cooperate with others. Moreover, results also revealed that the impact of peer group acceptance had greater impact on sharing cooperation behavior of senior high group students than on that of college group students. Explanation may be found from time length of being classmates and/or the developmental stage.

Different from previous literature, for this Chinese only-children sample, cross-sex parenting effect existed not on positive self-esteem, but only on prosocial behavior.

The analysis of parenting style match of father' and mother's indicated that if the best children outcomes were expected, both parents in a family should hold the authoritative parenting styles but with less behavioral control on their children.

Through testing of the effects and interaction effects of each learning environments and chronic self-concept levels on student outcomes, the following three conclusions were reached.

Firstly, from the regression models of academic achievement goals respectively on the three learning environments and self-concept levels, it was obviously observed that, chronic self-concept levels had greater impact than any individual learning environment on academic achievement orientation; that, although the three learning environments contributed very little in explaining the variances in performance goal and avoidance goal, they explained relatively much greater variances in mastery goal and very significant predictors were best friendship quality, favourite teacher cooperative behavior, and family cohesion and significant predictors were peer group acceptance, favourite teacher strict behavior and mother parenting style among the variables of these three learning environments; that among student chronic self-concept levels, individual level had much greater impact on performance goal and avoidance goal, while relational level and collective level only had great impact on mastery goal and individual level exert only a small effect on mastery goal; that interaction effects between learning environment and chronic self-concept levels existed not extensively on students' academic achievement orientation. One point should be noted was the little contribution of average teacher interpersonal behavior to academic achievement orientation.

Secondly, from the regression models of social competence on the three learning environments and self-concept levels, it was obviously observed that mostly, chronic self-concept levels had greater impact than favourite teacher and average teacher interpersonal behavior, and family environment, but less impact than peer relations, on social competence. That is, as a learning environment, peer relations were more important contributors to student social competence than family environment and favourite and average teacher interpersonal behavior; that, in terms of direct effects of learning environments on anxious

solitary behavior, peer group acceptance, average teacher cooperative behavior, and family cohesion were negatively associated with anxious solitary behavior, while favourite teacher opposition behavior, favourite teacher strict behavior, and average teacher opposition behavior were positively associated with anxious solitary behavior; in terms of main effects of the three learning environments on prosocial behavior from the greatest to least effects, the three learning environments should be ordered like this: peer relations, family environment, favourite teacher interpersonal behavior and then average teacher personal behavior; that to anxious solitary behavior, peer group acceptance was more important than best friendship quality, while to prosocial behavior, best friendship quality was more important than peer group acceptance; that on prosocial behavior, mother parenting style was more important than family cohesion, while family cohesion was more important than father parenting style; that on prosocial behavior, favourite teacher cooperative behavior was more important than favourite teacher strict behavior, and the latter was more important than favourite teacher opposition behavior; that among student chronic self-concept levels, individual level contributed positively to anxious solitary behavior, while relational level and collective level contributed greatly to prosocial behavior; that interaction effects between learning environment and chronic self-concept levels existed not on every aspect of student social competence.

Thirdly, from the regression models of self-esteem on the three learning environments and self-concept levels, it was apparent that mostly, chronic self-concept levels had greater impact than favourite teacher and average teacher interpersonal behavior, and family environment, but less impact than peer relations, on self-esteem. That is, as a learning environment, peer relations were more important contributors to student self-esteem than family environment and favourite and average teacher interpersonal behavior; that after peer relations, family environment and favourite teacher interpersonal behavior were the second

greatest contributors to positive self-esteem, while to negative self-esteem, peer relations were also the greatest contributor; very significant predictors to positive self-esteem were best friendship quality, peer group acceptance, FT cooperative behavior, FT strict behavior, AT opposition behavior and father parenting style; that significant predictors to negative self-esteem were peer group acceptance, FT opposition behavior and AT opposition behavior; that among student chronic self-concept levels, individual level contributed positively and collective level negatively to negative self-esteem, while relational level and/or collective level contributed positively to positive self-esteem; that interaction effects between learning environment and chronic self-concept levels existed not on every aspect of student self-esteem.

In summary, the three learning environments studied and student chronic self-concept levels all had main effects on student outcomes, but interaction effects between each learning environment and student chronic self-concept existed not on every student outcome variable chosen in this study.

Through testing of the mainly effects and the interaction effects of the three learning environments on student outcomes, the following 3 conclusions were reached.

Firstly, results about regression of academic achievement orientation on the three learning environments showed that, in terms of main effects, only peer group acceptance, average teacher interpersonal behavior acted as significant predictors of performance goal, the significant predictors of avoidance goal were favourite teacher and average teacher opposition behaviors, and the significant predictors of mastery goal were best friendship quality, mother parenting style, favourite teacher cooperative behavior and favourite teacher opposition behavior. In a word, one aspect of peer relations (i.e., peer group acceptance) and average teacher interpersonal behavior had direct influence on students to take performance goal in academic achievement; favourite teacher and average teacher opposition behaviors

had direct impact on students to take avoidance goals in academic achievement; and in promoting mastery goal in academic achievement, best friendship quality (another aspect of peer relations), mother parenting style (authoritative parenting style plus more freedom giving), and favourite teacher cooperative and opposition behavior made direct and significant contributions. Among all the above mentioned predictors, except favourite teacher opposition behavior associating negatively with mastery goal, all the other predictors associated positively with the academic goals. Moreover, interaction effects among the three learning environments on student academic achievement goals existed as well. What's more, the interaction effects on performance and avoidance goals were much greater than the main effects of the three learning environments, while on mastery goal, the main effects were much greater than the interaction effects of the three learning environments.

Secondly, results about regression of social competence on the three learning environments showed that, in terms of main effects, peer group acceptance, favourite teacher opposition behavior and strict behavior have direct impacts on anxious solitary behavior. That is, these Chinese only-children felt lonely and anxious when they have low peer group acceptance in class and when their favourite teachers showed opposition and strict interpersonal behaviors in communication; in contrast, their family environment had no direct impact on their anxious solitary behavior. On prosocial behavior or its three subscales such as helping, sharing and cooperation behavior, and affective relationship, peer group acceptance, best friendship quality, mother parenting style, favourite teacher opposition behavior and average opposition behavior have direct impacts. That is all three learning environments have direct contributions to prosocial behavior. Moreover, in terms of interaction effects among the three learning environments on student social competence existed on every aspect of prosocial behavior, but not on anxious solitary behavior. What's more, the interaction effects on every prosocial behavior variable were less than the main

effects of the three learning environments.

Thirdly, results about regression of self-esteem on the three learning environments showed that peer group acceptance, best friendship quality, father parenting style and favourite teacher cooperative behavior had direct impacts on positive self-esteem. That is, the three learning environments all had main effects on the positive self-esteem of these Chinese only-children. Moreover, interaction effects between the three learning environments on student positive self-esteem existed as well and the interaction effects were much less than the main effects of the three learning environments. Meanwhile, on negative self-esteem, the main effects came from peer group acceptance, favourite teacher cooperative behavior and favourite teacher opposition behavior and interaction effects did not exist. However, there were no direct effects from family environment.

In summary, living in the greater social cultural environment affected by Chinese culture and the 30-year old public policy, that is, China's One-Child Policy, the outcomes of these Chinese only-children's (they are already either older adolescents or young adults) were influenced, first, directly by the three learning environments, such as family environment, peer relations, and average and favourite teacher interpersonal behaviors, second, directly by their chronic self-concept levels, third, partly by the interactions between their chronic self-concept levels and the three learning environments, and finally, by the interactions between the three learning environments.

10.2. What happened when there were no interactions between the learning environments?

In present study, only on anxious solitary behavior and negative self-esteem, there were no interaction effects between the three learning environments. Hence we could infer that between these learning environments, there should be an exchange of information and cooperation, otherwise negative student outcomes would come out, such as problems of anxious solitary behavior and high level of negative self-esteem.

10.3. Discussion

10.3.1. Theoretical Implication

According to the standard proposed by Lewin (1951), “What means are most appropriate for analyzing and representing scientifically a psychological field have to be judged on the basis of their fruitfulness for explaining behavior.” (p. 240) In the present study, the proposed theoretical model was proved in that, when only consider the impact of a separate learning environment, little variance in the outcomes could be explained, but only when considering together the direct and especially the interaction impacts of the learning environments and the personality variable chronic self-concept on the outcomes within the larger atmosphere of culture and public policy, much more variance could be explained. And in turn, with the responding levels of student outcomes, in one way, it proved the impacts of learning environment, biopsychological environments and culture and public policy while in the other way, it provided some ideas about how to improve positive outcomes but avoid negative outcomes by changing the learning environments, biopsychological environment (such as by activating the right working self-concept levels), or even the public policy etc.

This theoretical model in present study coincides with part of the prediction of Bronfenbrenner’s Ecological Systems Theory (1979):

The interaction between factors in the child’s maturing biology, his immediate family/community environment, and the other social environments affect the development of the child. Changes or conflict in any one layer will ripple throughout other layers. To study a child’s development, we must look not only at the child and his or her immediate environments, but also at the interaction of the larger environments as well. .

From a perspective of psychological ecology of human development, the ecological environment is conceived as a set nested structure, each inside the next. Altogether five environmental systems ranging from fine-grained inputs of direct interactions with social

agents to broad-based inputs of culture encompass microsystem, mesosystem, exosystem, macrosystem and chronosystem (see Figure 3).

In line with the definitions of each system, we could find a position for each component of the proposed theoretical model in present study and see where the coincidence of predictions lies. Microsystem refers to the settings in which an individual lives including family, peers, school, and neighbourhood etc, which have most direct interactions with the developing individual. And biopsychological environment of the individual is also an important part of the microsystem. Obviously, self-concept levels and the 3 sub-learning environments are representatives of microsystem. Mesosystem refers to relations between microsystems or connections between contexts. Therefore, interactions between self-concept levels and 3 sub-learning environments and interactions between sub-learning environments belong to mesosystem. Exosystem refers to experiences in a social setting in which an individual does not have an active role but which nevertheless influence experience in an immediate context. But in present proposed theoretical model, there is no representatives there. Macrosystem is identified with attitudes and/or ideologies of the culture in which individuals live and accordingly, public policy is also a part of macrosystem. Thus Chinese culture and China's One-child Policy considered in present study belong to macrosystem. The final system is chronosystem and refers to the patterning of environmental events and transitions over the life course, that is, the effects created by time or critical periods in development. Here in present study, the period of older adolescence and young adulthood could act as chronosystem.

There are several points worthy of note. First of all, a very important thesis of this theory is that what matters for behavior and development is the environment as it is perceived rather than as it may exist in "objective" reality. Secondly, this theory emphasizes using rigorously designed naturalistic and planned experiments for studying development in the actual

environments, both immediate and more remote, in which people live. Thirdly, it also emphasizes that the evolving reciprocal relation between person and environment through life is conceptualized and operationalized in systems terms and that a child's own biology is a primary environment as well. Finally, the theory contends that behavior and development should be examined as a joint function of the characteristics of the person and of the environment. The former includes both biological and psychological attributes (e.g., an individual's genetic heritage and personality). The latter consists of the physical, social, and cultural features of the immediate settings in which human beings live (e.g., the society and times into which an individual is born). The key to this theory is the interaction of structures within a layer and interactions of structures between layers.

10.3.2. Practical Implications

If the theoretical model in present study was considered under the background of Lewin's Field Theory and Bronfenbrenner's Ecological Systems Theory, great practical implications were to be offered for people and institutions of all levels: parents, teachers, school administrators, extended family, mentors, work supervisors, legislators, and government etc.

For instance, after the implementation of China's One-Child Policy, women have more chance to enter into full employment. Hence the so-called equality between women and men in employment world brought more work to Chinese women besides the housework at home and an increasing divorce rate to Chinese household. Due to mother's full employment, their only-children do not have the constant mutual interaction with their mothers, which is necessary for development of children. According to the ecological theory, if the relationships in the immediate microsystem break down, the child will not have the tools to explore other parts of his environment (Bronfenbrenner, 1979). And apparently, parents could also do something in exosystem to help their children. For example, the mother could try to find a job requiring less work hours on weekdays and find more time to increase their

own interactions with their children to create more opportunities for their children to interact with others etc. within a microsystem, parents at least could, through their direct (e.g., appropriate parenting style) and indirect (e.g. providing a general family environment with high family cohesion) interpersonal behavior, exert their impact; they could also encourage their only-children to increase interactions with their peers and teachers to improve the dyad quality, say, a primary dyad; and meanwhile increase their own interpersonal behaviors with teachers to get more information about other systems in order to decide in time what to do to help their children. Finally, in a macrosystem, parents could do something for their children's rights to express their opinions to some institutions. For example, although it has been realized that there is necessity for the continuity of China's One-Child Policy and there are less social relations of the family due to the impact of this policy, the only-children need peers, other extended family members and even other adults. As parents, they could ask the government to make it a law that each community shall establish some play grounds for children and create more microsystems for children to interact with their peers, make use of the characteristics of Chinese culture (relational and collective culture) to develop relations with other families with similar aged children and improve social contact with extended family members and other adults such as grandparents and their friends.

Great implications for the practice of teaching are offered as well. Knowing about the breakdown occurring within children's homes, it is possible for our educational system to do some mending work to some degree. As the result in present study showed, teachers, especially favourite teacher interpersonal behavior had great impact on mastery goal, positive self-esteem, and social competence as well. And, of course, teachers and schools could try to create some ways or occasions to help increase the interactions or communications between students and their parents.

And government could improve the macrosystem or create favourable macrosystem with

public policies and new laws. For example, to ease the social burdens brought by China's One-Child Policy and the accelerating aging process of the population, Chinese government could have taken some measures earlier in health insurance systems.

Not only people and institutions at all levels should create more interpersonal structures for these only-children, but also they should attend to the quality of these interactions. As Bronfenbrenner (1979) noticed that dyads (or other $n+2$ system) had different qualities, such as observational dyads, joint activity dyads and primary dyads and the quality of dyads could be improved through improving reciprocity and affective relations, and controlling balance of power (p. 56-59). In present study, for example, peer group acceptance and best friendship quality both as peer relations had different importance to different outcomes and they also interact differently with other systems.

Since different systems or interactions between different systems might have different effects on different outcomes, to solve different behavior or development problems, there should be different concentrations on systems. For example, in present study, father parenting style and best friendship quality had great impact on positive self-esteem, but no impact on negative self-esteem. Therefore, when there is problem with an only child on negative self-esteem, solutions should be found in systems like peer group acceptance, favourite teacher cooperative behavior and favourite teacher opposition behavior

More attention should be given to biopsychological environment. Since there existed interactions between the learning environments and between student chronic self-concept levels and the learning environment, this emphasized the great importance of increasing interactions between the learning environments by interpersonal behavior, exchange and sharing of information between Microsystems. And in learning environments, adjustments in interpersonal behaviors are necessary on base of student different chronic self-concept levels. That is, to different students, same interpersonal behavior might function differently.

The present study also implied the great impact of a macrosystem, that is, the Chinese culture. Although the direct and interaction effects of Chinese culture were not tested through data analyses, chronic self-concept levels of these Chinese only-children expressed the print of Chinese culture, with relational level and collective level loaded most but individual level loaded least. Probably due to this cultural impact in that they could turn to others easily, on anxious solitary behavior, Chinese only-children did not record high although they have fewer extended family relatives and have no siblings or cousins in the family or extended family. This implied again that for the development of Chinese only-children, turning to macrosystem for help really functioned as well. On the other hand, other factors in macrosystem might disturb the development of children. To some degree, China's One-Child Policy is an example. As mentioned before, chronic self-concept of Chinese only-children still concentrated on relational and collective levels of self-concept, but how come they could have an individual-level-like career orientation. Probably this phenomenon is a reflection of the helpless souls because on the one hand, together with this public policy, the government has not taken complementary measures in time; on the other hand, Chinese only- children felt helpless and had no other choice, but to take the heavy social burdens on them alone.

In short, the present research has great implications to parents, teachers, educational researchers, as well as to policy-makers and practitioners in terms of finding a more integrated theoretical model, improving student outcomes, and creating better series of systems ranging from microsystem, mesosystem, exosystem, macrosystem and chronosystem.

10.3.3. Limitations and Future Research

There are limitations in present study. For example, due to the capacity of this research project, no experiences in exosystem, such as those from parents' work places were

considered in research design. Secondly much was ignored in family environment, such as other aspects of family relations, family conflict and family expressiveness; and other dimensions of general family environment. Thirdly, school-level learning environment and more limited student outcomes, such as the academic orientations of the school and social orientations of students in school, etc. were not studied as well. Fourthly, the impact of community or neighbourhood is not considered in this study, too, but actually it is very important because in a collective culture such as in China, reputation and fear of losing face in neighbourhood actually has been influencing behavior and development of individuals much more than other cultures. However, these limitations left much room for future research.

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Appendix

Table 30 Intercorrelations (one-tailed) between predictor variables (peer relations, self-concept levels and interactions between them) and outcome variables

Predictor		performance goal	mastery goal	avoidance goal	anxious sociatary behavior	prosocial behavior	helping	sharing and cooperation	Affective relationship	Positive SE	Negative SE
PGA		.15**	.27***	-.13**	-.29***	.34***	.25***	.34***	.18***	.37***	-.30***
BFQ		.10*	.40***	-.09*	-.20***	.49***	.45***	.44***	.36***	.44***	-.18***
sclindiv		.57***	.20***	.21***	.11*	.08	.03	.04	.15**	.14**	.12**
sclrelat		.15**	.54***	-.09*	-.14**	.54***	.46***	.45***	.48***	.41***	-.16**
sclcollect		.10*	.55***	-.13**	-.24***	.55***	.46***	.49***	.39***	.41***	-.20***
PGA	X	.48***	.27***	.09*	-.10*	.24***	.16**	.22***	.21***	.29***	-.09*
sclindiv											
PGA	X	.18***	.46***	-.15**	-.29***	.53***	.43***	.49***	.38***	.48***	-.32***
sclrelat											
PGA	X	.15**	.47***	-.17***	-.32***	.50***	.40***	.48***	.33***	.45***	-.32***
sclcollect											
BFQ	X	.51***	.34***	.13*	-.03	.30***	.24***	.24***	.30***	.31***	-.00
sclindiv											
BFQ	X	.13**	.51***	-.11*	-.21***	.60***	.54***	.51***	.48***	.49***	-.22***
sclrelat											
BFQ	X	.11*	.56***	-.14**	-.25***	.61***	.54***	.54***	.44***	.48***	-.24***
sclcollect											

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. PGA = peer group acceptance, BFQ = best friendship quality, sclindiv = individual level of self-concept, sclrelat = relational level of self-concept, sclcollect = collective level of self-concept

Table 31 Intercorrelations (one-tailed) between predictor variables (favourite teacher behavior variables, self-concept level variables, interactions between them) and outcome variables

Predictor	AAGperf	AAGmast	AAGavoid	anxsolita	prosocialbehv	helping	sharcooper	affrelat	posse	negse
FT cooperative	.11*	.36***	-.06	-.10*	.30***	.25***	.28***	.24***	.28***	-.06
FT opposition	.01	-.23***	.20***	.19***	-.18***	-.14**	-.22***	-.08	-.10*	.21***
FT strict	.03	.09*	.12**	.18***	.14**	.11*	.10*	.14**	.13**	.08
sclindiv	.57***	.20***	.21***	.11*	.08	.03	.04	.15**	.14**	.12**
sclrelat	.15**	.54***	-.09*	-.14**	.54***	.46***	.45***	.48***	.41***	-.16**
sclcollect	.10*	.55***	-.13***	-.24***	.55***	.46***	.49***	.39***	.41***	-.20***
FT cooperative X sclindiv	.54***	.30***	.16**	.04	.16***	.11*	.12**	.21***	.22***	.08
FT cooperative X sclrelat	.14**	.54***	-.09*	-.16**	.51***	.44***	.44***	.44***	.42***	-.14**
FT cooperative X sclcollect	.12*	.56***	-.12**	-.22***	.53***	.44***	.47***	.40***	.41***	-.18***
FT opposition X sclindiv	.21***	-.11*	.25***	.21***	-.12**	-.10*	-.16**	-.01	-.03	.22***
FT opposition X sclrelat	.05	-.08*	.18***	.15**	-.05	-.03	-.09*	.04	-.00	.18***
FT opposition X sclcollect	.04	-.06	.16***	.11*	-.01	.00	-.05	.05	.02	.17***
FT strict X sclindiv	.40***	.19***	.23***	.18***	.14**	.09*	.08	.19***	.17***	.14**
FT strict X sclrelat	.09*	.35***	.06	.08	.38***	.32***	.30***	.36***	.30***	-.00
FT strict X sclcollect	.07	.38***	.02	.00	.42***	.35***	.36***	.33***	.33***	-.05

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. FT = favourite teacher, sclindiv = individual level of self-concept, sclrelat = relational level of self-concept, sclcollect = collective level of self-concept

Table 32 Intercorrelations (one-tailed) between predictor variables (average teacher behavior variables, self-concept levels and their interactions) and outcome variables

Predictor	AAGperf	AAGmast	AAGavoid	anxsolita	prosocialbehv	helping	sharcooper	affectivrelat	posse	negse
AT cooperative	.12**	.15**	-.09*	-.18***	.07	.09*	.06	-.01	.02	-.10*
AT opposition	.07	.00	.22***	.19***	.08	.10*	.04	.11*	.11*	.16***
sclindiv	.57***	.20***	.21***	.11*	.08	.03	.04	.15**	.14**	.12**
sclrelat	.15**	.54***	-.09*	-.14**	.54***	.46***	.45***	.48***	.41***	-.16**
sclcollect	.10*	.55***	-.13**	-.24***	.55***	.46***	.49***	.39***	.41***	-.20***
AT cooperative X sclindiv	.46***	.21***	.08	-.03	.09*	.07	.05	.10*	.09*	.03
AT cooperative X sclrelat	.15**	.38***	-.13**	-.22***	.33***	.30***	.28***	.23***	.22***	-.17***
AT cooperative X sclcollect	.12**	.38***	-.14**	-.27***	.34***	.30***	.31***	.19***	.22***	-.18***
AT opposition X sclindiv	.42***	.13**	.27***	.17***	.09*	.07	.04	.16**	.15**	.18***
AT opposition X sclrelat	.13**	.26***	.16**	.10*	.31***	.29***	.24***	.32***	.28***	.07
AT opposition X sclcollect	.10*	.30***	.12**	.03	.36***	.33***	.30***	.31***	.31***	.04

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. AT = average teacher, sclindiv = individual level of self-concept, sclrelat = relational level of self-concept, sclcollect = collective level of self-concept

Table 33 Intercorrelations (one-tailed) between predictor variables (family environment variables, self-concept levels and interactions between them) and outcome variables

	AAGper f	AAGma st	AAGavo id	anxsolita	prosocial	helping	sharcoope r	affectivrelat	positivse	negtivse
feco	.09*	.24***	.00	-.15**	.26***	.26***	.22***	.11*	.21***	-.14**
father_PS	.06	.30***	-.00	-.09*	.40***	.37***	.32***	.25***	.38***	-.16***
mother_PS	.02	.31***	-.01	-.07	.44***	.40***	.35***	.31***	.32***	-.16***
sclindiv	.57***	.20***	.21***	.11*	.08	.03	.04	.15**	.14**	.12**
sclrelat	.15**	.54***	-.09*	-.14**	.54***	.46***	.45***	.48***	.41***	-.16***
sclcollect	.10*	.55***	-.13**	-.24***	.55***	.46***	.49***	.39***	.41***	-.20***
feco X sclindiv	.47***	.27***	.17***	-.01	.20***	.17***	.14**	.17***	.21***	.01
feco X sclrelat	.11*	.43***	-.05	-.19***	.45***	.42***	.38***	.31***	.36***	-.20***
feco X sclcollect	.09*	.45***	-.07	-.23***	.46***	.42***	.41***	.27***	.35***	-.21***
father_PS X sclindiv	.45***	.31***	.16***	.02	.28***	.24***	.21***	.25***	.30***	.01
father_PS X sclrelat	.11*	.48***	-.05	-.14**	.55***	.51***	.46***	.41***	.48***	-.22***
father_PS X sclcollect	.08*	.49***	-.08	-.20***	.57***	.51***	.49***	.38***	.48***	-.25***
mother_PS X sclindiv	.43***	.32***	.15**	.03	.31***	.25***	.23***	.29***	.28***	.01
mother_PS X sclrelat	.07	.48***	-.05	-.12**	.58***	.51***	.47***	.45***	.42***	-.20***
mother_PS X sclcollect	.05	.50***	-.08*	-.18***	.60***	.53***	.51***	.42***	.43***	-.23***

Note: Because of missing data, N ranged from 398 to 405. * $p < .05$. ** $p < .01$. *** $p < .001$. feco = family cohesion, father_PS = father parenting style, mother_PS = mother parenting style, sclindiv = individual level of self-concept, sclrelat = relational level of self-concept, sclcollect = collective level of self-concept