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A DESCRIPTIVE STUDY OF DEPENDENT AND INDEPENDENT PERSONALITY
CHARACTERISTICS AMONG PSU SINGLETON AND NON-SINGLETON
STUDENTS

A Thesis Submitted to the Graduate School
in Partial Fulfillment of the Requirements
for the Degree of
Master of Science

Jiani Wu

Pittsburg State University

Pittsburg, Kansas

May 2011

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A DESCRIPTIVE STUDY OF DEPENDENT AND INDEPENDENT PERSONALITY CHARACTERISTICS AMONG PSU SINGLETON AND NON-SINGLETON STUDENTS

An Abstract of the Thesis by
Jiani Wu

This descriptive study was designed to explore, describe, and compare singleton and non-singleton Pittsburg State University Chinese students, who self-reported their independent and dependent personality characteristics. Data for this study were obtained from a survey instrument developed by this investigator and administrated to volunteer Chinese students (Mainland or Taiwan) enrolled in 2010 fall semester at Pittsburg State University. Participation was voluntary and anonymity was assured. No statistically significant differences were found in independent and dependent personality characteristics among singleton and non-singleton Chinese college students at Pittsburg State University. Conclusions were that the findings from the present study were consistent with prior research conducted in China. Jiang and Yao (2010) and Ye (2010) concluded that the development of certain personality, cognitive, emotional, and social differences are most pronounced with younger children, particularly in early childhood and in kindergarten. As only borns mature, differences overtime tend to become less pronounced or to become not significant.

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CHAPTER I

Introduction

Question: What are the independent and dependent personality characteristics within and between groups of singleton and non-singleton Pittsburgh State University Chinese students, who have in common English as a second or other language?

Early research on singletons was conducted in 1898 by G. Stanley Hall's student, E.W. Bohannon. From a limited sample of mentally challenged children, he concluded that children from one child families were "below average in health and vitality" (McKibben, 1998). Hall boldly asserted in 1907 that "Being an only child is a disease in itself" (Fenton, 1928). McKibben (1998) commented that Hall's statement for two decades was regarded as "cultural truism." In short, singletons were often thought to be spoiled, selfish, unsociable, and dependent on others. Later, Masterson (1971) reported that singletons were not necessarily more dependent on others than children raised in large families, because individuals raised in large families are often dependent on support and protection from other family members.

Since China implemented a one-child-per-family policy to control population growth, the number of singleton families has rapidly increased. There are, however,

exceptions. The One Child Policy has been adapted to allow rural and minority families to have a second or even a third child, if the first child is a girl. This adaptation of the policy was implemented to allow Chinese families to have a male to support parents during old age. While society has long valued large families, there are now increasing numbers of small families consisting of two parents and one child. Chinese scholars such as Feng, X., Wang, X., Ching, C.C., Chen, Y. X., Chen, K., Gao, W., Gao, S., Jiao, S., Ji, G., and Jing, Q. have focused their research on personality characteristics of singletons. Delineation of this research is provided in Chapter II of this thesis. The emergence of a large magnitude of singletons in a society may bring about both positive and negative change in individual personality characteristics, such as independent and dependent personality characteristics.

Need for the Study

The One Child Policy began in 1979. By 2010, the first generation affected by this policy has reached 31 years of age. Therefore, current Chinese college students are expected to include singletons. Likely, there is an increasing cohort of singleton Chinese students at Pittsburg State University. For instance, the investigator is a singleton herself. Further, deprived of close sibling relationships, this cohort of singleton Chinese may possess unique characteristics compared with their non-singleton counterparts. While non-singleton Chinese are likely to miss their siblings, singleton Chinese students do not have to make this adjustment. On the other hand, singleton students may find it difficult to build close relationships. Such dependent and independent personality characteristics

are likely to influence Chinese students' social and academic adjustment while studying in the United States of America, which values both dependence and independence. Finally, most research reviewed focused upon general personality and behavior traits among singleton Chinese children. The investigator failed to find both quantitative and qualitative research that compared independent and dependent personality characteristics between singleton and non-singleton Chinese college students. Therefore, a study was needed to explore, describe, and compare singleton and non-singleton college students' independent and dependent personality characteristics at Pittsburg State University.

Purpose of the Study

The purpose of the study was to survey Pittsburg State University Chinese students who have in common English as a second or other language. The survey was designed to identify potential differences within and between groups of singleton Chinese students and non-singleton Chinese students' independent and dependent personality characteristics. Independent characteristic variables include intrapersonal traits, intrinsic motivation, and independent child/parental relationships. Dependent characteristic variables include interpersonal traits, extrinsic motivation, and dependent child/parental relationships. The assumption was that independent and dependent characteristics are not mutually exclusive; however, individuals should tend to score higher on one characteristic than the other, determining both individually and collectively, a tendency for either independent or dependent personality characteristics.

Questions to be Addressed

One hundred Chinese students were provided surveys. This study was concerned with finding answers to the following questions:

1. How do singleton PSU Chinese students compare to non-singleton PSU Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?
2. How do singleton PSU Chinese students compare to non-singleton PSU Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships?
3. How do singleton PSU female Chinese students compare to non-singleton PSU female Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?
4. How do singleton PSU female Chinese students compare to non-singleton PSU female Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships?
5. How do singleton PSU male Chinese students compare to non-singleton PSU male Chinese students on independent characteristics, such as independent

traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?

6. How do singleton PSU male Chinese students compare to non-singleton PSU male Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships?
7. How do singleton PSU female Chinese students compare to singleton PSU male Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?
8. How do singleton PSU female Chinese students compare to singleton PSU male Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships?

Delimitations

This study was limited to a volunteer sample of Pittsburg State University Chinese students from mainland China and Taiwan in the Winter/Fall semester of 2010. The study failed to control historical and maturational factors which may have influenced subject responses at the time of survey administration.

Definitions of Terms

A definition for terms is given to clarify for the reader what the author means when using a certain term. For the purpose of this study the following definitions were selected:

Singletons

Singletons refer to individuals who have no siblings, when the study was conducted. Terms such as “only children,” “only borns,” and “onlies” also refer to the same concept.

Non-Singletons

Non-singletons refer to individuals who have siblings, when the study was conducted. “Sibling children,” “non-onlies,” and “children with siblings” may also appear in this study.

Independent Traits

Independent traits are the tendency to complete tasks with one’s own ability and resources.

Dependent Traits

Dependent traits refer to the propensity for the individual to prefer assistance from others.

Intrapersonal Traits

Students with intrapersonal traits tend to gain satisfaction through individual activities and self-reflection.

Interpersonal Traits

Students with interpersonal traits are most likely to be satisfied by group activities and communication with others.

Intrinsic Motivation

Intrinsic motivation refers to the propensity of the students to be driven by inside stimulations, such as curiosity, self-challenge, and discipline.

Extrinsic Motivation

Extrinsic motivation is the tendency of the students to be encouraged by outside simulation, such as family expectations, external rewards, and cultural values.

Independent child/parent relationships

Students with independent child/parent relationships tend to make decisions based upon their own preference and interests rather than family factors, such as history, communication, expectation, and social economic resources.

Dependent child/parent relationships

Students with dependent child/parent relationships prefer to make decisions based upon family factors, such as history, communication, expectation, and social economic resources rather than their own interests and desires.

Organization of the Study

Following the introduction, need for the study, purpose of the study, questions to be answered, limitations of the study and defining terms in the study, as found in Chapter I, the balance of the study was organized as follows:

Chapter II includes a review of literature in extant research on singletons and non-singletons.

Chapter III contains the methods and procedures used to organize the study, to collect the data and to analyze the data.

Chapter IV presents the findings from the study. The findings are presented in narrative and where applicable, in tables.

Chapter V is a brief summary of methods, procedures, and findings found in the first four chapters. Further, conclusions were drawn from the findings. Additionally, recommendations for further study were made.

CHAPTER II

Review of Literature

Introduction

Chapter Two was designed to demonstrate the historical development of the One-Child Policy in mainland China and the research associated with characteristics and family relationships of Chinese singleton and non-singleton children, youth and adults under 30 years of age.

More specifically, this chapter served as the theoretical background to develop a survey which examined dependent and independent personality characteristics of singleton and non-singleton Chinese students at Pittsburg State University. The literature review was structured around the following areas: (1) Western research on characteristics of singletons compared with non-singletons; (2) A brief history of the Chinese One-Child Policy; (3) Research on pre-school children, primary children and youth and young adults in China; (4) Design of the survey items.

Western Research on Characteristics of Singletons Compared With Non-singletons

In the United States of America, over a century of stereotypes have emerged about only born children. Many scholars, researchers and cultural opinions have declared that only children develop undesirable personalities. McKibben (1998) reported that E.W. Bohannon, a student of G. Stanley Hall, in 1898 found that children from one child families were "below average in health and vitality." Further, G. Stanley Hall proclaimed in 1907 that "Being an only child is a disease in itself." Thompson (1974) reported only borns as being considered self-centered, attention-seeking, dependent on others, unlikeable, self-willed, anxious, generally unhappy, temperamental and maladjusted. Likewise, only borns are considered disadvantaged by scholars who hold that experiences with siblings are essential to optimal adjustment. Falbo (1981) found that the uniqueness of only born children explains both negative and positive attributes of only born children. Both first born and only born children tend to receive their parents undivided attention, but only born children still are a unique theoretical category. Falbo and Cooper (1980) described the parent-child relationship as critical to child development. Only and first-born children tend to receive more parental attention. Too much parental attention may contribute to dependency and selfishness, but also may contribute significantly to achievement and intellectual development.

Other studies on parent-child relationships maintained that only children tend to identify with the parent of the opposite sex (Sutton-Smith & Rosenberg, 1970). Most onlies studied in Western research came from incomplete families (Wan C., Fan C., Lin,

G., and Jing Q, 1994). By 1980, many Western researchers developed four major mechanisms to explain both positive and negative attributes of only-children (Falbo & Polit, 1986). The first mechanism, “only child uniqueness,” refers to the tendency of onlies to receive more undivided parental attention instead of sharing such attention with siblings. As a result, onlies tend to have greater leadership skills and intellectual stimulation. The second mechanism, “deprivation,” means onlies are likely to be deprived of opportunities to assume parent surrogate roles to tutor and communicate with their siblings and are thus likely to be disadvantaged in terms of communication skills and autonomy (Falbo & Polit, 1986, 1987). The third mechanism, “socioeconomic-achievement,” refers to the possibility that parents of onlies are more likely to provide their only children with resources needed to channel motivation into actual achievement. The fourth mechanism, “child-parent relationship” refers to the mechanism explaining developmental outcomes of onlies and non-onlies by emphasizing the interaction between parents and children. This mechanism was used to attribute academic achievement of onlies to high parental expectations, as well as to increased anxiety.

Falbo and Polit (1986) conducted a comprehensive review of only child literature and concluded that singletons, in general, are not disadvantaged in their psychological development. Further, Falbo, Poston, Ji, Jiao, Jing, Wang, Gu, Yin and Liu (1989) proposed an explanation to the persistence of the “only child stereotype.” According to their review, there are two reasons: resistance to change and maintenance of group size. First, people use stereotypes to categorize information. Inconsistent information is frequently ignored to resist changing a stereotype. The second reason is that some parents give birth to multiple children in order to ensure that reproduction is at

replacement level. Likewise, the group size is maintained. By 1980, sufficient levels of single child families were developing in China to conduct research on pre-schoolers and elementary children; however, the results varied.

Just as no single theory or variable predicts accurately how children will develop to maturation in a multiple child family, no single theory or variable will predict accurately how children will develop to maturation in a single child family. There are likely a myriad of intervening variables at work in child development, especially personality development. Contrary to long held stereotypes about single child families, Falbo and Polit (1986) derived through meta-analysis that children from single child families are not significantly different to children from multiple child families, in terms of adjustment, most personality characteristics and sociability, except that children from single child families modestly outperform children from multiple child families in intelligence and achievement. Blake (1981) explained that parents from single child families tend to devote more time and resources, making the parent-child relationship more conducive to intellectual development and achievement.

Much of the research on single child families has been conducted in the West. By 1985, however, sufficient levels of single child families were developing in China to conduct research. A brief history of the Single Child Policy in China will assist in comprehending this significant demographic change in China's population.

A Brief History

The One-Child policy implemented since early 1980 stipulates a one-child for city areas, a two-child policy in rural areas, a three-child policy in minority groups, and no limit for children in Tibet. The development of the Chinese One-Child Policy has four major stages, accompanied by three major population booms.

The idea of population restriction blossomed in the 1950's, referred to as the first stage from 1953 to 1961 (Beijing Municipal Commission of Population and Family Planning, 2010). Encouraged by economic growth during the socialist transformation and the Great Leap Forward, Chairman Mao advocated laborers to meet and to exceed economic development in Great Britain and the United States of America, particularly in industry and agriculture. Women with ten children were awarded an "Honorable Mothers" certificate. Afterward, the population gave birth to its first baby boom from 500 million in 1949, rising to 600 million by 1957 (The Central's People's Government of the People's Republic of China, 2009). Contrary to the population growth trend, Ma Yan Chu, head of Beijing University, published the book titled *New Principle of Population*. He proposed population restriction to balance population growth with capital accumulation (Ma, Y.C., 2002)

The second stage of population restriction was from 1962 to 1970. The Family Planning Committee was started in 1964. Chairman Mao (1956) advocated both the idea of "*Ji Hua Sheng Yu*" (family planning) and a "*Ji Sheng Wei*" (Family Planning

Committee). Family planning was later encouraged to take effect in cities and several heavily-populated rural areas (Central Committee and State Council, 1962). Even with three-years of natural disasters between 1959 and 1962, and the Cultural Revolution of 1966 (Chiu, 2004), the net population grew to 800 million by 1970.

The third stage of family planning started in 1970, when Premier Zhou En Lai undertook a nationwide promotion of family planning. The plan aimed to reduce total fertility rate (TFR) to one child per family in cities and 1.5 children per family in rural areas. As a result, free services for family planning were provided throughout rural areas. During the first meeting of the Family Planning Committee in 1973, the idea of “later, longer, and fewer” (wan, xi, shao) was raised to coordinate population growth with economic development (Chiu, 2004). “Later, longer, and fewer” refers to an older age at marriage, longer age space between siblings, and fewer children. Even so, the population grew from 800 million in 1970 to 900 million by the end of the third stage of family planning in 1980.

The fourth stage (Chiu, 2004) of the development of family planning started in 1980, when Chairman Deng Xiaoping declared that family planning should be implemented throughout the country (except minority groups) in order to mitigate the detrimental effect of skyrocketing population on the economy. He also encouraged members of the Communist party to model this plan. In 1981, the idea of eugenics (*you sheng you yu*) was promoted. In 1982, the One-Child Policy was written into the constitution and became a fundamental policy in the country. Despite such efforts, the population still increased over the nine years (from 1981 to 1990) to approximately one billion. Nevertheless, the total fertility rate (TFR) decreased to 1.8 children per family by

2000. The *Population and Family Planning Law of the People's Republic of China* was finally implemented in December 2001 (The Central People's Government of The People's Republic of China, 2001).

The *Population and Family Planning Law of the People's Republic of China* advocates that people (including minority groups) should get married at an older age and give birth to one child. Their plans to have a second child, if requested, require local approval. In addition, in some provinces, if two single child adults marry, they can have two children without penalty (National Population and Family Planning Commission of P. R. China, 2009). This law also includes stipulations that promote single child families. For instance, families who have one child will be honored with certificates and enjoy longer paid honeymoon leave, maternity leave, and other benefits. People who resist this law have to pay a social maintenance fee for each additional child and be punished accordingly by the associated unit or organization. Further, if people fail to pay the social maintenance fee, they will have to pay a surcharge for each additional child in accordance with State regulations. If people still fail to make payment, the administrative department for family planning will apply to the People's Court for enforcement.

The responses to this law vary. Due to the high cost in cities, most urban families choose to have one child. Also, affluent people can have as many as they want as long as they can afford the social maintenance fee per additional child (The Central's People's Government of the People's Republic of China, 2001). There are three major reasons cited why people in rural areas frequently choose to have at least two children (The Central's People's Government of the People's Republic of China, 2009), because raising a child is not as costly in rural areas as in cities. School tuition is low and not all children

attend school in rural areas. If one child dies in an accident, the other one can assume the responsibility to care for his or her parents. Third, because the welfare system is underdeveloped in rural areas, having two children helps assure the care of parents during old age. Therefore, most conflicts arise when people in rural areas fail to pay the fine. In general, more people in urban areas decide to have one child than people in rural areas.

Nevertheless, as the baby boomers age, concerns on social welfare increase. First, some suspect that as the One-Child Policy decreases total fertility rate (TFR) each year, there will be a rapid aging population and shrinking cohort of youth (Chiu, 2004). People who are age 60 and over, reached 11.03% of the total population by 2005 (National Bureau of Statistics of China, 2006). Also quoted by Chiu, according to the United Nation population projections, China will have approximately 1.42 billion people by the year 2050, and only 22.5% of this population will be age 20 and under. Because of fewer young adults available to support the population of the 60 and older age group, young adults will be supporting 3.5 elder parents and/or grandparents. Simply put, the declining ratio of workers to pensioners affect the future pension system adversely (Chiu, 2004).

Overall, since the enforcement of the *Population and Family Planning Law of the People's Republic of China*, average population growth per year has been limited to approximately 10 million. In 2002, approximately 80% of new borns were single children (National Population and Family Planning Commission of P. R. China, 2002). The present investigator's classmates throughout elementary, middle school, and high school were primarily from single child families.

Research on Pre-school Children, Primary Children, and Youth in China

Research on Pre-School Children Ages 3 to 6

Shanghai Preschool Education Study Group (1980) was the first study in China on only-child preschoolers. They randomly selected 70 onlies and 30 non-onlies to compare their behavior traits. The results found that 21 of 70 onlies (43%) were not cooperative, when compared with only 2 of 30, or 7% of non-onlies. Further, three additional negative traits were frequently found among onlies: bad eating habits, willfulness, and timidity. Ching (1982) found two major factors: (1) lacking of cooperativeness and (2) selfishness among only children. To illustrate, children form personality characteristics through imitation and interaction with others during their early years. Play situations tend to stimulate imagination, to develop knowledge and to promote cooperation among children. Children who have more opportunities to imitate behavior of others, to make sense of conversation with others, and to have meaningful interaction with others tend to form cooperative characteristics. Non-onlies frequently have meaningful "play situations" with siblings and receive more training in cooperative behavior. However, it is difficult for onlies to appropriately imitate their parents' behavior (Sutton-Smith & Rosenberg, 1970). As a result, when onlies lack the opportunity for play and imitation, they developed less cooperative behaviors. Ching (1982) also suspected that "selfishness" commonly found among singletons in previous research is simply a result of "over-indulging" parenting. Only born children are frequently used to having the best, such as

the biggest apple or the fanciest toy. When deprived of such opportunities, onlies tend to grab, cry, or even steal to satisfy their desires. These behaviors were frequently perceived as “selfish.” Wang, J.Y. (1980) in reaction to this situation advocated “busy bee” activities that encouraged only children to cooperate and help others in class and at home. Only children showed remarkable improvement in cooperative behavior using “busy bee” activities.

Succeeding studies showed similar negative results for onlies. Wan, Fan, and Lin (1984) compared onlies with non-onlies on personality and individuality characteristics of 5 to 7 years old children in six day care centers in urban Beijing. Questionnaires were rated by teachers and parents. Onlies received lower ratings on helpfulness, and higher ratings on dependence and aggressiveness than non-onlies, even though the differences were not statistically significant. Further, sex-based differences were determined significant. Specifically, the sample included 138 onlies and 127 non-onlies, 120 of whom were boys and 145 girls. The survey was constructed as a 16-item-inventory covering five major behavioral characteristics; namely, independency, helpfulness, dependency, aggressiveness, and friendliness. A detailed analysis revealed in the 5-year-old group that non-onlies were more independent than onlies. Further, a “behavioral polarization” occurred among onlies. To explain, children were rated on a scale of “good,” “moderate” and “not good” in terms of individuality. Onlies got higher scores both on “good” and “not good,” which indicated a behavioral polarization. Li and Zhang (1984) claimed that such polarization was likely the styles of parenting. In addition, girls were consistently rated to be friendlier and less aggressive than boys.

Chen (1985) studied affiliation of only and non-only children, ages 3 to 12. The subjects were selected from 14 kindergartens and 14 primary schools, consisting of 482 pairs of onlies and non-onlies, including 885 from suburban and 579 from urban areas. The investigators used multiple methods, such as, questionnaires, observations, interviews, case studies, and peer evaluations. The results found no significant differences in affiliation between onlies and non-onlies in both urban and suburban areas. Similarly, only-girls and non-only-girls in suburban areas had almost the same scores. Further, the investigator suspected that the collective life style and abundant opportunities for social interaction in kindergarten contributed to the development of the only-child's affiliation.

Jiao, Ji, and Jing (1986) conducted a peer rated assessment survey. The results concluded that onlies were more egocentric, less cooperative, less affiliative, more maladjusted, and more likely to be diagnosed psychologically disturbed than non-onlies. In the study, they compared behavioral qualities between onlies and non-onlies in the Beijing area. They found that only children are more egocentric, while non-onlies tend to possess the positive qualities of persistence, cooperation, and peer prestige to a greater degree than onlies. The study was based on 180 matched pairs of onlies and non-onlies, ages 4 to 6 and 9 to 10. Specifically, the survey contained 22 behavioral items that were close-ended questions. Seven behavior qualities, such as independent thinking, persistence, behavior control, frustration proneness, cooperation, peer prestige, and egocentrism were covered. As a result, differences between only children and non-only children in the 4 to 6-year-old category were the most significant. Both urban and rural non-onlies were rated to possess more cooperative behavior, persistence, and peer

prestige; while onlies were rated to be more egocentric and self-directed. However, it is interesting to note that the study found that 4 to 6-year-old urban onlies have higher scores for independent thinking than non-onlies. In contrast, 9 to 10-year-old urban non-onlies had significantly higher scores for independent thinking than onlies. The researchers suspected that egocentrism in onlies comes from the family environment, where they receive concentrated attention from their parents. Similarly, non-onlies obtain cooperative and caring behavior from a communal family environment, where brothers and sisters share adult attention. Consequently, non-onlies tend to receive higher scores in peer prestige due to such caring behaviors. In addition, this study found that there were no significant correlations between occupation and educational background of parents and the behavioral qualities of their offspring.

Tseng *et al.* (1988) conducted a survey to study psychological factors of only children. They surveyed parents of 697 preschool children in both urban and rural areas in Nanjing, using a home-visit questionnaire. This questionnaire was a Chinese version of *Achenbach's Child Behavior Checklist*. They found that female onlies tend to have slightly higher scores on the factors, such as depression, mood, and temper. Liu, Cao, and Xia (1988) concluded in their study that onlies in general have superior psychosomatic status than non-onlies in rural and urban areas. They paired 851 onlies and non-onlies, ages 6 to 9, to investigate the differences in psychosomatic status between the two groups. The sample was randomly selected from 12 urban and rural areas within 8 provinces of China. The results reported that only-children had increased family income, superior medical care, superior learning ability, superior health habits, superior general

skills, increased body weight, and superior nutritional status, when compared with non-onlies.

Wang *et al.* (2000) found no significant differences in physical and personality traits between preschool only-children ages 3 to 4 years and non-onlies in rural Fuzhou. Specifically, the survey sample included 197 onlies and 367 children with siblings who came from seven kindergartens in rural areas in Fuzhou, Fujian province. In the study, researchers interviewed guardians (especially mothers) of the target pre-schoolers using a 39-item survey questionnaire. The survey was designed, according to Chinese standards, to determine parental education, family income, and psychological development. A survey *Examination of the Characteristics of Preschool and School Children* was used. The psychological scale was measured in a four-point category ranging from ‘always’ scored as four, ‘sometimes’ scored as three, ‘rarely’ scored as two, to ‘never’ scored as one. Higher scores suggest more problems in the child’s psychological development. Specifically, this scale contained six factors, such as irritability, lack of independence, withdrawal, frustration proneness, assertive behavior, and somatic complaints (indicated by fever, cold, or diarrhea). The results showed no statistically significant differences in height, mass or degree of obesity (BMI) between onlies and non-onlies. Regarding the personality traits, no significant difference was found, except that the onlies exhibited more somatic complaints. Wang, Leichtman, and White (1998) found that Chinese preschool children in especially rural areas live in close proximity to each other. Only children are not deprived of opportunities to interact with peers, such as playing, fighting, and even learning. Nonetheless, higher somatic complaints of onlies were found, likely related to rearing practices.

Wang, S.C. (1980) discovered contrasting results among kindergartners in Beijing. Only children were found to be more cooperative and less problematic in behavior than non-onlies. Yang, Kao, and Wang (1980) discovered that onlies were advantaged over non-onlies in terms of intellectual and physical development. Teachers and students at Beijing Normal University sampled 314 only children and 1,427 nononlies, a total number of 1,741 children, ages 3 to 5 year. They found that only born children were superior to non-onlies of the same age group in terms of imagination, language ability, imitation, productive thinking, and academic achievement. In addition, 66% of onlies were found to be in a good health compared with 43.4% of non-onlies. Further, this research found that parents of onlies tend to be intellectuals. Researchers suspected that well-educated parents may be able to provide a more intellectually stimulating home environment than less well-educated parents. Jiao, Ji, and Jing (1992) provided evidence that onlies tend to be more cognitively advanced than non-onlies. The study focused on cognitive development of only children first and fifth grades within seven primary schools in Guangzhou. The sample of the study included 146 first graders and 171 fifth graders, who were asked to complete 11 cognitive tasks regarding verbal memory and general cognitive abilities. They found that first grade only borns had superior general cognitive abilities, when compared with non-only peers. Nevertheless, such superiority disappeared by the fifth grade. Male only children tended to score higher in general cognitive tasks than female only children. Scholars hypothesized that higher material and mental investment by parents led to first grade onlies' cognitive capacities as superior to non-onlies. The process of maturation and schooling likely accounts for the leveling of cognitive superiority. Zhang (1985) analyzed the analogical reasoning of four hundred 3

to 6 years olds. No significant differences in pictorial analogy and numerical analogy between onlies and non onlies were found. But Zhang found that children who had better-educated and well-off families did better in analogical reasoning than those who didn't. As a result, Zhang's study proposed the need to study socio-economic status of the family in terms of its effect on the development of children.

A trend during the 1990's switched the focus onto onlies' family socio-economic status to onlies' personality formation. Lin, Fan, and Wan (1993) investigated the effect of family education on the development of personality of onlies ages 4 to 6 in rural areas in Beijing. A questionnaire on personality characteristics rated by kindergarten teachers and parents was used. In addition, demographic data on parents' education were gathered. The results revealed no significant differences in personality development between onlies and non-onlies, but a high correlation between families' level of education and children's personality development was found. Fan, Lin & Wan (1994) investigated the relationship between family structures and personality traits of 297 pre-schoolers, ages 4 to 8, in suburban areas of Beijing. They found that only-children received lower scores on independence, persistence, strong-mindedness, relationship with others, and attitude toward physical labor than children with siblings. Other differences were found between two-generation-families (relatives of two generations living together or in close proximity) and three-generation-families (relatives of three generations living together or in close proximity). Children from two-generation families had higher scores on curiosity, persistence, peer prestige, relationship with others, and attitude towards physical labor than children who lived in three-generation families. Further, differences between genders were significant. Girls received consistently higher scores on independence,

persistence, self-esteem, relationship with others, and attitude toward physical labor than boys. This study used a 33-item questionnaire developed to include 10 categories of personality traits; namely curiosity, independence, persistence, strong mindedness, peer prestige, self-esteem, relationship with others, self centeredness, self-control and attitude towards physical labor.

In summary, comparative research in the development of the preschool single-children, ages 3 to 6, in China has focused intensively on four major areas: personality, cognitive abilities, and the influence of family structure and parental socio-economic status on child development. Early studies collected data from kindergartens in both urban and suburban China. Most of the studies relied on observations, behavior tasks, ratings from parents, school teachers, or peers, or mixed methods. Some singletons showed unfavorable personality characteristics and behaviors, such as lack of cooperativeness, bad eating habits, willfulness, timidity, dependency, and aggression. Some scholars found differences between onlies and non-onlies in the same gender group. For instance, Chen (1985) found that only-born boys were less affiliative than non-only born boys. Tseng *et al.* (1988) discovered that female onlies were likely to suffer from depression, moodiness, and bad temper when compared with non-only girls. In contrast, a few studies reported that onlies were actually more cooperative, more independent in thinking, and have superior general cognitive abilities. Until recently, most studies revealed mixed results and found either that there were no significant differences between only children and non-only children on their personality development, or that only children or onlies were better on certain personality traits. In addition to sibling status,

gender can be a decisive variable. Gender difference usually occurred where girls received higher ratings in terms of social behaviors than boys, regardless of sibling status.

Research on Children and Teenagers in China

Poston and Falbo (1990) conducted a survey in collaboration with demographers from the Population Research Institute in Changchun, located in Jilin province in China during 1987. The study focused on academic performance and personality traits of 1,460 rural and urban Chinese children, ages 7 to 11, and their parents and teachers from eight primary schools, five in urban and three in rural areas. They found that onlies in urban Changchun scored better than non-onlies on standardized tests of Math and Chinese. However, the scoring advantage was not found between onlies and non-onlies in rural areas. In terms of personality traits, the results were based upon ratings of both teachers and mothers. No significant differences between onlies and non-onlies in either rural or urban areas were found. However the “gender effect” was significant. In other words, whether girls were onlies or non-onlies, they received higher ratings on personality traits by their mothers and teachers. The gender effect finding is consistent with several researches, such as Wan, Fan, Lin, and Jing (1994) and Wang *et al.* (2000). Specifically, the *31 Attributes Checklist* was presented as a pair of opposites. To illustrate, teachers or mothers were asked to check whether the child is selfish or selfless, respectful or disrespectful of elders, and so forth. Reasons for the lack of an “only child advantage” in academic performance in rural Jilin were discussed. In Western studies, onlies were found to perform better academically than non-onlies, whether they were in urban or rural

areas. Blake (1981) found that parents of onlies usually have greater educational attainment than those of non-onies. Based on this research, Poston and Falbo (1990) suspected that the parent-child communication/relationship between more educated parents and their only child were associated with children's enhanced intellectual development. Lewis and Feiring (1982) proposed that well educated parents of onlies tend to take a more didactic and stimulating communication approach and have higher expectations for their children. Such "one-on-one" time in the children's early years may facilitate their intellectual development. In addition, Poston and Falbo (1990) proposed that enhanced parental attention and care may also contribute to intellectual development of only children. Specifically, Cicirelli (1978) maintained that children's intelligence should be in positive correlation with the amount of attention received from parents. The more undivided attention a child receives, the more intelligent the child becomes. Caldwell and Bradley (1984) compared family environments of well-educated versus poorly-educated parents. Better educated parents tend to interact with children in a way that is conducive to intellectual development. To illustrate, well-educated parents are more likely than poorly-educated parents to provide their children stimulating toys, encourage them to explore, establish an ordered environment, and adopt disciplinary techniques. Put another way, children who have well educated parents tend to be equipped with skills and an orientation necessary for success in schools.

According to Poston and Falbo (1990) well-educated parents of onlies in rural areas either failed to supply sufficient "one-on-one" time, or the child failed to benefit from their attention. One of the possible explanations for this is that rural parents failed to invest enough financially in their onlies, because of their disadvantaged economic

status. In rural China, parents of more than one child usually can afford the fines to have additional children and subsequent additional tuition. It is likely that parents of an only child in rural china tend to be economically disadvantaged and might not be able to provide their child with an ordered environment or stimulating toys and not enough “one-on-one” time due to working. Falbo *et al.* (1989) reported that children whose fathers had higher occupational status also had increased academic outcomes, such as scores in math and language tests. Further, even though so called “well-educated” rural parents of onlies had more years of education than those rural parents with more than one child, their formal education was still frequently less than urban parents with multiple children. Another possibility for the lack of “only child advantage” for rural onlies is lacking a preschool experience (Mao, 1984). In the sample, only 50% of rural children attended preschool versus 70% of urban children. Tobin, Wu and Davidson (1989) stated that the preschool experience in China is crucial to preparing children for future academic and social life. Parents who have higher expectations for their children’s success have higher expectations for their future jobs. Finally, girls were consistently rated to be more virtuous than boys by both teachers and parents. Poston and Falbo (1990) concluded that the “lack of siblings is neither a help nor a hindrance in developing a socially acceptable personality.”

In a later study, Falbo and Poston (1993) consistently suggested that only children are not “little emperors” who lack traditional virtues such as selflessness and willingness to do manual labor. Wu (1986) used *The 32 Attributes Checklist* to survey 1,000 schoolchildren, ages 8 to 17, from both rural and urban cities in four Chinese provinces, Anhui, Gansu, Hunan, and Beijing. The study compared academic, personality, and

physical outcomes between only children and others. Surveys were completed by the target children, peers, parents, and teachers. They found that in terms of academics, onlies tend to have higher scores than non-onlies in verbal tests, but not in math tests. In terms of personality traits, few differences were discovered between onlies and non-onlies. In terms of physical characteristics, onlies tended to be taller and/or heavier than others. The study found a significant difference between onlies in urban and rural areas. Urban onlies tended to have more academic skills, less desirable personalities, and more height and weight than non-onlies. In general, females scored higher in verbal tests and were reported to have more desirable personalities than males.

Wan, Fan, Lin, and Jing (1994) compared the personality traits of onlies and non-only schoolchildren ages 7 to 12 in Xi'an. A questionnaire completed by their parents and an inventory completed by teachers who rated onlies and non-onlies and found that only children from grade one, born in 1982 to 1983, exceeded non-onlies on achievement motivation. However, no difference between onlies and non-onlies was found in interpersonal skills and attitude toward manual labor. In addition, the study hypothesized that parental expectations for children's future education was likely responsible for the achievement motivation difference found between onlies and non-onlies. Further, significant gender differences existed. Girls consistently received higher ratings on achievement motivation and interpersonal skills. This study randomly selected 444 non-onlies and 473 onlies, ages 7 through 12 years of age, in Beijing elementary schools, grades one through five. The instrument was comprised of a questionnaire for parents' demographic data, such as economic status, occupation, and expectations for children's education and a 30-item 5-point-scale inventory about behavior traits. The higher the

scores, the more positive were the child's behavior traits considered. Results found that onlies in grade one showed higher scores in achievement motivation while onlies in grades three and five did not. Researchers discussed such an inconsistency by explaining unique historical, social environment, and parenting styles influencing the results. According to researchers, higher scores in achievement motivation among onlies in Grade one were influenced by "only child uniqueness." Onlies in this age group were born after the implementation of the One-Child Policy in 1979. Parents were aware that their first child would likely be an only child. Fong (2004) contended that an only child is frequently overprotected and over indulged. Also, parents would likely place higher expectations on an only child. Higher parental expectancy might lead to higher ratings on the achievement motivation of their child. Another reasonable explanation for higher motivation among onlies is the Chinese Cultural Revolution from 1966 to 1976. Many fathers born between 1947 and 1955 did not have the opportunity for an education at ages 11 through 19, because during the Revolution, they were sent to farms, factories, mines, and other remote areas to work. In order to compensate for their lack of education, fathers in this category were likely to motivate or even compel their children to study harder and be more independent, competitive, and self-assertive than those who were born before or after the Revolution.

Feng (2000) researched the differences in socialization of Chinese only-child teenagers and non-only peers in urban areas. The results showed no significant differences between the two groups. The author compared the teenager's answers to the questionnaire with those of their parents to analyze the socialization process of urban Chinese teenagers in terms of disposition, life skills, social interactions, social standards,

orientation in life, social role and self-awareness. This study demonstrated that the socialization of urban Chinese teenagers is not abnormal. The teenage years were referred to as the “critical age of variation.” Researchers stated that only children tend to push themselves to socialize in order to be accepted by peers. Onlies likely learn to socialize with peers at and after school to compensate for the loss of interaction with siblings at home. Similarly, Xiao (2008) surveyed 436 only-children and nononly-children from Yangshuo primary and high school in Guangxi, finding that onlies performed better in existing skills, interpersonal relationships, social values, and self awareness. An and Jia (2009) investigated differences in behavior and emotional response between middle school onlies and non-onlies. The study surveyed 460 pairs of onlies and non-onlies, using *Self-esteem Scale*, *Child Behavior Checklist*, *Positive and Negative Affect Scale*, and *Life Satisfaction Scales*. The study determined that only-child males had more problematic behavior than non-only-child males. Only-child females demonstrated less prosocial behavior than non-only-child females. Gao (2009) conducted a case study on personality and social behavior of Chinese urban youth in a small town, Hepo, in Guangdong province. What was portrayed as “unique only child problems” was common among urban youth populations. This study used an inventory measuring personality and seven social behavioral characteristics; including life skills, social norms, role identity, social contacts, life goals, and self-consciousness. Feng (2000) showed that in general only-child students are much more satisfied with life, when compared with non-only students.

Yang, Ollendick, Dong, Xia, and Lin (1995) studied the levels of fear, anxiety, and depression among urban onlies and non-onlies born before, during, and after the

implementation of the One-Child Policy. The study found that non-onlies have a higher level of anxiety, fear, and depression regardless of their age. A total of 731 schoolchildren, 358 girls and 373 boys, were randomly selected by researchers from elementary and high schools in urban Tian Jing, a major industrial city with approximately 7 million people. Demographically, 239 were between 7 and 10 years of age, born after the implementation of the One-Child Policy; 290 between 11 and 13, born during the implementation of the the One-Child Policy; and 202 between 14 and 17 years of age, born after the implementation of the One-Child Policy. The sex ratio was similar in all three groups; however, only children tended to be boys in birth groups during and after the implementation of the policy. Most children lived with their biological parents and/or grandparents. Information regarding the socio-economic status of parents revealed that there was no significant correlation between sibling status and parental employment status. However, age of parents was significantly related to only/multiple status. Different from other studies, this study adopted self-report measures of pathological attributes, such as fear, anxiety, and depression. These attributes were considered to represent psychological maladjustment. The instrument for this study was the *Fear Survey Schedule for Children-Revised (FSSC-R)*, which allowed respondents to indicate their level of fear to the various stimuli on a 3-point scale of none, some, or a lot ; the *Revised Children's manifest Anxiety Scale (RCMAS)* was used to assess the presence of a variety of anxiety-related symptoms via a yes/no format; the *Children's Depression Inventory (CDI)*, which was adopted to measure a variety of symptoms of depression, such as sleep disturbance, appetite loss, suicidal thoughts, and general dysphasia. Each item consists of three statements that describe a range of possibilities, from a normal

response to indications of moderate depressive symptoms and to severe depressive symptoms. Respondents selected the statement that best described her or him. Results showed that non-onlies self-reported higher levels of self-evaluative fears, personal injury fears, or fears of being harmed. Significant sibling interaction contributed to depression, non-onlies reporting higher levels on all five factors. Onlies born during and after the One-Child Policy reported significantly lower levels of anxiety, fear, and depression.

Chen (2007) reviewed literature of single-child Chinese parents and their only child, providing data on child-parent relationships. Chen derived through analysis of common conversations between parents and their only child that only children, ages 6 to 14, consistently had extended needs for belonging, security, dependence, and attachment to their parents and even grandparents. Single-child parents, especially mothers, frequently have excessive concerns or fears about the child's future. There also is frequently an emotional need for affection from the child. In modern China, in most cases, fathers frequently work outside of the household, leaving mothers with household chores and the job of raising children. Mothers, who do not receive adequate attention from husbands, tend to search for emotional support from their children. This type of child-parent relationship creates a new generation of families where the boundaries between parents and children are blurred or changed. Meanwhile, even though children tend to be dependent on their parents, they receive intensive intellectual stimulation throughout childhood. Chen (2007) claimed that grandparents may play an important role in forming the personality of the only child, because Chinese parents frequently leave the child with grandparents while working. Consequently, Chen proposed additional research on child-grandparent relationships.

In summary, comparative research with onlies and non-onlies, ages 7 to 17, focused on several areas, such as personality traits, academic achievement, physical traits, child-parent relationship, satisfaction in life, achievement motivation, socialization, and the effect of urban/rural life on child development. Research strategies included test scores, personality checklists, and questionnaires completed by children, their peers, teachers, and/or parents. An interview combined with a home visit was also a popular method. Poston and Falbo (1990) compared onlies with non-onlies in terms of personality characteristics and academic achievement. In general, they found no significant differences between onlies and non-onlies in both urban and rural areas, in terms of personality characteristics. They did find that onlies in urban Changchun had an advantage in academic performance over non-onlies. However, such an advantage was not found between onlies and non-onlies in rural areas. Falbo and Poston (1993) discovered that urban onlies tend to have more academic skills, more height and weight, but less desirable personalities than non-onlies. Furthermore, this study found a significant gender effect. Females and older children scored higher in verbal tests and were reported to have more desirable personalities than males. However, in terms of personality traits, few differences were discovered between onlies and non-onlies. Further, differences between onlies and non-onlies in the same gender group also occurred. An and Jia (2009) found that only-child males had more problematic behaviors than non-only-child males. Only-child females demonstrated less prosocial behavior than non-only-child females. Nonetheless, some studies also found no significant differences between onlies and non-onlies.

Research on Young Adults

In the West, research on only born adults showed positive results. Polit, Nuttall, R.L. and Nuttal, E.V. (1980) compared Caucasian only born and nononly born adults in terms of fertility behavior, personal adjustment, achievement in education and work, social participation, and family relationships. They found that onlies in general had higher education levels, higher occupational status, preferred a family with one or two children, and were less religious. Further, only born women tend to work and are more independent in making decisions. In detail, the study randomly selected 537 Caucasian intact, married couples living in middle and upper-middle class communities near Boston. The mean age of the mothers was 43.1 and of the fathers was 45.9. The study divided the sample into three groups: onlies, first born nononlies, and later borns. Mothers were interviewed for two hours by researchers, while fathers were asked to complete questionnaires with similar content. In addition, the study used a ten-step *Cantrill Ladder* to investigate personal adjustment. Further, mothers were administered two additional instruments: *Self-Esteem Scales* (Rosenberg, 1965) and *Locus of Control*. Further, the teenage children in the sample families were administered *Children's Report of Parental Behavior Inventory (CRPBI)* (Schachter, 1959). The CRPBI investigated three factors: discipline, acceptance, and psychological control. The first factor reflects the degree of permissiveness or control of parental discipline. The second shows the extent of parental acceptance and active involvement with the child. The third factor shows the degree of parental control over the child, such as possessiveness, control through guilt, inconsistent discipline and instilling persistent anxiety. According to the results of interviews and questionnaires, parents who were only children preferred two children. In terms of personal adjustment, even though only child fathers tended to be

more satisfied than nononly child fathers, and only child mothers tended to be less satisfied with their life and job than nononly child mothers, the difference was not statistically significant. Further, the social life of onlies didn't differ significantly from that of nononlies. However, onlies tended to be more secular oriented and have lower church attendance. In terms of parenting practices, from the viewpoint of their children, no significant difference was found between the two groups. Nonetheless, according to the results of the modified *Warner Scale*, parents of only born children have better achievement in education and occupation than parents of non-only children (Inkeles & Smith, 1974). Only born males are more likely to have post-baccalaureate degree and have more prestigious occupations than non-only born males. Further, only born males are more likely to marry well-educated women. Similar, but not significant trends, were found among women who were only borns. Women only borns tended to be more autonomous, when making the decision to work. In summary, adult onlies are as socially satisfied and normal at parenting as adult nononlies. Furthermore, only born women tended to be more secular and achievement oriented.

In China, studies of only-born adults in terms of occupational adaptation, socialization, independent living, and mental health usually produced neutral or slightly positive results. Zhang, Yu, Zhao, Li, and Xiao (2007) investigated young college adult onlies and non-onlies, who were 19 to 20 years old. The study reported Chinese onlies tended to possess better mental and psychological capacities than Chinese non-onlies. The study randomly selected 139 pairs of onlies and non-onlies from Southern Medical University in Guangzhou, Guangdong. The target students were evaluated by *SCL-90*, a Chinese standard self-evaluation survey on mental health, the *Self-Esteem Scale*, *Sphere*

of Control Scale, Security Questionnaire, and Cattell 16-PF Questionnaire, a questionnaire about 16 personality characteristics. The 16 factors included warmth, reasoning, emotional stability, dominance, liveliness, rule-consciousness, social boldness, sensitivity, vigilance, abstractedness, privateness, apprehension, openness to change, self-reliance, perfectionism, and tension. The results reported that onlies received lower scores in the *SCL-90* than non-onlies, which indicated that onlies have better self-perceived mental health. Further, onlies received higher scores in factors of emotional stability, dominance, and liveliness, but lower scores in apprehension than non-onlies.

Other studies focused mainly on adults seeking occupations after graduation from college. Feng and Wang (2003) studied the occupation adaptation of young urban Chinese adults and found no significant differences between only-child adults and non-only-child adults. The study surveyed 638 young Chinese adults in four cities. The results revealed that occupation adaptation is not influenced by birth effect in urban areas but by the length of service, the relationship with fellow workers, and years of education. Feng (2005) conducted a national survey of 1786 in-service young adults from 12 urban cities to investigate difference in social adaptability, such as career, love, marriage, interpersonal relation, independent life and self-cognition, between onlies and their non-only peers. He found no significant differences in adaptability to society; however, a slight difference in independent living existed. Onlies as adults appear to be less independent in living or in self care.

Not until recently did researchers start to focus on the rocketing divorce rates among only-born adults. Traditionally, influenced by strong Confucianism ideology and governmental administrative measures, Chinese families have had a stable structure,

evidenced by low divorce rates. According to the report of Ministry of Civil Affairs of China (2002) the divorce rates were below 5% (5 divorces per 100 marriages) before 1979. However, the divorce rates increased from 5% in 1979 to 15.3% in 2001. Sharp structural change within Chinese families introduced by the the One-Child Policy may have contributed to the increase of divorce rates, as speculated by Sheng (2005). Settles, Sheng, and Zang (2008) claimed that a decreased number of children in a household allows more time for parents to pursue careers and avocations. Meanwhile, in continuing prosperous economic situations, the salary of one parent is sufficient to support his or herself and a child. Platte (1988) reported that a new marriage law implemented on January 1st, 1981 made divorce less complicated and easier to process by court. As a result, the bond of marriage has started to loosen. Divorce as a solution is likely to be mentioned when conflicts occurred between couples, especially among first generations of only-born parents. One of the sources of such conflict might come from living with one couples' parents. Settles, Sheng, and Zang (2008) stated that compared with the marital status between first generation of only-born parents and non-only born parents, the former tends to rely on their parents for wedding expenses, childcare, and often co-residence with one of their parents after marriage. Xinhua (2006) reported a study of 162 married couples aged below 30 years of age found that about 87% of only children felt pressured to find a spouse to satisfy their parents, 58% acknowledged their parents contributed to the break-up or divorce, and 55% said that their parents interfered with their marriage. Furthermore, this study also showed that divorce rates are related to the sibling status of the husband and wife. For instance, the divorce rates is 24.5% if couples were both onlies, 8.4% if one partner was an only, and 11.7% if couples were both non-

onlies. Another report from National Public Radio (NPR) in 2010 reported that the One-Child Policy and China's explosive economic growth caused "lightning divorces" to strike China. In this report, Louisa Lim reported that 20% of marriages now end in divorce. Among them, Beijing has the highest rate at 39%. Nationwide, rates are expected to soar in future years. Statistics from one Beijing district court in 2009 reported divorce rates among the under-30-year-old group had doubled annually over the past five years, with 97% of the couples being only children. Interviews of marriage counselors claimed that there is a lack of responsibility and a strong sense of independence contributing to divorce for onlies. Only-born couples frequently find it difficult to forgive, understand, and compromise with each other. Lim also interviewed Li Xue Feng, a 31-year-old divorced man, the founder of Happy Divorce Village. Feng stated that most marriages fall apart over little things, like who should do the cooking or laundry. Lim also reported the concept of "trade up" as another reason for divorce. In this more-than-ever materialized Chinese society, the ability for males to afford houses and cars plays an important role in attracting mates. Hesketh, Li, and Zhu (2005) claimed that a higher ratio of men to women in both rural and urban China has made the competitive pressure greater for Chinese males.

In summary, a variety of research studies have been conducted upon only borns and non-only borns in China. Research studies have been questioned and criticized and specific findings have varied significantly. Jiang and Yao (2010) and Ye (2010) concluded that it is commonly agreed that, compared with non-onlies, onlies tend to be more advantaged in the development of certain cognitive, emotional, social, and physical domains. Furthermore, parents of onlies tend to be more involved in the rearing of the

only child, placing upon him or her higher parental expectations to achieve. Notwithstanding, onlies also have frequently reported disadvantages, such as self-centeredness, strong dependence, and lack of accountability, and over attachment to parents. While, significant differences between onlies and non-onlies exist, differences are most pronounced with younger children, particularly in early childhood and in kindergarten. As only borns mature, differences over time tend to become less pronounced or to become not significant. Nonetheless, arguments about negative personality traits of onlies continue. In addition, as an increasing number of onlies become parents, how will their high rate of divorce and parenting styles influence Chinese society? Research conducted upon young adult Chinese students at a small midwest university could identify various personality characteristics among only born and non-only born students who are studying in the United States. Because much of the research reviewed highlighted onlies being more dependent on parents and others, being more self-centered, and less independent than non-onlies, the present study focused on an independent to dependent personality continuum, comparing only and non-only born students at Pittsburg State University.

Design of Instrument

Fundamental Interpersonal Relations Orientation-Behavior (FIRO-B)

FIRO-B refers to the *Fundamental Interpersonal Relations Orientation-Behavior*. This instrument was created in the late 1950s by an American psychologist William Schutz, PhD at the University of Los Angeles in California. In 1958, Schutz introduced a

theory of interpersonal relations that he called Fundamental Interpersonal Relations Orientation-Behavior (*FIRO-B*). The *FIRO-B* model measured interpersonal needs, defined as a psychological condition that if not satisfied, leads to a state of anxiety or discomfort. He categorized this interpersonal need into three categories, namely, Inclusion, *Control* and *Affection*. The *FIRO-B* model is based on the theory that fulfillment of these interpersonal needs serves as motivation in people's daily functioning. Specifically, the need for Inclusion refers to the extent to which individuals need to have social interactions and associations with others. The need for Control refers to the extent to which individuals want to lead and influence others as well as the extent to which they prefer to be led and influenced (Schutz, 1958). The need for Affection refers to the emotional connections between people and the extent to which individuals seek to establish relationships with others, particularly one-on-one relationships (Waterman & Rogers, 1996).

Several studies were conducted to test the validity of *FIRO-B*. Kramer (1967) constructed the validation of the *FIRO-B* and found positive results. Later, Froehle (1970) reported his failure at replicating Kramer's results and thus cast doubts on the validity of *FIRO-B* as an assessment to measure human perception of psychological need, such as inclusion, control, and affection. Gluck (1979) successfully replicated Kramer's results and concluded that the differences in groups being tested contributed to the controversy between Kramer and Froehle. In Krause, Anderson & Thompson (2008), validity of *FIRO-B* was reevaluated. The results confirmed Kramer's results about the construct validity of the *FIRO-B* questionnaire.

Academic Motivation Scale

Robert J. Vallerand, a professor at University of Quebec at Montreal. Vallerand, Blais, Brière, & Pelletier (1989) developed the *Echelle Motivation en Education (EME)* based on self-determination theory. *EME* is an instrument of 28 items measuring intrinsic, extrinsic motivation, and academic amotivation (lack of academic motivation). The intrinsic motivation is subdivided into three types, namely, intrinsic motivation to know, to accomplish things, and to experience stimulation. Extrinsic motivation is also divided into three types, namely, extrinsic motivation triggered by external, introjected, and identified regulations. The original instrument was developed in French. Vallerand, Blais, Brière, Caroline & Evelyne (1992) conducted an investigation to cross-culturally validate in English version of *EME*, named Academic Motivation Scale (*AMS*). The results provided adequate support for the validity and reliability of the *AMS* and its use in education research on motivation. Cokley, Bernard, Cunningham & Motoike (2001) reviewed the validity of *AMS* from a psychological standpoint using the United States samples. In their conclusion, they concluded that it is counterintuitive to separate intrinsic motivation totally from extrinsic motivation. Furthermore, their results showed considerable overlap between intrinsic and extrinsic motivation scales. The results lent partial support for cross-cultural adaptation of *EME* with United States sample. Later, *AMS* was frequently used to study and measure motivation levels with elementary, high school, and undergraduate university students. The results showed decreased intrinsic motivation with age. Hegarty (2010) conducted his investigation of the validity of *AMS* among the United States graduate students. The sample for this study consisted of 240 graduate students majoring in either business or education in a private, urban university in the northeast of United States. The results showed consistency of the *AMS* instrument.

The Adult Personality Inventory Manual

Krug (1984) developed the *Adult Personality Inventory (API) Manual*, from the University of Illinois at Urbana-Champaign. The Adult Personality Inventory (*API*) is designed to assess normal-range personality characteristics. The *API* provides a technology for assessing major dimensions of adult personality and reporting them in terms that are understandable and relevant. *API* results are reported in terms of three sets of scales: Personal Characteristics, Interpersonal Style, and Career Factors. Each scale includes six major characteristics. This instrument used a similar assessment method as the present thesis by using a statement and a Likert scale to rate the statement. There have been few studies attempting to assess the validity of Krug's *API*.

In summary, survey items for the present study were adapted and arranged to identify possible independent and dependent personality characteristics of survey respondents.

Summary

The review of the literature was designed to support the development of the eight research questions and a survey to study the independent and dependent personality characteristics within and between groups of singleton and non-singleton Pittsburg State University Chinese students, who have in common English as a second or other language. Chapter three includes the methods and procedures used to organize the study, to collect the data and to analyze the data.

CHAPTER III

Methodology

Introduction

The purpose of the survey study was to collect data about independent and dependent personality characteristics within and between groups of singleton and non-singleton Pittsburg State University Chinese students, who have in common English as a second or other language.

The goal of this chapter was to describe the research design, sources of data, data-gathering procedures and the treatment of data for 47 research items.

Research Design

A non-experimental and a non-parametric descriptive statistical design (Runyon & Haber, 1984) as used to collect and analyze data for 47 research items. Survey items were organized as 7 demographic items and 40 survey items. The survey was developed in English (Appendix A), translated into Chinese (Appendix B). Chinese students took the survey in English, assisted, if needed, by the Chinese version of the survey.

Specifically, items in the survey came from three major sources: *Fundamental Interpersonal Relations Orientation-Behavior* (Schutz, 1958), *Academic Motivation Scale* (Vallerand, 1992), and the *Adult Personality Inventory Manual* (Krug, 1984). Items were adapted for the present research instrument.

Source of Data and Sample

Data for this study were obtained from a survey instrument developed by this investigator and administrated to volunteer Chinese students (Mainland or Taiwan) enrolled in 2010 fall semester at Pittsburg State University.

Instrumentation

A review of existing surveys and/or questionnaires failed to reveal an instrument that accurately surveyed both singleton and non-singleton adult Chinese college students. This finding led to the development of a survey instrument to assess adult Chinese students from singleton and non-singleton families. A copy of the survey is found in Appendix A and Appendix B.

Validity of the Survey

A panel of four experts was established to review the survey for spelling, grammar, and context of stated independent and dependent personality characteristics. A

75% agreement among the four judges was required to accept each of the 40 items submitted for the survey. Items not matching this requirement were rejected and replaced with an item meeting 75% agreement. The panel of four judges consisted of College of Education professors and personnel, Dr. Kenny Mc Dougle, Dr. Trinity Davis, Dr. Kathleen Spillman, and Steven J. Brown.

Further, Dr. Shao Guo Song, who is a Chinese professor fluent in English as a second language at Pittsburg State University, compared the English version of the survey with its English translation. He certified that the English to Chinese translation were consistent with each other. His statement of certification is provided in Appendix C.

Data Gathering Procedure

This investigator developed two major data gathering procedures for the survey. Some surveys were distributed by the investigator to students who represented major Chinese partner universities, namely Soochow University, Sichuan Normal University, Ning Bo University, Harbin University of Science and Technology, South China University of Technology, Henan University, and universities in Taiwan. The balance of the surveys was distributed by the investigator at a workshop of Intensive English Program (IEP), with oral approval of the IEP director. Attached to each copy of the survey was a cover letter and an envelope addressed to Dr. Ray Willard 117-D Hughes Hall, Pittsburg State University, to be returned through PSU campus mail.

Respondents were encouraged to complete and mail the survey in a sealed envelope to Dr. Willard within fourteen days of receipt of the survey. Respondents were

also encouraged to contact the investigator in case of questions regarding the survey. Anonymity was assured. A copy of the cover letter is in Appendix D.

Statistical Treatment of Data

Data were gathered and descriptively analyzed at the nominal and ordinal levels. Twenty independent personality survey items and twenty dependent personality survey items were tabulated and scored for singleton and non-singleton groups. Each area of scoring for each group were totaled and analyzed using mean, median, standard deviation, coefficient of skew, and comparison of independent ordinal means within and between groups. A protocol was established for comparing means (Runyon & Haber, 1984). First, individual distributions must be sufficiently symmetrical, but not exceeding the standard coefficient of skew from zero to plus or minus 0.50, using Pearson's Coefficient of Skew. Second, two independent means exceeding one-half of one ordinal designation difference, based upon a Likert Scale of five ordinal designations, are assumed to represent a significant difference between two independent means. Conversely, two independent means with less than one-half of one ordinal designation difference, based upon a Likert Scale of five ordinal designations, are assumed to represent no significant difference between two independent means.

Research Questions

This study was concerned with finding answers to the following questions:

1. How do singleton PSU Chinese students compare to non-singleton PSU Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?
2. How do singleton PSU Chinese students compare to non-singleton PSU Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships?
3. How do singleton PSU female Chinese students compare to non-singleton PSU female Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?
4. How do singleton PSU female Chinese students compare to non-singleton PSU female Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships?
5. How do singleton PSU male Chinese students compare to non-singleton PSU male Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?
6. How do singleton PSU male Chinese students compare to non-singleton PSU male Chinese students on dependent characteristics, such as dependent traits,

interpersonal traits, extrinsic motivation, and dependent child/parental relationships?

7. How do singleton PSU female Chinese students compare to singleton PSU male Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?
8. How do singleton PSU female Chinese students compare to singleton PSU male Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships?

Summary

The goal of Chapter III was to familiarize the reader with the research design, sources of data, instrumentation, and validity of the survey, data-gathering procedure, and statistical treatment of data. The findings from this methodology are presented in Chapter IV.

CHAPTER IV

Data Presentation and Analysis

Chapter IV displays data resulting from the survey of perceptions of Chinese students at Pittsburg State University toward their dependent and independent personality characteristics. A description of characteristics and patterns generated from the data collection is presented. Further, eight research questions were analyzed. Chapter IV displays the findings of the study.

Sampling Procedure

The intact sample represented a volunteer student population of Chinese students at Pittsburg State University. Surveys were distributed from October 20 through December 20 in 2011. Eighty-nine out of a hundred surveys were returned in sealed envelopes through campus mail. Survey completion signaled consent from participants. A copy of the survey is included in Appendix A.

Sample Anonymity

Subjects were assured that their identity would not be revealed in this study. All completed survey instruments were returned through campus mail separately by each participant to Dr. Ray Willard at Pittsburg State University.

Sample Description

A hundred surveys were distributed and a voluntary intact sample of 89 Chinese college students at Pittsburg State University responded to the survey, returning the survey to Dr. Ray Willard at 117-D Hughes Hall. The return rate was 89/100 or 89%. The responding sample includes 56 singletons and 33 non-singletons. There were 58 females, 37 of whom were singletons and 21 non-singletons; 31 males, 19 of whom were singletons and 12 non-singletons. Among them, 43 were undergraduate exchange students, 8 were regular undergrads, 9 were graduate exchange students, and 17 were regular graduate students, and 12 were Intensive English Program (IEP) students. A total of 35 (out of 58) female students were undergraduate exchange students, 5 were regular undergraduate students, 3 were graduate exchange students, 12 were regular graduate students, and 3 were IEP students. Among 31 males, 8 were undergraduate exchange students, 3 were regular undergraduate students, 6 were graduate exchange students, 5 were regular graduate students, and 9 were in the IEP program. Relevant descriptive statistics are provided in Table I.

Table I

Description of Subjects by Gender, Sibling Status, and Level of Study

| | Female | Male | Total |
|---|--------|------|-------|
| Singleton | 37 | 19 | 56 |
| Non-singleton | 21 | 12 | 33 |
| Undergraduate exchange student | 35 | 8 | 43 |
| Graduate exchange student | 3 | 6 | 9 |
| Regular undergraduate student | 5 | 3 | 8 |
| Regular graduate student | 12 | 5 | 17 |
| Intensive English Program (IEP) student | 3 | 9 | 12 |

Description of Level of Study by Sibling Status and Gender

A description of singletons by level of study and gender yielded 21 female and 7 male students, for a total of 28 singletons who were undergraduate exchange students. There were 5 singleton graduate exchange students, 2 female and 3 male. There was a total of 12 singleton regular graduate students, 9 female and 3 male. There was a total of 8 singleton Intensive English Program students, 3 female and 5 male. A description of non-singletons by level of study and gender yielded 15 undergraduate exchange students, 14 female and 1 male. There was a total of 4 non-singleton graduate exchange students, 1 female and 3 male. There was a total of 5 non-singleton regular undergraduate students, 3 female and 2 male. There was a total of 5 non-singleton regular graduate students, 3 female and 2 male. There was a total of 4 Intensive English Program non-singleton students, zero female and 4 male. Relevant descriptive statistics are provided in Table II.

Table II

Description of Level of Study by Sibling Status and Gender

| | Singletons (N=56) | | | Non-Singletons (N=33) | | |
|---|-------------------|----------------|-------|-----------------------|--------------------|-------|
| | Female Singleton | Male Singleton | Total | Female Non-singleton | Male Non-singleton | Total |
| Undergraduate exchange student | 21 | 7 | 28 | 14 | 1 | 15 |
| Graduate exchange student | 2 | 3 | 5 | 1 | 3 | 4 |
| Regular undergraduate student | 2 | 1 | 3 | 3 | 2 | 5 |
| Regular graduate student | 9 | 3 | 12 | 3 | 2 | 5 |
| Intensive English Program (IEP) student | 3 | 5 | 8 | 0 | 4 | 4 |

Description of Subjects by Major, Sibling Status, and Gender

A description of subjects by major, sibling status and gender yielded 28 singleton majors in business, 21 female and 7 male. There were 3 females and zero singleton males who majored in education. A total of 11 singletons majored in technology, 2 female and 9 male. There was a total of 14 singletons who majored in other categories, representing English, communications, and music, 11 females and 3 males. A description of subjects by major, sibling status, and gender yielded 48 non-singletons who majored in business, 14 females and 6 males. A total of 2 non-singletons majored in education, 1 female and 1 male. There was a total of 3 non-singletons who majored in technology, 2 females and 1 male. There was a total of 8 non-singletons who majored in the other category, represented by English, communications, and music, 4 females and 4 males. Most Chinese majored in two areas, 48 students in business and 14 students in technology. Relevant descriptive statistics are provided in Table III.

Table III

Description of Subjects by Major, Sibling Status, and Gender

| Major | Singleton (N=56) | | | Non-singleton (N=33) | | |
|------------|------------------|----------------|-------|----------------------|--------------------|-------|
| | Female Singleton | Male Singleton | Total | Female Non-singleton | Male Non-singleton | Total |
| Business | 21 | 7 | 28 | 14 | 6 | 20 |
| Education | 3 | 0 | 3 | 1 | 1 | 2 |
| Technology | 2 | 9 | 11 | 2 | 1 | 3 |
| Other | 11 | 3 | 14 | 4 | 4 | 8 |

Description of Singleton and Non-singleton Fathers' Education

A description of singleton fathers' level of education yielded 2 fathers who had and elementary or middle school education, representing 1 male and 1 female singleton. Eight fathers of singletons, 7 female and 1 male, had a high school diploma. Thirty four fathers of singletons, 21 male and 13 female, had a bachelor's degree or equivalent. Twelve fathers of singletons, 9 female and 4 male, had a master's degree or higher. A description of non-singleton fathers' level of education yielded 2 fathers of non-singletons, 1 male and 1 female, who had elementary or middle school education. Twelve fathers of non-singletons, 8 female and 4 male, had a high school diploma. Sixteen fathers of non-singletons, 11 female and 5 male, had a bachelors' degree or equivalent. Three fathers of non-singletons, 1 female and 2 male, had a master's degree or higher. Singleton fathers represented 34 bachelor's degrees, compared with 14 non-singleton fathers who had a bachelor's degree. Twelve singleton fathers had a master's or higher degree, compared with 3 non-singleton fathers who had a master's or higher degree. Relevant descriptive statistics are presented in Table IV.

Table IV

Description of Singleton and Non-singleton Fathers' Education

| Fathers of | Singleton (N=56) | | | Non-singleton (N=33) | | |
|--------------------------------------|------------------|----------------|-------|----------------------|--------------------|-------|
| | Female Singleton | Male Singleton | Total | Female Non-singleton | Male Non-singleton | Total |
| Elementary or Middle school | 1 | 1 | 2 | 1 | 1 | 2 |
| High school diploma | 7 | 1 | 8 | 8 | 4 | 12 |
| Bachelor's Degree or its equivalence | 21 | 13 | 34 | 11 | 5 | 16 |
| Master's Degree or higher | 8 | 4 | 12 | 1 | 2 | 3 |

Description of Singleton and Non-singleton Mothers' Education

A description of singleton mothers' level of education yielded 4 mothers who had elementary or middle school education, representing 2 male and 2 female singletons. Sixteen mothers of singletons, 11 female and 5 male, had a high school diploma. Twenty-eight mothers of singletons, 11 female and 17 male, had a bachelor degree or equivalent. Eight fathers of singletons, 7 female and 1 male, had a master degree or higher. A description of non-singleton mothers' level of education yielded 3 mothers of non-singletons, 1 female and 2 male, who had elementary or middle school education. Twelve mothers of non-singletons, 9 female and 3 male, had a high school diploma. Sixteen mothers of non-singletons, 10 female and 6 male, had a bachelors' degree or equivalent. Two mothers of non-singletons, 1 female and 1 male, had a master's degree or higher. Singleton mothers represented 28 bachelor's degrees, compared with 16 non-singleton mothers who had a bachelor's degree. Eight singleton mothers had a master's

or higher degree, compared with 2 non-singleton mothers who had a master's or higher degree. Relevant descriptive statistics are presented in Table V.

Table v
Description of Singleton and Non-singleton Mothers' Education

| Mothers of | Singleton (N=56) | | | Non-singleton (N=33) | | |
|--------------------------------------|------------------|----------------|-------|----------------------|--------------------|-------|
| | Female Singleton | Male Singleton | Total | Female Non-singleton | Male Non-singleton | Total |
| Elementary or Middle school | 2 | 2 | 4 | 1 | 2 | 3 |
| High school diploma | 11 | 5 | 16 | 9 | 3 | 12 |
| Bachelor's Degree or its equivalence | 17 | 11 | 28 | 10 | 6 | 16 |
| Master's Degree or more | 7 | 1 | 8 | 1 | 1 | 2 |

Description of Singleton and Non-singleton Fathers' Occupation

A description of singleton fathers' occupation yielded 20 fathers who worked in business, representing 14 female and 6 male singletons. Six fathers of singletons, 6 female and zero male, worked in education. Fourteen fathers of singletons, 6 female and 8 male, worked in technology. There was a total of 16 fathers of singletons, 11 female and 5 male, worked in other fields, represented by government, medicine, and science. A description of non-singleton fathers' occupation yielded 16 fathers of non-singletons, 12 female and 4 male, who worked in business. One father of non-singletons, zero female and one male, worked in education. Twelve fathers of non-singletons, 7 female and 5 male, worked in technology. Four fathers of non-singletons, 2 female and 2 male, worked in other fields, represented by government, medicine, and science. Most fathers

worked in two areas, 20 fathers of singletons and 16 fathers of non-singletons worked in business. Fourteen fathers of singletons and 12 fathers of non-singletons worked in technology. Relevant descriptive statistics are provided in Table VI.

Table VI

Description of Singleton and Non-singleton Fathers' Occupation

| Fathers of | Singleton (N=56) | | | Non-singleton (N=33) | | |
|------------|------------------|----------------|-------|----------------------|--------------------|-------|
| | Female Singleton | Male Singleton | Total | Female Non-singleton | Male Non-singleton | Total |
| Business | 14 | 6 | 20 | 12 | 4 | 16 |
| Education | 6 | 0 | 6 | 0 | 1 | 1 |
| Technology | 6 | 8 | 14 | 7 | 5 | 12 |
| Other | 11 | 5 | 16 | 2 | 2 | 4 |

Description of Singleton and Non-singleton Mothers' Occupation

A description of singleton mothers' occupation yielded 23 mothers who worked in business, representing 17 female and 6 male singletons. Seventeen mothers of singletons, 12 female and 5 male, worked in education. Six mothers of singletons, 3 female and 3 male, worked in technology. There was a total of 10 mothers of singletons, 5 female and 5 male, who worked in other fields, represented by government, medicine, and housewife. A description of non-singleton mothers' occupation yielded 12 mothers of non-singletons, 10 female and 2 male, who worked in business. Five mothers of non-singletons, 2 female and 3 male, worked in education. Five mothers of non-singletons, 3 female and 2 male, worked in technology. Eleven mothers of non-singletons, 6 female and 5 male, worked in other fields, represented by government, medicine, and housewife.

Most mothers worked in one area, 23 mothers of singletons and 12 mothers of non-singletons worked in business. Relevant descriptive statistics are provided in Table VII.

Table VII

Description of Singleton and Non-singleton Mothers' Occupation

| Mothers of | Singleton (N=56) | | | Non-singleton (N=33) | | |
|------------|------------------|----------------|-------|----------------------|--------------------|-------|
| | Female Singleton | Male Singleton | Total | Female Non-singleton | Male Non-singleton | Total |
| Business | 17 | 6 | 23 | 10 | 2 | 12 |
| Education | 12 | 5 | 17 | 2 | 3 | 5 |
| Technology | 3 | 3 | 6 | 3 | 2 | 5 |
| Other | 5 | 5 | 10 | 6 | 5 | 11 |

Descriptive Analysis of Research Question One

Question one: How do singleton PSU Chinese students compare to non-singleton PSU Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?

Description of Singletons' Independent Scores

A description of singletons' independent mean scores in 4 areas is: (1) independent traits were sufficiently symmetrical for comparison of means and the mean equaled 3.41. (2) Intrapersonal traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.75. (3) Intrinsic motivations, however, were significantly skewed and the mean equaled 3.79. (4) Independent child/parent relationships were sufficiently symmetrical for comparison of mean and the mean equaled 3.42. Relevant descriptive statistics are presented in Table VIII.

Table VIII
Description of Singletons' Independent Scores

| Independent Traits | Mean | Median | SD | Skew | Intrapersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|--------------------------|------|--------|------|-------|
| 6 | 2.66 | 3 | 1.16 | 0.2 | 1 | 4.00 | 4 | 0.99 | -0.93 |
| 9 | 3.70 | 4 | 0.85 | -0.1 | 7 | 3.82 | 4 | 0.83 | -0.04 |
| 18 | 3.86 | 4 | 0.82 | -0.14 | 21 | 3.52 | 4 | 0.93 | -0.12 |
| 35 | 3.21 | 3 | 0.87 | -0.09 | 33 | 3.79 | 4 | 0.91 | -0.46 |
| 36 | 3.63 | 4 | 0.84 | -0.32 | 34 | 3.61 | 4 | 1.22 | -0.45 |
| Total | 3.41 | 4.00 | 1.01 | -0.37 | Total | 3.75 | 4.00 | 0.99 | -0.47 |
| Intrinsic Motivation | | | | | Independent child/parent | | | | |
| 11 | 3.64 | 4 | 1.03 | -0.76 | 8 | 3.73 | 4 | 1.12 | 0.48 |
| 17 | 4.16 | 4 | 0.93 | -1.18 | 13 | 3.63 | 4 | 1.26 | -0.49 |
| 23 | 4.20 | 4 | 0.77 | -0.6 | 38 | 2.96 | 3 | 0.95 | 0.2 |
| 28 | 4.00 | 4 | 0.85 | -0.36 | 39 | 2.82 | 3 | 1.27 | 0.13 |
| 31 | 2.93 | 3 | 1.01 | -0.07 | 40 | 3.96 | 4 | 1.03 | -0.76 |
| Total | 3.79 | 4.00 | 1.03 | -0.66 | Total | 3.42 | 4.00 | 1.12 | -0.12 |

Description of Non-singletons' Independent Scores

A description of non-singletons' independent mean scores in 4 areas is: (1) Independent traits equal 3.32. (2) Intrapersonal traits were significantly skewed and the mean equaled 3.74. (3) Intrinsic motivation were significantly skewed and the mean equaled 3.85. (4) Independent child/parent relationships were sufficiently symmetrical for comparison of means and the mean equaled 3.45. Relevant descriptive statistics are presented in Table IX.

Table IX
Description of Non-singletons' Independent Scores

| Independent Traits | Mean | Median | SD | Skew | Intrapersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|--------------------------|------|--------|------|-------|
| 6 | 3.06 | 3 | 1.25 | -0.12 | 1 | 4.03 | 4 | 1.05 | -1.46 |
| 9 | 3.76 | 4 | 0.94 | -0.45 | 7 | 3.70 | 4 | 0.81 | 0.25 |
| 18 | 3.67 | 4 | 0.96 | -0.4 | 21 | 3.79 | 4 | 0.96 | -0.22 |
| 35 | 2.85 | 3 | 1.18 | 0.07 | 33 | 3.79 | 4 | 0.93 | -0.3 |
| 36 | 3.27 | 3 | 0.88 | -0.58 | 34 | 3.39 | 3 | 1.3 | -0.44 |
| Total | 3.32 | 3.00 | 1.09 | -0.36 | Total | 3.74 | 4.00 | 1.03 | -0.61 |
| Intrinsic Motivation | | | | | Independent child/parent | | | | |
| 11 | 3.70 | 4 | 0.88 | -0.21 | 8 | 3.88 | 4 | 1.11 | -0.77 |
| 17 | 4.30 | 5 | 0.95 | -1.82 | 13 | 3.30 | 3 | 1.05 | 0.39 |
| 23 | 4.21 | 4 | 0.82 | -0.78 | 38 | 3.06 | 3 | 0.9 | 0.15 |
| 28 | 3.94 | 4 | 1.17 | -0.87 | 39 | 3.03 | 3 | 1.19 | -0.06 |
| 31 | 3.12 | 3 | 0.96 | 0.2 | 40 | 4.00 | 4 | 1.09 | -0.93 |
| Total | 3.85 | 4.00 | 1.04 | -0.62 | Total | 3.45 | 3.00 | 1.13 | -0.18 |

Comparison of Singleton With Non-singletons' Independent Mean Scores

A comparison of singleton with non-singletons' independent mean scores in 4 areas is: singletons whose mean score was 3.41 and non-singletons whose mean score was 3.32 had a similar mean score of independent traits. Singletons whose mean score was 3.75 and non-singletons whose score was 3.74 had a similar mean score of intrapersonal traits. Singletons whose mean score was 3.79 and non-singletons whose mean score was 3.85 had a similar mean score of intrinsic motivation. Singletons whose mean score was 3.42 and non-singletons whose mean score was 3.45 had a similar mean score of independent child/parent relationship. For Research Question One, no significant differences were found between singleton and non-singleton for mean score on independent traits, intrapersonal traits, intrinsic motivation, and independent

child/parent relationships. Relevant descriptive statistic mean scores are presented in Table X

Table X
Comparison of Singleton With Non-singletons' Independent Mean Scores

| Independent | Mean Scores of Singletons | Mean Scores of Non-singletons |
|---|---------------------------|-------------------------------|
| Independent Traits* | 3.41 | 3.32 |
| Intrapersonal Traits* | 3.75 | 3.74 |
| Intrinsic Motivation* | 3.79 | 3.85 |
| Independent Child/Parent Relationships* | 3.42 | 3.45 |

*=No significant difference

Descriptive Analysis of Research Question Two

Question two: How do singleton PSU Chinese students compare to non-singleton PSU Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships?

Description of Singletons' Dependent Scores

A description of singletons' dependent mean scores in 4 areas is: (1) dependent traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.27. (2) Interpersonal traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.63. (3) Extrinsic motivations were sufficiently symmetrical for comparison of mean and the mean equaled 3.53. (4) Dependent child/parent relationships were sufficiently symmetrical for comparison of mean and the mean equaled 3.34. Relevant descriptive statistics are presented in Table XI.

Table XI

Description of Singletons' Dependent Scores

| Dependent Traits | Mean | Median | SD | Skew | Interpersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|------------------------|------|--------|------|-------|
| 5 | 3.48 | 4 | 1.1 | -0.56 | 2 | 3.50 | 3.5 | 0.89 | -0.24 |
| 12 | 3.00 | 3 | 1.01 | -0.11 | 3 | 3.11 | 3 | 1.02 | 0.2 |
| 15 | 2.73 | 3 | 0.98 | 0.45 | 10 | 3.39 | 3 | 1.12 | -0.04 |
| 20 | 3.68 | 4 | 0.97 | -0.65 | 14 | 3.77 | 4 | 0.91 | -0.55 |
| 26 | 3.45 | 3.5 | 1.04 | -0.3 | 24 | 4.36 | 5 | 0.86 | -1.48 |
| Total | 3.27 | 3.50 | 1.07 | -0.2 | Total | 3.63 | 3.50 | 1.05 | -0.32 |
| Extrinsic Motivation | | | | | Dependent child/parent | | | | |
| 4 | 4.02 | 4 | 0.94 | -0.57 | 16 | 3.54 | 4 | 1.09 | -0.35 |
| 19 | 3.21 | 3 | 1.32 | -0.16 | 22 | 3.18 | 3 | 1.06 | 0.19 |
| 29 | 3.55 | 4 | 1.03 | -0.57 | 25 | 4.48 | 5 | 0.83 | -1.91 |
| 30 | 3.71 | 4 | 1 | -0.39 | 27 | 2.95 | 3 | 1.33 | 0.1 |
| 32 | 3.16 | 3 | 1.12 | -0.17 | 37 | 2.54 | 2.5 | 0.91 | 0.48 |
| Total | 3.53 | 4.00 | 1.13 | -0.43 | Total | 3.34 | 3.00 | 1.24 | -0.13 |

Description of Non-singletons' Dependent Scores

A description of non-singletons' dependent mean scores in 4 areas is: (1) dependent traits were sufficiently symmetrical for comparison of means and the mean equaled 3.53. (2) Interpersonal traits were sufficiently symmetrical for comparison of means and the mean equaled 3.53. (3) Extrinsic motivations were sufficiently symmetrical for comparison of means and the mean equaled 3.50. (4) Dependent child/parent relationships were sufficiently symmetrical for comparison of means and the mean equaled 3.31. Relevant descriptive statistics are presented in Table XII.

Table XII

Description of Non-singletons' Dependent Scores

| Dependent Traits | Mean | Median | SD | Skew | Interpersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|------------------------|------|--------|------|-------|
| 5 | 3.76 | 4 | 0.9 | -0.03 | 2 | 3.24 | 3 | 0.87 | -0.15 |
| 12 | 3.39 | 3 | 0.93 | -0.41 | 3 | 2.82 | 3 | 1.13 | 0.1 |
| 15 | 3.03 | 3 | 1.1 | -0.21 | 10 | 3.64 | 4 | 1.19 | -0.52 |
| 20 | 4.12 | 4 | 0.93 | -0.75 | 14 | 3.64 | 4 | 0.78 | -0.07 |
| 26 | 3.36 | 3 | 0.82 | -0.43 | 24 | 4.33 | 4 | 0.78 | -1.1 |
| Total | 3.53 | 3.00 | 1 | -0.35 | Total | 3.53 | 4.00 | 1.08 | -0.43 |
| Extrinsic Motivation | | | | | Dependent child/parent | | | | |
| 4 | 4.06 | 4 | 0.97 | -0.51 | 16 | 3.55 | 4 | 1.23 | -0.44 |
| 19 | 2.97 | 3 | 1.38 | 0.06 | 22 | 3.33 | 4 | 0.96 | -0.51 |
| 29 | 3.30 | 3 | 1.19 | -0.28 | 25 | 4.42 | 5 | 0.83 | -1.31 |
| 30 | 4.03 | 4 | 0.85 | -0.39 | 27 | 2.82 | 3 | 1.4 | 0.27 |
| 32 | 3.15 | 3 | 1.2 | -0.19 | 37 | 2.42 | 2 | 1.06 | 0.38 |
| Total | 3.50 | 3.00 | 1.21 | -0.44 | Total | 3.31 | 4.00 | 1.3 | -0.24 |

Comparison of Singleton With Non-singletons' Dependent Mean Scores

A comparison of singleton with non-singletons' dependent mean scores in 4 areas is: singletons whose mean score was 3.41 and non-singletons whose mean score was 3.32 had a similar mean score of dependent traits. Singletons whose mean score was 3.75 and non-singletons whose mean score was 3.74 had a similar mean score of interpersonal traits. Singletons whose mean score was 3.79 and non-singletons whose mean score was 3.85 had a similar mean score of extrinsic motivation. Singletons whose mean score was 3.42 and non-singletons whose mean score was 3.45 had a similar mean score of dependent child/parent relationship. For Research Question Two, no significant differences were found between singleton and non-singleton for mean scores on dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parent relationships. Relevant descriptive statistic mean scores are presented in Table XIII

Table XIII

Comparison of Singleton With Non-singletons' Dependent Mean Scores

| Independent | Mean Scores of Singletons | Mean Scores of Non-singletons |
|---|---------------------------|-------------------------------|
| Independent Traits* | 3.27 | 3.53 |
| Intrapersonal Traits* | 3.63 | 3.53 |
| Intrinsic Motivation* | 3.53 | 3.50 |
| Independent Child/Parent Relationships* | 3.34 | 3.31 |

* = No significant difference

Descriptive Analysis of Research Question Three

Question three: How do singleton PSU female Chinese students compare to non-singleton PSU female Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?

Description of Singleton Females' Independent Scores

A description of singleton females' independent mean scores in 4 areas is: (1) independent traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.42. (2) Intrapersonal traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.77. (3) Intrinsic motivations were not sufficiently symmetrical for comparison of mean and the mean equaled 3.85. (4) Independent child/parent relationships were sufficiently symmetrical for comparison of mean and the mean equaled 3.50. Relevant descriptive statistics are presented in Table XIV.

Table XIV

Description of Singleton Females' Independent Scores

| Independent Traits | Mean | Median | SD | Skew | Intrapersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|--------------------------|------|--------|------|-------|
| 6 | 2.70 | 3 | 1.24 | 0.24 | 1 | 3.92 | 4 | 1.09 | -0.92 |
| 9 | 3.78 | 4 | 0.89 | -0.31 | 7 | 3.97 | 4 | 0.76 | 0.05 |
| 18 | 3.86 | 4 | 0.79 | -0.11 | 21 | 3.62 | 4 | 0.83 | -0.1 |
| 35 | 3.19 | 3 | 0.74 | -0.76 | 33 | 3.73 | 4 | 0.9 | -0.38 |
| 36 | 3.57 | 4 | 0.9 | -0.21 | 34 | 3.59 | 4 | 1.28 | -0.35 |
| Total | 3.42 | 4.00 | 1.01 | -0.40 | Total | 3.77 | 4.00 | 0.99 | -0.5 |
| Intrinsic Motivation | | | | | Independent child/parent | | | | |
| 11 | 3.62 | 4 | 1.01 | -0.87 | 8 | 3.84 | 4 | 1.14 | 1.16 |
| 17 | 4.38 | 4 | 0.68 | -0.65 | 13 | 3.62 | 4 | 1.28 | -0.5 |
| 23 | 4.11 | 4 | 0.81 | -0.54 | 38 | 3.03 | 3 | 0.87 | 0.22 |
| 28 | 4.05 | 4 | 0.81 | -0.43 | 39 | 2.97 | 3 | 1.12 | 0.31 |
| 31 | 3.08 | 3 | 1.04 | -0.17 | 40 | 4.03 | 3 | 0.99 | -0.61 |
| Total | 3.85 | 4.00 | 0.98 | -0.73 | Total | 3.50 | 3.00 | 1.16 | 0.13 |

Description of Non-singleton Females' Independent Scores

A description of non-singleton females' independent mean scores in 4 areas is: (1) independent traits were sufficiently symmetrical for comparison of means and the mean equaled 3.34. (2) Intrapersonal traits were significantly skewed and the mean equaled 3.77. (3) Intrinsic motivations were significantly skewed and the mean equaled 4.04. (4) Independent child/parent relationships equal 3.59. Relevant descriptive statistics are presented in Table XV.

Table XV

Description of Non-singleton Females' Independent Scores

| Independent Traits | Mean | Median | SD | Skew | Intrapersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|--------------------------|------|--------|------|-------|
| 6 | 3.14 | 3 | 1.2 | -0.3 | 1 | 3.95 | 4 | 0.97 | -0.34 |
| 9 | 3.76 | 4 | 0.83 | -0.66 | 7 | 3.71 | 4 | 0.9 | 0.18 |
| 18 | 3.76 | 4 | 1.04 | -0.64 | 21 | 3.76 | 4 | 1.04 | -0.35 |
| 35 | 2.86 | 3 | 1.2 | 0.11 | 33 | 3.90 | 4 | 0.94 | -0.19 |
| 36 | 3.19 | 3 | 0.98 | -0.42 | 34 | 3.52 | 4 | 1.29 | -0.83 |
| Total | 3.34 | 3.00 | 1.1 | -0.41 | Total | 3.77 | 4.00 | 1.02 | -0.67 |
| Intrinsic Motivation | | | | | Independent child/parent | | | | |
| 11 | 3.76 | 4 | 0.94 | -0.25 | 8 | 3.81 | 4 | 1.08 | -0.91 |
| 17 | 4.43 | 5 | 0.93 | -2.69 | 13 | 3.52 | 3 | 1.08 | 0.06 |
| 23 | 4.52 | 5 | 0.68 | -1.15 | 38 | 3.10 | 3 | 0.94 | 0.58 |
| 28 | 4.33 | 5 | 1.02 | -2.02 | 39 | 3.24 | 3 | 1.18 | -0.31 |
| 31 | 3.14 | 3 | 0.79 | 0.39 | 40 | 4.29 | 5 | 0.9 | -1.09 |
| Total | 4.04 | 5.00 | 1.01 | -0.88 | Total | 3.59 | 3.00 | 1.11 | -0.3 |

Comparison of Singleton With Non-singleton Females' Independent Mean Scores

A comparison of singleton with non-singleton females' independent mean scores in 4 areas is: singleton females whose mean score was 3.42 and non-singleton females whose mean score was 3.34 had a similar mean score of independent traits. Singleton females whose mean score was 3.77 and non-singleton females whose mean score was 3.77 had a same mean score of intrapersonal traits. Singleton females whose mean score was 3.85 and non-singleton females whose mean score was 4.04 had a similar score of intrinsic motivation. Singleton females whose mean score was 3.5 and non-singleton females whose mean score was 3.59 had a similar mean score of independent child/parent relationship. For Research Question Three, no significant differences were found between singleton and non-singleton females for mean scores on independent traits,

intrapersonal traits, intrinsic motivation, and independent child/parent relationships.

Relevant descriptive statistic mean scores are presented in Table XVI

Table XVI

Comparison of Singleton With Non-singleton Females' Independent Mean Scores

| Independent | Mean Scores of Singleton Females | Mean Scores of Non-singleton Females |
|---|----------------------------------|--------------------------------------|
| Independent Traits* | 3.42 | 3.34 |
| Intrapersonal Traits* | 3.77 | 3.77 |
| Intrinsic Motivation* | 3.85 | 4.04 |
| Independent Child/Parent Relationships* | 3.5 | 3.59 |

*=No significant difference

Descriptive Analysis of Research Question Four

Question four: How do singleton PSU female Chinese students compare to non-singleton PSU female Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships?

Description of Singleton Females' Dependent Scores

A description of singleton females' dependent mean scores in 4 areas is: (1) dependent traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.29. (2) Interpersonal traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.7. (3) Extrinsic motivations were slightly skewed and the mean equaled 3.68. (4) Dependent child/parent relationships were sufficiently symmetrical for comparison of mean and the mean equaled 3.34. Relevant descriptive statistics are presented in Table XVII.

Table XVII

Description of Singleton Females' Dependent Scores

| Dependent Traits | Mean | Median | SD | Skew | Interpersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|------------------------|------|--------|------|-------|
| 5 | 3.54 | 4 | 1.12 | -0.73 | 2 | 3.57 | 4 | 0.9 | -0.46 |
| 12 | 2.97 | 3 | 0.93 | 0.28 | 3 | 3.03 | 3 | 0.99 | -0.06 |
| 15 | 2.76 | 3 | 0.93 | 0.52 | 10 | 3.57 | 4 | 1.09 | -0.38 |
| 20 | 3.73 | 4 | 0.84 | -0.34 | 14 | 3.89 | 4 | 0.84 | -0.38 |
| 26 | 3.42 | 3 | 1.07 | -0.1 | 24 | 4.43 | 5 | 0.73 | -0.89 |
| Total | 3.29 | 3.00 | 1.04 | -0.1 | Total | 3.70 | 4.00 | 1.02 | -0.45 |
| Extrinsic Motivation | | | | | Dependent child/parent | | | | |
| 4 | 4.14 | 4 | 0.89 | -0.53 | 16 | 3.54 | 4 | 1.09 | -0.35 |
| 19 | 3.35 | 3 | 1.23 | -0.35 | 22 | 3.18 | 3 | 1.06 | 0.19 |
| 29 | 3.68 | 4 | 1.03 | -0.75 | 25 | 4.48 | 5 | 0.83 | -1.91 |
| 30 | 3.92 | 4 | 0.92 | -0.5 | 27 | 2.95 | 3 | 1.33 | 0.1 |
| 32 | 3.32 | 3 | 1.06 | -0.11 | 37 | 2.54 | 2.5 | 0.91 | 0.48 |
| Total | 3.68 | 4.00 | 1.07 | -0.52 | Total | 3.34 | 3.00 | 1.24 | -0.13 |

Description of Non-singleton Females' Dependent Scores

A description of non-singleton females' dependent mean scores in 4 areas is: (1) Dependent traits were slightly skewed and the mean equaled 3.63. (2) Interpersonal traits were sufficiently symmetrical for comparison of means and the mean equaled 3.52. (3) Extrinsic motivations were sufficiently symmetrical for comparison of means and the mean equaled 3.61. (4) Dependent child/parent relationships were sufficiently symmetrical for comparison of means and the mean equaled 3.31. Relevant descriptive statistics are presented in Table XVIII.

Table XVIII

Description of Non-singleton Females' Dependent Scores

| Dependent Traits | Mean | Median | SD | Skew | Interpersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|------------------------|------|--------|------|-------|
| 5 | 3.86 | 4 | 0.96 | -0.43 | 2 | 3.05 | 3 | 0.97 | -0.1 |
| 12 | 3.62 | 4 | 0.92 | -0.39 | 3 | 2.76 | 3 | 1.26 | 0.17 |
| 15 | 3.10 | 3 | 1.18 | -0.2 | 10 | 3.76 | 4 | 1.14 | -0.61 |
| 20 | 4.24 | 4 | 0.83 | -1.7 | 14 | 3.62 | 4 | 0.86 | -0.15 |
| 26 | 3.33 | 3 | 0.97 | -0.39 | 24 | 4.43 | 5 | 0.81 | -1.61 |
| Total | 3.63 | 4.00 | 1.04 | -0.51 | Total | 3.52 | 4.00 | 1.16 | -0.42 |
| Extrinsic Motivation | | | | | Dependent child/parent | | | | |
| 4 | 4.10 | 4 | 1 | -0.54 | 16 | 3.67 | 4 | 1.32 | -0.47 |
| 19 | 3.05 | 3 | 1.4 | 0.03 | 22 | 3.00 | 3 | 0.87 | -0.67 |
| 29 | 3.48 | 3 | 1.08 | -0.33 | 25 | 4.48 | 5 | 0.87 | -1.66 |
| 30 | 4.14 | 4 | 0.79 | -0.94 | 27 | 2.86 | 2 | 1.65 | 0.25 |
| 32 | 3.29 | 4 | 1.19 | -0.22 | 37 | 2.57 | 3 | 1.08 | 0.2 |
| Total | 3.61 | 4.00 | 1.32 | -0.5 | Total | 3.31 | 3.00 | 1.35 | -0.33 |

Comparison of Singleton With Non-singleton Females' Dependent Mean Scores

A comparison of singleton with non-singleton females' dependent mean scores in 4 areas is: singleton females whose mean score was 3.29 and non-singleton females whose mean score was 3.63 had a similar mean score of independent traits. Singleton females whose mean score was 3.70 and non-singleton females whose mean score was 3.52 had a similar mean score of intrapersonal traits. Singleton females whose mean score was 3.68 and non-singleton females whose mean score was 3.61 had a similar mean score of intrinsic motivation. Singleton females whose mean score was 3.34 and non-singleton females whose mean score was 3.31 had a similar mean score of independent child/parent relationship. For Research Question Four, no significant differences were found between singleton and non-singleton females for mean scores on dependent traits,

interpersonal traits, extrinsic motivation, and dependent child/parent relationships.

Relevant descriptive statistic mean scores are presented in Table XIX

Table XIX

Comparison of Singleton With Non-singleton Females' Dependent Mean Scores

| Independent | Mean Scores of Singleton Females | Mean Scores of Non-singleton Females |
|---|----------------------------------|--------------------------------------|
| Independent Traits* | 3.29 | 3.63 |
| Intrapersonal Traits* | 3.70 | 3.52 |
| Intrinsic Motivation* | 3.68 | 3.61 |
| Independent Child/Parent Relationships* | 3.34 | 3.31 |

*=No significant difference

Descriptive Analysis of Research Question Five

Question five: How do singleton PSU male Chinese students compare to non-singleton PSU male Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?

Description of Singleton Males' Independent Scores

A description of singleton males' independent mean scores in 4 areas is: (1) independent traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.39. (2) Intrapersonal traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.77. (3) Intrinsic motivations were slightly skewed and the mean equaled 3.66. (4) Independent child/parent relationships were sufficiently symmetrical for comparison of mean and the mean equaled 3.27. Relevant descriptive statistics are presented in Table XX.

Table XX

Description of Singleton Males' Independent Scores

| Independent Traits | Mean | Median | SD | Skew | Intrapersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|--------------------------|------|--------|------|-------|
| 6 | 2.58 | 3 | 1.02 | -0.06 | 1 | 4.16 | 4 | 0.76 | -0.29 |
| 9 | 3.53 | 3 | 0.77 | 0.31 | 7 | 3.53 | 3 | 0.9 | 0.16 |
| 18 | 3.84 | 4 | 0.9 | -0.18 | 21 | 3.62 | 3 | 1.11 | 0.11 |
| 35 | 3.26 | 3 | 1.1 | 0.26 | 33 | 3.89 | 4 | 0.94 | -0.68 |
| 36 | 3.74 | 4 | 0.73 | -0.47 | 34 | 3.63 | 4 | 1.12 | -0.77 |
| Total | 3.39 | 3.00 | 1 | -0.27 | Total | 3.77 | 4.00 | 0.99 | -0.44 |
| Intrinsic Motivation | | | | | Independent child/parent | | | | |
| 11 | 3.68 | 4 | 1.11 | -0.66 | 8 | 3.53 | 4 | 1.07 | -1.28 |
| 17 | 3.74 | 4 | 1.19 | -0.74 | 13 | 3.63 | 4 | 1.26 | -0.52 |
| 23 | 4.37 | 4 | 0.68 | -0.63 | 38 | 2.84 | 3 | 1.12 | 0.34 |
| 28 | 3.89 | 4 | 0.94 | -0.23 | 39 | 2.53 | 3 | 1.5 | 0.27 |
| 31 | 2.63 | 3 | 0.9 | -0.18 | 40 | 3.84 | 4 | 1.12 | -0.99 |
| Total | 3.66 | 4.00 | 1.12 | -0.51 | Total | 3.27 | 4.00 | 1.3 | -0.41 |

Description of Non-singleton Males' Independent Scores

A description of non-singleton males' independent mean scores in 4 areas is: (1) independent traits equal 3.28. (2) Intrapersonal traits were significantly skewed and the mean equaled 3.68. (3) Intrinsic motivations were sufficiently symmetrical for comparison of means and the mean equaled 3.53. (4) Independent child/parent relationships were sufficiently symmetrical for comparison of means and the mean equaled 3.20. Relevant descriptive statistics are presented in Table XXI.

Table XXI

Description of Non-singleton Males' Independent Scores

| Independent Traits | Mean | Median | SD | Skew | Intrapersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|--------------------------|------|--------|------|-------|
| 6 | 2.92 | 3 | 1.38 | 0.18 | 1 | 4.17 | 4.5 | 1.19 | -1.92 |
| 9 | 3.75 | 4 | 1.14 | -0.31 | 7 | 3.67 | 4 | 0.65 | 0.44 |
| 18 | 3.50 | 3.5 | 0.8 | 0 | 21 | 3.83 | 4 | 0.83 | 0.35 |
| 35 | 2.83 | 3 | 1.19 | -0.01 | 33 | 3.58 | 4 | 0.9 | -0.75 |
| 36 | 3.42 | 3.5 | 0.67 | -0.74 | 34 | 3.17 | 3 | 1.34 | 0.19 |
| Total | 3.28 | 3.50 | 1.09 | -0.27 | Total | 3.68 | 4.00 | 1.03 | -0.56 |
| Intrinsic Motivation | | | | | Independent child/parent | | | | |
| 11 | 3.58 | 4 | 0.79 | -0.33 | 8 | 4.00 | 4.5 | 1.21 | -0.75 |
| 17 | 4.08 | 4 | 1 | -0.85 | 13 | 2.83 | 3 | 0.9 | 1.08 |
| 23 | 3.67 | 4 | 0.78 | -0.67 | 38 | 3.00 | 3 | 0.85 | -1.06 |
| 28 | 3.25 | 3 | 1.14 | 0.31 | 39 | 2.67 | 3 | 1.15 | 0.36 |
| 31 | 3.08 | 3 | 1.24 | 0.16 | 40 | 3.50 | 3.5 | 1.24 | -0.51 |
| Total | 3.53 | 4.00 | 1.03 | -0.28 | Total | 3.20 | 3.00 | 1.15 | 0.04 |

Comparison of Singleton With Non-singleton Males' Independent Mean Scores

A comparison of singleton with non-singleton males' independent mean scores in 4 areas is: singleton males whose mean score was 3.39 and non-singleton males whose mean score was 3.28 had a similar mean score of independent traits. Singleton males whose mean score was 3.77 and non-singleton males whose mean score was 3.68 had a same mean score of intrapersonal traits. Singleton males whose mean score was 3.66 and non-singleton males whose mean score was 3.53 had a same mean score of intrinsic motivation. Singleton males whose mean score was 3.27 and non-singleton males whose mean score was 3.2 had a similar mean score of independent child/parent relationship. For Research Question Five, no significant differences were found between singleton and non-singleton males for mean score on independent traits, intrapersonal traits, intrinsic

motivation, and independent child/parent relationships. Relevant descriptive statistic mean scores are presented in Table XVI

Table XXII

Comparison of Singleton With Non-singleton Males' Independent Mean Scores

| Independent | Mean Scores of Singleton Males | Mean Scores of Non-singleton Males |
|---|--------------------------------|------------------------------------|
| Independent Traits* | 3.39 | 3.28 |
| Intrapersonal Traits* | 3.77 | 3.68 |
| Intrinsic Motivation* | 3.66 | 3.53 |
| Independent Child/Parent Relationships* | 3.27 | 3.2 |

*=No significant difference

Descriptive Analysis of Research Question Six

Question six: How do singleton PSU male Chinese students compare to non-singleton PSU male Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships?

Description of Singleton Males' Dependent Scores

A description of singleton males' dependent mean scores in 4 areas is: (1) dependent traits were sufficiently symmetrical for comparison of means and the mean equaled 3.23. (2) Interpersonal traits were sufficiently symmetrical for comparison of means and the mean equaled 3.48. (3) Extrinsic motivations were sufficiently symmetrical for comparison of means and the mean equaled 3.24. (4) Dependent child/parent relationships were sufficiently symmetrical for comparison of means and the mean equaled 3.15. Relevant descriptive statistics are presented in Table XXIII.

Table XXIII

Description of Singleton Males' Dependent Scores

| Dependent Traits | Mean | Median | SD | Skew | Interpersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|------------------------|------|--------|------|-------|
| 5 | 3.37 | 3 | 1.07 | -0.23 | 2 | 3.37 | 3 | 0.9 | 0.18 |
| 12 | 3.05 | 3 | 1.18 | -0.57 | 3 | 3.26 | 3 | 1.1 | 0.54 |
| 15 | 2.68 | 2 | 1.11 | 0.44 | 10 | 3.05 | 4 | 1.13 | 0.66 |
| 20 | 3.58 | 4 | 1.22 | -0.72 | 14 | 3.53 | 4 | 1.02 | -0.61 |
| 26 | 3.47 | 4 | 1.02 | -0.8 | 24 | 4.21 | 5 | 1.08 | -1.63 |
| Total | 3.23 | 3.00 | 1.14 | -0.34 | Total | 3.48 | 4.00 | 1.1 | -0.08 |
| Extrinsic Motivation | | | | | Dependent child/parent | | | | |
| 4 | 3.79 | 4 | 1.03 | -0.55 | 16 | 2.95 | 3 | 0.97 | 0.11 |
| 19 | 2.95 | 2 | 0.47 | 0.22 | 22 | 3.00 | 3 | 1 | 0.37 |
| 29 | 3.32 | 3 | 1 | -0.35 | 25 | 4.32 | 5 | 1 | -2.2 |
| 30 | 3.32 | 3 | 1.06 | -0.09 | 27 | 2.84 | 3 | 1.21 | 0.13 |
| 32 | 2.84 | 3 | 1.21 | -0.08 | 37 | 2.63 | 2 | 0.96 | 0.86 |
| Total | 3.24 | 3.00 | 1.19 | -0.21 | Total | 3.15 | 3.00 | 1.3 | -0.41 |

Description of Non-singleton Males' Dependent Scores

A description of non-singleton males' dependent mean scores in 4 areas is: (1) dependent traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.35. (2) Interpersonal traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.55. (3) Extrinsic motivation were sufficiently symmetrical for comparison of mean and the mean equaled 3.32. (4) Dependent child/parent relationships were sufficiently symmetrical for comparison of mean and the mean equaled 3.13. Relevant descriptive statistics are presented in Table XXIV

Table XXIV

Description of Non-singleton Males' Dependent Scores

| Dependent Traits | Mean | Median | SD | Skew | Interpersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|------------------------|------|--------|------|-------|
| 5 | 3.58 | 3 | 0.79 | 0.99 | 2 | 3.58 | 4 | 0.51 | -0.39 |
| 12 | 3.00 | 3 | 0.85 | -1.06 | 3 | 2.92 | 3 | 0.9 | 0.18 |
| 15 | 2.92 | 3 | 1 | -0.47 | 10 | 3.42 | 3.5 | 1.31 | -0.36 |
| 20 | 3.92 | 4 | 1.08 | -0.32 | 14 | 3.67 | 4 | 0.65 | 0.44 |
| 26 | 3.33 | 3 | 0.51 | 0.39 | 24 | 4.17 | 4 | 0.72 | -0.26 |
| Total | 3.35 | 3.00 | 0.92 | -0.13 | Total | 3.55 | 4.00 | 0.93 | -0.41 |
| Extrinsic Motivation | | | | | Dependent child/parent | | | | |
| 4 | 4.00 | 4 | 0.95 | -0.76 | 16 | 3.33 | 3.5 | 1.07 | -0.8 |
| 19 | 2.83 | 3 | 1.4 | 0.11 | 22 | 3.08 | 3 | 1.08 | -0.19 |
| 29 | 3.00 | 3 | 1.35 | 0 | 25 | 4.33 | 4.5 | 0.78 | -0.72 |
| 30 | 3.83 | 3.5 | 0.94 | 0.38 | 27 | 2.75 | 3 | 0.87 | -0.44 |
| 32 | 2.92 | 3 | 1.24 | -0.16 | 37 | 2.17 | 2 | 1.03 | 0.81 |
| Total | 3.32 | 3.00 | 1.26 | -0.31 | Total | 3.13 | 3.00 | 1.19 | -0.14 |

Comparison of Singleton With Singleton Males' Dependent Mean Scores

A comparison of singleton with non-singleton males' dependent mean scores in 4 areas is: singleton males whose mean score was 3.23 and non-singleton males whose mean score was 3.35 had a similar mean score of independent traits. Singleton males whose mean score was 3.48 and non-singleton males whose mean score was 3.55 had a similar mean score of intrapersonal traits. Singleton males whose mean score was 3.24 and non-singleton males whose mean score was 3.32 had a similar mean score of intrinsic motivation. Singleton males whose mean score was 3.25 and non-singleton males whose mean score was 3.13 had a similar mean score of independent child/parent relationship. For Research Question Six, no significant differences were found between singleton and non-singleton males for mean scores on dependent traits, interpersonal traits, extrinsic

motivation, and dependent child/parent relationships. Relevant descriptive statistic mean scores are presented in Table XXV

Table XXV

Comparison of Singleton With Non-singleton Males' Dependent Mean Scores

| Dependent | Mean Scores of Singleton Males | Mean Scores of Non-singleton Males |
|---------------------------------------|--------------------------------|------------------------------------|
| Dependent Traits* | 3.23 | 3.35 |
| Interpersonal Traits* | 3.48 | 3.55 |
| Extrinsic Motivation* | 3.24 | 3.32 |
| Dependent Child/Parent Relationships* | 3.15 | 3.13 |

*=No significant difference

Descriptive Analysis of Research Question Seven

Question seven: How do singleton PSU female Chinese students compare to singleton PSU male Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships?

Description of Singleton Females' Independent Scores

A description of singleton females' independent mean scores in 4 areas is: (1) independent traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.42. (2) Intrapersonal traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.77. (3) Intrinsic motivations were significantly skewed and the mean equaled 3.85. (4) Independent child/parent relationships were sufficiently symmetrical for comparison of mean and the mean equaled 3.5. Relevant descriptive statistics are presented in Table XXVI.

Table XXVI

Description of Singleton Females' Independent Scores

| Independent Traits | Mean | Median | SD | Skew | Intrapersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|--------------------------|------|--------|------|-------|
| 6 | 2.70 | 3 | 1.24 | 0.24 | 1 | 3.92 | 4 | 1.09 | -0.92 |
| 9 | 3.78 | 4 | 0.89 | -0.31 | 7 | 3.97 | 4 | 0.76 | 0.05 |
| 18 | 3.86 | 4 | 0.79 | -0.11 | 21 | 3.62 | 4 | 0.83 | -0.1 |
| 35 | 3.19 | 3 | 0.74 | -0.76 | 33 | 3.73 | 4 | 0.9 | -0.38 |
| 36 | 3.57 | 4 | 0.9 | -0.21 | 34 | 3.59 | 4 | 1.28 | -0.35 |
| Total | 3.42 | 4.00 | 1.01 | -0.40 | Total | 3.77 | 4.00 | 0.99 | -0.5 |
| Intrinsic Motivation | | | | | Independent child/parent | | | | |
| 11 | 3.62 | 4 | 1.01 | -0.87 | 8 | 3.84 | 4 | 1.14 | 1.16 |
| 17 | 4.38 | 4 | 0.68 | -0.65 | 13 | 3.62 | 4 | 1.28 | -0.5 |
| 23 | 4.11 | 4 | 0.81 | -0.54 | 38 | 3.03 | 3 | 0.87 | 0.22 |
| 28 | 4.05 | 4 | 0.81 | -0.43 | 39 | 2.97 | 3 | 1.12 | 0.31 |
| 31 | 3.08 | 3 | 1.04 | -0.17 | 40 | 4.03 | 3 | 0.99 | -0.61 |
| Total | 3.85 | 4.00 | 0.98 | -0.73 | Total | 3.50 | 3.00 | 1.16 | 0.13 |

Description of Singleton Males' Independent Scores

A description of singleton males' independent mean scores in 4 areas is: (1) independent traits were sufficiently symmetrical for comparison of means and the mean equaled 3.39. (2) Intrapersonal traits were sufficiently symmetrical for comparison of means and the mean equaled 3.77. (3) Intrinsic motivations were slightly skewed and the mean equaled 3.66. (4) Independent child/parent relationships were sufficiently symmetrical for comparison of means and the mean equaled 3.27. Relevant descriptive statistics are presented in Table XXVII.

Table XXVII
Description of Singleton Males' Independent Scores

| Independent Traits | Mean | Median | SD | Skew | Intrapersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|--------------------------|------|--------|------|-------|
| 6 | 2.58 | 3 | 1.02 | -0.06 | 1 | 4.16 | 4 | 0.76 | -0.29 |
| 9 | 3.53 | 3 | 0.77 | 0.31 | 7 | 3.53 | 3 | 0.9 | 0.16 |
| 18 | 3.84 | 4 | 0.9 | -0.18 | 21 | 3.62 | 3 | 1.11 | 0.11 |
| 35 | 3.26 | 3 | 1.1 | 0.26 | 33 | 3.89 | 4 | 0.94 | -0.68 |
| 36 | 3.74 | 4 | 0.73 | -0.47 | 34 | 3.63 | 4 | 1.12 | -0.77 |
| Total | 3.39 | 3.00 | 1 | -0.27 | Total | 3.77 | 4.00 | 0.99 | -0.44 |
| Intrinsic Motivation | | | | | Independent child/parent | | | | |
| 11 | 3.68 | 4 | 1.11 | -0.66 | 8 | 3.53 | 4 | 1.07 | -1.28 |
| 17 | 3.74 | 4 | 1.19 | -0.74 | 13 | 3.63 | 4 | 1.26 | -0.52 |
| 23 | 4.37 | 4 | 0.68 | -0.63 | 38 | 2.84 | 3 | 1.12 | 0.34 |
| 28 | 3.89 | 4 | 0.94 | -0.23 | 39 | 2.53 | 3 | 1.5 | 0.27 |
| 31 | 2.63 | 3 | 0.9 | -0.18 | 40 | 3.84 | 4 | 1.12 | -0.99 |
| Total | 3.66 | 4.00 | 1.12 | -0.51 | Total | 3.27 | 4.00 | 1.3 | -0.41 |

Comparison of Singleton Females With Singleton Males' Independent Mean Scores

A comparison of singleton females with singleton males' independent mean scores in 4 areas is: singleton females whose mean score was 3.42 and singleton males whose mean score was 3.39 had a similar mean score of independent traits. Singleton females whose mean score was 3.77 and singleton males whose mean score was 3.77 had a same mean score of intrapersonal traits. Singleton females whose mean score was 3.85 and singleton males whose mean score was 3.66 had a same mean score of intrinsic motivation. Singleton females whose mean score was 3.5 and singleton males whose mean score was 3.27 had a similar mean score of independent child/parent relationship. For Research Question Seven, no significant differences were found between singleton females and singleton males for mean score on independent traits, intrapersonal traits,

intrinsic motivation, and independent child/parent relationships. Relevant descriptive statistic mean scores are presented in Table XXVIII

Table XXVIII

Comparison of Singleton Females With Singleton Males' Independent Mean Scores

| Independent | Mean Scores of Singleton females | Mean Scores of Singleton Males |
|---|----------------------------------|--------------------------------|
| Independent Traits* | 3.42 | 3.39 |
| Intrapersonal Traits* | 3.77 | 3.77 |
| Intrinsic Motivation* | 3.85 | 3.66 |
| Independent Child/Parent Relationships* | 3.5 | 3.27 |

*=No significant difference

Descriptive Analysis of Research Question Eight

Question eight: How do singleton PSU female Chinese students compare to singleton PSU male Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships?

Description of Singleton Females' Dependent Scores

A description of singleton females' dependent mean scores in 4 areas is: (1) dependent traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.29. (2) Interpersonal traits were sufficiently symmetrical for comparison of mean and the mean equaled 3.70. (3) Extrinsic motivations were slightly skewed and the mean equaled 3.68. (4) Dependent child/parent relationships were sufficiently symmetrical for comparison of mean and the mean equaled 3.43. Relevant descriptive statistics are presented in Table XXIX.

Table XXIX

Description of Singleton Females' Dependent Scores

| Dependent Traits | Mean | Median | SD | Skew | Interpersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|------------------------|------|--------|------|-------|
| 5 | 3.54 | 4 | 1.12 | -0.73 | 2 | 3.57 | 4 | 0.9 | -0.46 |
| 12 | 2.97 | 3 | 0.93 | 0.28 | 3 | 3.03 | 3 | 0.99 | -0.06 |
| 15 | 2.76 | 3 | 0.93 | 0.52 | 10 | 3.57 | 4 | 1.09 | -0.38 |
| 20 | 3.73 | 4 | 0.84 | -0.34 | 14 | 3.89 | 4 | 0.84 | -0.38 |
| 26 | 3.42 | 3 | 1.07 | -0.1 | 24 | 4.43 | 5 | 0.73 | -0.89 |
| Total | 3.29 | 3.00 | 1.04 | -0.1 | Total | 3.70 | 4.00 | 1.02 | -0.45 |
| Extrinsic Motivation | | | | | Dependent child/parent | | | | |
| 4 | 4.14 | 4 | 0.89 | -0.53 | 16 | 3.84 | 4 | 1.04 | -0.75 |
| 19 | 3.35 | 3 | 1.23 | -0.35 | 22 | 3.27 | 3 | 1.1 | 0.09 |
| 29 | 3.68 | 4 | 1.03 | -0.75 | 25 | 4.57 | 5 | 0.73 | -1.39 |
| 30 | 3.92 | 4 | 0.92 | -0.5 | 27 | 3.00 | 3 | 1.39 | 0.06 |
| 32 | 3.32 | 3 | 1.06 | -0.11 | 37 | 2.49 | 3 | 0.9 | 0.28 |
| Total | 3.68 | 4.00 | 1.07 | -0.52 | Total | 3.43 | 3.00 | 1.27 | -0.2 |

Description of Singleton Males' Dependent Scores

A description of singleton males' dependent mean scores in 4 areas is: (1) dependent traits were sufficiently symmetrical for comparison of means and the mean equaled 3.23. (2) Interpersonal traits were sufficiently symmetrical for comparison of means and the mean equaled 3.48. (3) Extrinsic motivations were sufficiently symmetrical for comparison of means and the mean equaled 3.24. (4) Dependent child/parent relationships were sufficiently symmetrical for comparison of means and the mean equaled 3.15. Relevant descriptive statistics are presented in Table XXX

Table XXX

Description of Singleton Males' Dependent Scores

| Dependent Traits | Mean | Median | SD | Skew | Interpersonal Traits | Mean | Median | SD | Skew |
|----------------------|------|--------|------|-------|------------------------|------|--------|------|-------|
| 5 | 3.37 | 3 | 1.07 | -0.23 | 2 | 3.37 | 3 | 0.9 | 0.18 |
| 12 | 3.05 | 3 | 1.18 | -0.57 | 3 | 3.26 | 3 | 1.1 | 0.54 |
| 15 | 2.68 | 2 | 1.11 | 0.44 | 10 | 3.05 | 4 | 1.13 | 0.66 |
| 20 | 3.58 | 4 | 1.22 | -0.72 | 14 | 3.53 | 4 | 1.02 | -0.61 |
| 26 | 3.47 | 4 | 1.02 | -0.8 | 24 | 4.21 | 5 | 1.08 | -1.63 |
| Total | 3.23 | 3.00 | 1.14 | -0.34 | Total | 3.48 | 4.00 | 1.1 | -0.08 |
| Extrinsic Motivation | | | | | Dependent child/parent | | | | |
| 4 | 3.79 | 4 | 1.03 | -0.55 | 16 | 2.95 | 3 | 0.97 | 0.11 |
| 19 | 2.95 | 2 | 0.47 | 0.22 | 22 | 3.00 | 3 | 1 | 0.37 |
| 29 | 3.32 | 3 | 1 | -0.35 | 25 | 4.32 | 5 | 1 | -2.2 |
| 30 | 3.32 | 3 | 1.06 | -0.09 | 27 | 2.84 | 3 | 1.21 | 0.13 |
| 32 | 2.84 | 3 | 1.21 | -0.08 | 37 | 2.63 | 2 | 0.96 | 0.86 |
| Total | 3.24 | 3.00 | 1.19 | -0.21 | Total | 3.15 | 3.00 | 1.3 | -0.41 |

Comparison of Singleton Females With Singleton Males' Dependent Mean Scores

A comparison of singleton females with singleton males' dependent mean scores in 4 areas is: singleton females whose mean score was 3.29 and singleton males whose mean score was 3.23 had a similar mean score of independent traits. Singleton females whose mean score was 3.7 and singleton males whose mean score was 3.48 had a similar mean score of intrapersonal traits. Singleton females whose mean score was 3.68 and singleton males whose mean score was 3.24 had a similar mean score of intrinsic motivation. Singleton females whose mean score was 3.43 and singleton males whose mean score was 3.15 had a similar mean score of independent child/parent relationship. For Research Question Eight, no significant differences were found between singleton females and singleton males for mean scores on dependent traits, interpersonal traits,

extrinsic motivation, and dependent child/parent relationships. Relevant descriptive statistic mean scores are presented in Table XXXI

Table XXXI

Comparison of Singleton Females With Singleton Males' Dependent Mean Scores

| Independent | Mean Scores of Singleton Females | Mean Scores of Singleton Males |
|---|----------------------------------|--------------------------------|
| Independent Traits* | 3.29 | 3.23 |
| Intrapersonal Traits* | 3.7 | 3.48 |
| Intrinsic Motivation* | 3.68 | 3.24 |
| Independent Child/Parent Relationships* | 3.43 | 3.15 |

*=No significant difference

Summary

Chapter IV presented the findings in this study. Eight research questions were statistically treated to compare independent and dependent personality characteristics within and between groups of singleton and non-singleton Pittsburg State University Chinese students, who have in common English as a second or other language. No significant differences were found. Additionally, the study yielded a considerable amount of descriptive data.

Conclusions and recommendations are discussed in Chapter V.

CHAPTER V

Summary, Conclusions and Recommendations

This chapter presents a brief overview of the study, conclusions from the findings and recommendations for further study.

Summary

A hundred surveys were distributed to mainland and Taiwan Chinese students enrolled in 2010 fall semester at Pittsburg State University. A voluntary intact sample of 89 Chinese college students responded to the survey, returning the survey through campus mail to Dr. Ray Willard at 117-D Hughes Hall. The return rate was 89/100 or 89%. The responding sample included 56 singletons, 37 females and 19 males, and 33 non-singletons, 21 females and 12 males.

There were 28 singleton undergraduate exchange students, while 15 non-singletons were undergraduate exchange students. There were 5 singleton graduate exchange students, while 4 non-singletons were graduate exchange students. There were 3 regular undergraduate students, while 5 non-singletons were regular undergraduate students. There were 12 singleton regular graduate students, while 5 non-singletons were regular graduate students. There were 8 singleton Intensive English Program students,

while 4 non-singletons were Intensive English Program students. Most singleton and non-singleton students were undergraduate exchange students.

A description of subjects by major, sibling status and gender yielded 28 singleton and 20 non-singleton majors in business; 3 singleton and 3 non-singleton majors in Education; 11 singletons and 3 non-singletons in Technology; 14 singleton and 8 non-singleton majors in other fields, represented by English, communications, and music. There was a tendency for both female singletons and female non-singletons to select business as a major. There were 21 female singleton business majors, while there were 14 female non-singleton business majors. There were 7 male singleton business majors, while there were 6 male non-singleton majors.

A description of singleton fathers' level of education yielded that there was a tendency for singleton fathers to have Bachelor's and graduate degrees, when compared with non-singleton fathers. Similarly, there was a tendency for singleton mothers to have Bachelor's and graduate degrees, when compared with non-singleton mothers. A description of singleton fathers' occupation yielded that there was a tendency for both singleton and non-singleton fathers to have occupations in business and technology. Among singleton mothers, there was a tendency for them to have occupation in business and education.

Research Questions

1. How do singleton PSU Chinese students compare to non-singleton PSU Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental

relationships? **A comparison of independent ordinal means for four independent characteristics yielded no statistically significant differences.**

2. How do singleton PSU Chinese students compare to non-singleton PSU Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships? **A comparison of independent ordinal means for four dependent characteristics yielded no statistically significant differences.**
3. How do singleton PSU female Chinese students compare to non-singleton PSU female Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships? **A comparison of independent ordinal means for four independent characteristics yielded no statistically significant differences.**
4. How do singleton PSU female Chinese students compare to non-singleton PSU female Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships? **A comparison of independent ordinal means for four dependent characteristics yielded no statistically significant differences.**
5. How do singleton PSU male Chinese students compare to non-singleton PSU male Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships? **A comparison of independent ordinal means for four independent characteristics yielded no statistically significant differences.**

6. How do singleton PSU male Chinese students compare to non-singleton PSU male Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships? **A comparison of independent ordinal means for four dependent characteristics yielded no statistically significant differences.**
7. How do singleton PSU female Chinese students compare to singleton PSU male Chinese students on independent characteristics, such as independent traits, intrapersonal traits, intrinsic motivation, and independent child/parental relationships? **A comparison of independent ordinal means for four independent characteristics yielded no statistically significant differences.**
8. How do singleton PSU female Chinese students compare to singleton PSU male Chinese students on dependent characteristics, such as dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parental relationships? **A comparison of independent ordinal means for four dependent characteristics yielded no statistically significant differences.**

Conclusion

No statistically significant differences were found between dependent and independent personality characteristics among singleton and non-singleton students at Pittsburg State University. Dependent personality characteristics included dependent traits, interpersonal traits, extrinsic motivation, and dependent child/parent relationships. Independent personality characteristics included independent traits, intrapersonal traits, intrinsic motivation, and independent child/parent relationships.

Further, the findings of the present study were consistent with prior research conducted in China. For instance, Feng (2005) conducted a national survey of 1786 in-service young adults from 12 urban cities to investigate difference between onlies and non-onlies in social adaptability, such as careers, marriage, interpersonal relationships, and independent and dependent personality characteristics. He found no significant difference in adaptability to society; however, a slight, but not significant difference in independent living was found. Onlies as adults appeared to be less independent in living or in self care. Further, Jiang and Yao (2010) and Ye (2010) concluded that it is commonly agreed that, compared with non-onlies, onlies tend to be somewhat advantaged in the development of certain cognitive, emotional, social, and physical domains. The parents of onlies tend to be more involved in the rearing of the only child, placing upon him or her higher parental expectations to achieve. Significant differences between onlies and non-onlies are most pronounced with younger children, particularly in early childhood and in kindergarten. As only borns mature, differences overtime tend to become less pronounced or to become not significant.

Recommendations for Further Study

A study of personality characteristics rated by family members, teachers, and colleagues could produce contrasting results, when compared with a self-reporting perception format used in the present study.

A longitudinal study is needed to determine if differences between independent and dependent personality characteristics among singleton and non-singleton college students continue to be non-significant as they get married, give birth to children, and retire from employment.

A replication study could be useful to expand the population of college students studying outside of China, as related to development of independent/dependent personality characteristics.

Finally, to prevent a Type II error in the present study, a conservative, descriptive protocol was adopted to compare independent means. Data are available to conduct an Analysis of Co-Variance (ANCOVA) at the $<.05$ level of significance. Because of the sample size of 89, one or more research items could yield a significant difference between independent means. ANCOVA was not selected in the present study because the data were assumed to be at the ordinal level instead of at the interval level. If this assumption were waived, varying results to the present study and a possible Type I error could occur.

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APPENDIX

APPENDIX A

Survey of PSU Chinese Students

The survey is estimated to take 10-15 minutes. Thank you for your time and cooperation.

| |
|-------------------------------|
| Background Information |
|-------------------------------|

1. Circle the letter (A, B, C, or D) by the best description about yourself.
 - A. I am a female from a single-child family
 - B. I am a male from a single-child family
 - C. I am a female from a family with two or more children
 - D. I am a male from a family with two or more children

2. Circle the letter (A, B, C, or D) by the best description about your current education status.
 - A. Undergraduate exchange student
 - B. Graduate exchange student
 - C. Regular undergraduate student
 - D. Regular graduate student
 - E. Intensive English Program (IEP) student

3. Circle the letter (A, B, C, or D) by the best description about your current major field in the United States of America. (If "Other" is selected, please specify.)
 - A. Business
 - B. Education
 - C. Technology
 - D. Other _____

4. Circle the letter (A, B, C, or D) by the best description about the highest education your father has completed.
 - A. Elementary or Middle school
 - B. High school diploma
 - C. Bachelor's Degree or its equivalence
 - D. Master's Degree or more

5. Circle the letter (A, B, C, or D) by the best description about the highest education your mother has completed.
- A. Elementary or Middle school
 - B. High school diploma
 - C. Bachelor's Degree or its equivalence
 - D. Master's Degree or more
6. Circle the letter (A, B, C, or D) by the best description about the occupational field of your father. (If "Other" is selected, please specify.)
- A. Business
 - B. Education
 - C. Technology
 - D. Other _____
7. Circle the letter (A, B, C, or D) by the best description about the occupational field of your mother. (If "Other" is selected, please specify.)
- A. Business
 - B. Education
 - C. Technology
 - D. Other _____

| |
|---------------|
| Survey |
|---------------|

*There are 40 statements listed below with a 1-5 scale. Based on your current experience in the United States of America, you can circle 1 if you **strongly disagree**, 2 if you **disagree**, 3 if you **partly agree**, 4 if you **agree**, and 5 if you **strongly agree**.*

- | | | | | | |
|---|---|---|---|---|---|
| 1. After a loss or failure, I usually talk myself out of sadness or anger. | 1 | 2 | 3 | 4 | 5 |
| 2. I usually try to include other people in my plans. | 1 | 2 | 3 | 4 | 5 |
| 3. I usually try to avoid being alone. | 1 | 2 | 3 | 4 | 5 |
| 4. I study hard in the United States, because it is important for me to be more competent so I can find a good job to support my future family, my parents, and grandparents. | 1 | 2 | 3 | 4 | 5 |
| 5. I like people to be helpful to me. | 1 | 2 | 3 | 4 | 5 |

6. I like to travel alone.
1 2 3 4 5
7. I know what my strengths and weaknesses are and why.
1 2 3 4 5
8. It is more important for me to realize my own goals rather than meet my family's expectations of me.
1 2 3 4 5
9. When I come across problems, I would prefer to solve it by myself.
1 2 3 4 5
10. I have been a leader in one or more groups or associations.
1 2 3 4 5
11. I usually extend my assignment beyond what is required, because I enjoy challenging myself.
1 2 3 4 5
12. I feel comfortable and safe when other people take charge.
1 2 3 4 5
13. I will try to earn money by myself during my study in the United States, because I want to be more financially independent from my family.
1 2 3 4 5
14. I am good at looking at things from the view points of others.
1 2 3 4 5
15. I change my opinions easily when people challenge me.
1 2 3 4 5
16. My parents are like close friends to me and I usually feel safe to tell them my troubles and ask for their opinions and suggestions.
1 2 3 4 5
17. I enjoy going to class in the United States, because I want to improve my knowledge and skills.
1 2 3 4 5
18. I usually feel very confident in my abilities.
1 2 3 4 5

19. I think my parents' educational expectation of me is the major reason that I study in the United States of America.

1 2 3 4 5

20. I try to avoid conflict with other people.

1 2 3 4 5

21. I prefer to work and/or study before I play, because I know it is one way that I can be responsible for myself.

1 2 3 4 5

22. When I am away from home, I usually find myself thinking of my parents.

1 2 3 4 5

23. I enjoy the sense of accomplishment when I am able to work out difficult academic problems.

1 2 3 4 5

24. I think friendships are very important for me.

1 2 3 4 5

25. I want to take good care of my parents when they are old.

1 2 3 4 5

26. I am good at asking others for help when I have troubles.

1 2 3 4 5

27. I am planning to have one child in the future because the child can enjoy a closer relationship with the parents.

1 2 3 4 5

28. I feel like it is my own choice to study in the United States and I am excited about it.

1 2 3 4 5

29. I have to study very hard, because I don't want my parents to lose face in front of my relatives.

1 2 3 4 5

30. I like to hear recognition and praise from others.

1 2 3 4 5

31. I enjoy doing my studies so much that I sometimes forgot about time.

1 2 3 4 5

32. I study hard to get good grades to please my parents.

1 2 3 4 5

33. I usually spend time alone reflecting on what I have done and how I have done it.

1 2 3 4 5

34. I enjoying reading or writing about my feelings.

1 2 3 4 5

35. I am not afraid to tell people when they make mistakes.

1 2 3 4 5

36. I usually make decisions based on my own judgment rather than that of others.

1 2 3 4 5

37. I usually let my parents make decisions for me.

1 2 3 4 5

38. I am willing to have conflict with my family as long as I can meet my own goals in life.

1 2 3 4 5

39. Even if my parents expect me to return to Mainland China/Taiwan if necessary, I would choose to stay in the United States or another foreign country to become successful.

1 2 3 4 5

40. I usually feel free to communicate with my parents about my own opinions and ideas.

1 2 3 4 5

APPENDIX B

匹兹堡州立大学中国学生调查问卷

完成这份问卷可能需要10-12分钟。感谢您的合作。

背景信息

1. 从A, B, C, D中选出最符合你自己情况的选项。
 - E. 我是独生子女, 性别是女性。
 - F. 我是独生子女, 性别是男性。
 - G. 我不是独生子女, 性别是女性。
 - H. 我不是独生子女, 性别是男性。
2. 从A, B, C, D中选出最符合你教育现状的选项。
 - F. 本科交换留学生 (包括2+2, 或1+2+1项目)
 - G. 研究生交换留学生
 - H. 非交换本科学生
 - I. 非交换研究生
 - J. 英语强化班 (IEP)
3. 从A, B, C, D中选出最符合你现在专业的选项 (如果没有选项符合, 请在横线上说明)。
 - E. 商科
 - F. 教育
 - G. 理工科技
 - H. 其他 _____
4. 从A, B, C, D中选出最符合你父亲教育文化程度的选项。
 - E. 小学或初中文化
 - F. 高中文化
 - G. 专科或大学文化
 - H. 研究生文化或以上

5. 从A, B, C, D中选出最符合你母亲教育文化程度的选项。
- E. 小学或初中文化
F. 高中文化
G. 专科或大学文化
H. 研究生文化或以上
6. 从A, B, C, D中选出最符合你父亲从事行业的选项 (如果没有选项符合, 请在横线上说明)。
- E. 商业
F. 教育
G. 理工或科技
H. 其它 _____
7. 从A, B, C, D中选出最符合你母亲从事行业的选项 (如果没有选项符合, 请在横线上说明)。
- E. 商业
F. 教育
G. 理工或科技
H. 其他 _____

| |
|------|
| 问卷调查 |
|------|

以下40道问卷题目包含1到5的程度系数。以你在美国的生活经验, 如果你非常不认同题目中的陈述, 选择1; 如果比较不认同, 选择2; 如果部分认同, 选择3; 如果比较认同, 选择4; 如果非常认同, 请选择5。

41. 失败之后, 我通常会自己安慰自己并让自己走出失望和痛苦。
- 1 2 3 4 5
42. 我所作的计划通常会包括其他朋友。? (什么计划)
- 1 2 3 4 5
43. 我通常避免以个人独处。
- 1 2 3 4 5
44. 我在美国努力学习是因为想提高自己能力然后找份好工作去供养未来的家庭, 父母, 还有祖父母。
- 1 2 3 4 5

45. 我喜欢受到别人的帮助。

1 2 3 4 5

46. 我喜欢一个人旅行。

1 2 3 4 5

47. 我很清楚我的优点和缺点，并且知道导致这些优缺点的原因。

1 2 3 4 5

48. 我觉得实现我自己的梦想比实现父母对我的期望更重要。

1 2 3 4 5

49. 当我遇到困难时，我通常自己解决。

1 2 3 4 5

50. 我曾经在多个社团和组织中担任过领导者。

1 2 3 4 5

51. 我经常力求完美，因为我觉得这是一种对自我的挑战。

1 2 3 4 5

52. 当别人做决定的时候，我感到很放心很安全。

1 2 3 4 5

53. 在美国学习期间我会自己打工，因为我希望自己在金钱上能更加独立。

1 2 3 4 5

54. 我很善于从别人的角度看问题。

1 2 3 4 5

55. 当别人向我的观点提出挑战时，我很容易改变我的观点。

1 2 3 4 5

56. 我的父母如同朋友，当我遇到困难时，我通常会向他们寻求意见。

1 2 3 4 5

57. 我很喜欢在美国读书，因为我想提高自己的知识和技能水平。

1 2 3 4 5

58. 我通常对自己的能力很有自信。

1 2 3 4 5

59. 我来美国学习的主要原因是父母对我在教育上的期望。

1 2 3 4 5

60. 我通常避免与他人形成意见不和或冲突。

1 2 3 4 5

61. 我通常会先学习或工作然后玩，因为我觉得这么做是自己对自己负责任。

1 2 3 4 5

62. 在美国读书期间，我通常会想念父母。

1 2 3 4 5

63. 当我能解决学术难题时，我会有一种成就感。

1 2 3 4 5

64. 我认为友谊对我非常重要。

1 2 3 4 5

65. 当父母老了，我想要好好照顾他们。

1 2 3 4 5

66. 当我遇到困难时，我很善于向他人请求帮助。

1 2 3 4 5

67. 我打算未来成立一个独生子女家庭，因为孩子与父母的感情会比较紧密。

1 2 3 4 5

68. 来美国学习是我自己的决定并且我为这个决定感到兴奋。

1 2 3 4 5

69. 我必须努力学习，因为我不想让我父母在亲朋好友面前丢脸。

1 2 3 4 5

70. 别人的认同和赞赏是我奋斗的主要动力。

1 2 3 4 5

71. 我很喜欢学习，有的时候一学起来就忘了时间。

1 2 3 4 5

72. 我努力学习取得好成绩是因为我想以次让父母高兴。

1 2 3 4 5

73. 我通常会一个人思考我所做的事情以及分析背后的原因。

1 2 3 4 5

74. 我喜欢读书或者记录下自己的所思所想。

1 2 3 4 5

75. 我通常会毫不畏惧地指出别人犯的错误。

1 2 3 4 5

76. 我通常不依赖别人而是用自己的判断力做决定。

1 2 3 4 5

77. 我通常让父母帮我做决定。

1 2 3 4 5

78. 只要我能实现自己的梦想，我不介意与父母起冲突。

1 2 3 4 5

79. 尽管我父母希望我在必要的时候回国发展，但我希望我能留在美国或其他国家实现自己的梦想。

1 2 3 4 5

80. 我通常能够很自由地在父母面前谈论我的观点和想法。

1 2 3 4 5

APPENDIX C

Pittsburg State University

COLLEGE OF ARTS AND SCIENCES

Department of Communication
434 Grubbs Hall 1701 South
Broadway Pittsburg, KS 66762
620/235-4716 fax 620/235-4686
comm@pittstate.edu
www.pittstate.edu/comm

To Whom It May Concern:

I am a professor in Pittsburg state university. I am a native speaker educated in Chinese. I have compared the English (original) version of the survey with its Chinese translation and I certify that the English to Chinese translation are consistent with each other.

Signature

A handwritten signature in black ink, appearing to read 'Shao', written over a horizontal line.

Date: Jan 1 2010

Dr. Shao Guo Song

APPENDIX D

Cover Letter

Dear Chinese students at Pittsburg State University,

I am inviting you to participate in my thesis research project to study the personality traits of Chinese students at Pittsburg State University. A short survey and an envelope are attached to this letter. I trust that you will complete the survey, put the completed survey in the envelope provided, and give the sealed envelope to your department secretary to send through campus mail to my advisor, Dr. Ray Willard, 117-D Hughes Hall, Pittsburg State University. The survey is estimated to take 10-15 minutes to complete. Complete anonymity is assured.

The results of this study will be presented in my thesis research. Through your participation I hope to understand whether only-child Chinese students are different from non-only child Chinese students at PSU and how family factors tend to influence personalities of the two groups.

I do not know of any risk to you if you participate in this survey. I guarantee that your responses will be anonymous. **You should not put your name on the survey** when you complete it. I promise to respect your privacy.

If you have any questions about the survey, or about being in this study, you may contact me at (620)719-8354 or via email Jiani.wu@gmail.com. You can also contact my advisor, Dr. Ray Willard at (620) 235-4491. The Pittsburg State University Advisory Council for Research Involving Human Subjects has approved conducting this study. If you have any concerns about your rights as a participant in this study, you may contact Brian Peery in the Office of Continuing and Graduate Studies, 112 Russ Hall, (620) 235-4175 or via email bpeery@pittstate.edu.

Sincerely,

Jiani Wu

APPENDIX E

Score Sheet

| Independent Axis | Dependent Axis |
|--|---|
| Independent Traits 6 9 18 35 36 Average Median Total | Dependent Traits 5 12 15 20 26 Average Median Total |
| Intrapersonal Traits 1 7 21 33 34 Average Median Total | Interpersonal Traits 2 3 10 14 24 Average Median Total |
| Intrinsic Motivation 11 17 23 28 31 Average Median Total | Extrinsic Motivation 4 19 29 30 32 Average Median Total |
| Independent child/parental relationships 8 13 38 39 40 Average Median Total | Dependent child/parental relationships 16 22 25 27 37 Average Median Total |

Definition of Categories

1. *Independent traits*: the tendency to complete tasks with one's own ability and resources.
2. *Dependent traits*: the tendency to complete tasks from other's help and outside resources.
3. *Intrapersonal traits*: satisfaction is gained through individual activities and self-reflection
4. *Interpersonal traits*: satisfaction is gained through group activities and communication with others.
5. *Intrinsic Motivation*: the tendency to be driven by inside sources, such as curiosity, challenge, and discipline.
6. *Extrinsic Motivation*: the tendency to be driven by outside sources, such as family, external rewards, and culture values.
7. *Independent child/parent relationships*: child's tendency to rely on him/herself rather than family factors, such as history, communication, expectation, and social economic status.
8. *Dependent child/parent relationship*: child's tendency to rely on family factors, such as history, communication, expectation, and social economic status.

