COMPUTER ATTITUDES, SELF-EFFICACY, AND USAGE OF CHILDREN AND THEIR PARENTS: VIEWED THROUGH THE GENDER LENS

A DISSERTATION

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BY

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To the Dean of the Graduate School:

I am submitting herewith a dissertation written by Luba Zuk Levy entitled "Computer Attitudes, Self-Efficacy, and Usage of Children and Their Parents: Viewed Through the Gender Lens." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Child Development.

Jo Ann Engelbrecht, Ph.D., Major Professor

We have read this dissertation and recommend its acceptance:

Department Chair

Accepted:

Dean of the Graduate School

DEDICATION

This dissertation is dedicated to the loving memory of my parents, my mother Sophia Medycki Zuk and my father Josaphat Zuk. They were my role models for academic excellence, integrity, tenacity, hard work, compassion, and personal sacrifice. Their emphasis on the value of education inspired me to excel in all my efforts and set me on the road to life-long learning.

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ABSTRACT

LUBA ZUK LEVY

COMPUTER ATTITUDES, SELF-EFFICACY, AND USAGE OF CHILDREN AND THEIR PARENTS: VIEWED THROUGH THE GENDER LENS

DECEMBER 2008

This research concurrently examined the computer attitudes, self-efficacy, and usage of parents and of their children ages 10 – 14 years residing in the Tarrant County area. Additional objectives were to examine gender differences in parents' and their children's computer attitudes, self-efficacy, and usage, as well as to explore factors that may contribute to them. The instruments used by parents in this study were: Computer Self-Efficacy Scale (CSE), Parents' Attitudes Toward Computers (PAC), and the Parental Computer Usage and Demographics Questionnaire. Children were administered: Computer Self-Efficacy Scale (CSE), the Computer Attitude Questionnaire (CAQ - child), and the Child Computer Usage and Demographic Questionnaire. Quantitative methodology was utilized to collect and interpret the data.

Findings revealed a significant positive correlation between parents and their children's attitude toward computers, indicating that parents who had higher computer attitudes tended to have children who had higher computer attitudes. Parents and their children had statistically similar self-efficacy scores. There was no statistically significant positive relationship between parents' computer usage and their children's computer usage. Children's computer usage during the week totaled an average of 9.56 hours. Parents' average computer usage during the week was 24.42 hours. Investigation of the role that gender plays in children's and their parents' computer attitude, self-efficacy, and usage did not show statistically significant differences between boys and girls or between male and female parents. There was, however, a gender difference in the child's favorite and worst academic subjects. The results failed to reveal any significant predictors for child computer attitudes, self-efficacy or usage.

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CHAPTER I

INTRODUCTION

Technology is a vital feature in the 21st century throughout the world's societies. The prevalence of technology in the social constructs of everyday life continues to increase, evolve, and gain importance. The computer, the embodiment of modern technology (Papert, 1984), is a major factor and plays a dynamic role in teaching, learning, communication, entertainment, and vocation. Computers contribute to children's education by making it more effective, meaningful, and interesting (Armstrong & Casement, 2000).

Computers are a factor in priming children for the information society as it prepares them to be successful participants in the 21st century (Atkinson et al., 2001; Butzin, 2000; Hopson, Simms, & Knezek, 2002; Reiser, 2001; Wajcman, 2005). Research suggests that gender, parent attitudes toward computers, socio-economic status, computer knowledge, experience, and computer self-efficacy are some of the essential components influencing children's computer behaviors (Anand & Krosnick, 2005; Bain & Rice, 2006; Barker & Garvin-Doxas, 2004; Christensen, Knezek, & Overall, 2005; Cohoon, 2002; Collis, 1985; Cooper & Weaver, 2003; Crowley, 2000; Eccles, 2005a; Fox, Johnson, & Rosser, 2006; Galpin, Sanders, & Venter, 2003; Goh, Ogan, Ahuja, Herring, & Robinson, 2007; Khorrami-Arani, 2001; Li & Kirkup, 2007; Margolis & Fisher, 2002; North & Noyes, 2002; Rideout & Hamel, 2006; Sanders, 2006;

Subrahmanyam, Greenfield, Kraut, & Gross, 2001; Teo, 2007; Van Braak, J. & Kavadias, D., 2005; Vandewater, Rideout, Wartella, Huang, Lee, & Shim, 2007; Wajcman, 2005).

Gender

How gender differences impact attitudes towards technology, computer self-efficacy, and usage have been documented (Bain & Rice, 2006; Bame, Duggar, deVries, & McBee, 1993; Becker & Maunsaiyat, 2002; Boser, Palmer, & Daugherty, 1998; Comber, Colley, Hargreaves, & Dorn, 1997; Durnell, Glissov & Siann, 1995; Hong, Abang, Abang, & Zaimuarifuddin, 2005; Linn, 1999; Nelson & Cooper, 1997; Ray, Sormunen, & Harris, 1999; Teasdale & Lupart, 2001; Wolters, 1989). Although gender equivalence in computer self-efficacy and attitudes toward computers is suggested in some research (Bain & Rice, 2006; Goldstein & Puntambeka, 2004; Shaw & Giacquinta, 2000), other studies reveal a gender-based digital divide and conclude that in relation to computers, females are disadvantaged by the socialization process (American Association of University Women [AAUW], 2000; Cooper, 2006; North & Noyes, 2002). Findings from some studies show that women's usage of and attitude towards the computer has been shown to be less than men's usage and attitude towards computers (Bronsnan, 1998; Comber et al., 1997; Kirkpatrick & Cuban, 1998b).

There is a growing concern regarding the existence of a digital gender divide (Kekelis, Ancheta, & Heber, 2005). If women are to continue to advance toward economic equity they will be compelled to use technological skills and tools. Entrance of women into technology professions is steadily declining and this is preventing them from becoming full participants in society (Panteli, Stack, & Ramsay, 2001). Based on a survey from entering freshmen, data from the Higher Education Research Institute at the University of California at Los Angeles shows a disquieting drop in their interest in computer majors (Vegso, 2005). Only 1.2% of all incoming freshmen desired to major in computer science. In 2005 graduate enrollment in computer sciences declined 4% between 2004 and 2005 and 13% since 2002 (National Science Foundation [NSF], February, 2007). Women's interest in computing as a major has plummeted 80% between 1998 and 2004 to levels not seen since the early 1970s (NSF, January, 2007).

Beginning at a very early age, women are underrepresented in the usage of computers, technology classes in school, information technology graduate degrees, technology jobs, and in general are left out of the technology revolution (AAUW, 2000). According to the NSF (January, 2007), the gender digital divide has widened. Associate and bachelor degrees in computer sciences earned by women have declined between 1985 and 2004 from 37% to 25%. In 2004, women accounted for 28% of graduate students in computer sciences. In 2005 the Computing Research Association (n.d.) reported 900 doctoral degrees in computer science were granted to men and 200 to women. The total number of computer and information scientists employed in 2003 was 1,883,400, of which only 519,700 were females (NSF, December, 2006).

Serious inequality exists between males and females in reaping the benefits from the computer. The "genderization" of technology stems from culture and socialization in early childhood as well as attitudes acquired in the early ages that produce a belief that computers are for males. By the year 2019, it is forecasted that 25% of all new jobs will be technologically oriented (Cooper & Weaver, 2003). Computer literacy must be achieved by all members of society (AAUW Education Foundation Commission on Technology, Gender and Teacher Education, 2000; Bartol & Aspray, 2006; Brinkley & Joshi, 2005; Brynin, 2006; Fenwick, 2004; Wajcman, 2006). The gender digital divide is detrimental to women, and in turn, to society.

Studies on children and computer usage reveal that gender differences are greater among older children and less apparent in younger students in the usage of computers (Comber et al., 1997; Durndall et al., 1995). Roberts et al.'s (1999) study proposes that, except for gaming, children between the ages of 8 and 13 years have similar computer usage. Li and Kirkup (2007) found significant results in a study examining the effects of gender and cultural contexts on attitudes and usage of computers.

Ecological systems theory posits that the ecology of human development evaluates the process of the bidirectional accommodation between a human being and the settings in which the individual lives, the way this process is affected by the relations between the settings, and by the larger contexts in which the settings are embedded (Bronfenbrenner, 1979). According to Bronfenbrenner, the individual's immediate environment is the micro-system and for children this includes their parents. The concept of parental influence on their children's domains of development has been a major part of developmental inquiry for many decades (Auerback, 1998; Baumrind, 1967; Carmichael, 1970; Downing, Ollila, & Oliver, 1977; Kagan & Mass, 1962; Konstantinos & Tsitouridou, 2002; Landsberger, 1973). Parents serve as a model for their children and are a factor of influence.

The parental impact on the use of technology by their children has been studied for an extensive period of time. One of the earlier studies of parental impact on children's use of technology was carried out by Chaffee, McLeod, and Atkin (1971). The role parents have in shaping their children's use of technology has been shown to be extremely profound (Rideout & Hamel, 2006; Rideout, Vandewater, & Wartella, 2003; Roberts, Foehr, & Rideout, 2005). Researchers have suggested in past decades that parental beliefs and behaviors affect their children's self-efficacy, attitudes toward computers, and their usage of computers (Bandura, 1986; Kirkman, 1993; Shashaani, 1994a). In a theory put forth by Havighurst (1964) delineating the six stages of career development, three stages take place during childhood and adolescence. Between the ages of 5 and 10 years, children begin to conceptualize adulthood; a career is one of the elements. Children consider their parents to be important models for the development of future career choices. By the fifth grade (approximately 10 years of age), children have an idea of what career they will pursue based on what they believe is gender appropriate and prestigious (Cooper & Weaver, 2003; Gottfredson, 1981; Magnuson & Starr, 2000; Montgomery, 2007; Subrahmanyam et al., 2001).

Early Computer Use

Pierce (1994) has determined that early computer use is important to ensure that girls are as prepared as boys to engage in scientific and technical careers. A meta-analysis conducted by Kulik and Kulik (1991) revealed that when students used computers from elementary school level onward, test scores were significantly raised, they enjoyed their classes more, and had a more positive attitude towards computers. The Public Health Informatics Research Laboratory conducted a 10 year meta-analysis of the reviews on technology and child development (Atkinson et al., 2001). They concluded that the issues of the relationship of the students' home environment, the gender equity, and the access to technology must be studied to understand the impact of technology on child development. Their review revealed few studies that addressed gender differences in technology usage. One exception was a study conducted by Pierce (1994); he concluded that early computer use by children decreased differences in computer use and attitude when these children were older.

Statement of the Problem

Research reveals a gender gap in attitudes towards computers, computer self-efficacy, and computer usage. A clearer understanding of that gap is needed. The influence of parents' attitudes toward computers, computer self-efficacy, and computer usage on their children's attitudes toward computers, computer self-efficacy, and resultant children's computer usage has not been researched. Understanding children's and their parents' attitudes toward computers, computer self-efficacy, and computer usage requires gathering this information directly from the children and their parents, rather than exclusively by parental report (Borgers, de Leeuw, & Hox, 2000).

Statement of Purpose

The primary purpose of this study was to concurrently examine the attitudes toward computers, computer self-efficacy, and computer usage of parents and of their children ages 10 – 14. A secondary purpose was to examine gender differences in parents' and their children's attitudes toward computers, computer self-efficacy, and computer usage. A tertiary purpose was to explore the factors that may contribute to children's attitudes toward computers, computer self-efficacy, computer usage, and the formation of negative opinions regarding computers expressed by females ages 10 - 14 (AAUW, 2000; Goh et al. (2007).

Significance of the Study

Attitudes toward computers, computer self-efficacy, and computer usage play an important role in the ability of children to recognize that the computer is a valuable learning tool and a necessity for future educational and vocational pursuits in the 21st century (Teo, 2007). This study simultaneously examined the attitudes toward computers, computer self-efficacy, and computer usage of parents and their children ages 10-14 years old. These findings helped to ascertain the effect of parental attitudes toward computers, computer self-efficacy, and usage of computers on their children. This study assisted in shedding light on the issue of the gender disparity in computer usage and career choices. It is reasonable to assume that computers will continue to be an essential tool to function in the information age. The literature supports the position that career development and appropriate computer usage has its beginning in childhood (Havighurst, 1964; Magnuson & Starr, 2000; Trice, 1991; Trice & McClellan, 1993, 1994; Walls, 2000).

In order for all the members of the society to have equitable opportunities in education, vocation, and the economy, parity in the use of technology, including computers, must be achieved. Conducting this research enhanced understanding of the factors impacting the digital gender gap in computer attitudes, self-efficacy, and usage.

Hypotheses

H_1: 1.There will be significant positive relationships between parents' and their children's attitudes toward computers, computer self-efficacy and computer usage.

H_1: 2. There will be a significant difference between boys and girls on attitudes toward computers, computer self-efficacy, and computer usage such that boys will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than girls.

H_1: 3. There will be a significant difference between fathers and mothers on attitudes toward computers, computer self-efficacy, and computer usage such that fathers will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than mothers.

H_1: 4. Children's and parents' gender, parental attitude toward computers, parental computer self-efficacy, parental computer usage, parental education, parental career will significantly predict children's attitude toward computers, computer self-efficacy, and computer usage.

Research Questions

The following research questions were the focus of the study;

Research Question 1. What are the attitudes toward computers, computer self-efficacy, and computer usage of children age 10 - 14?

Research Question 2. What are the attitudes toward computers, computer self-efficacy, and computer usage of parents of children age 10 - 14?

Definitions

The following definitions were proposed for the purposes of this study.

Attitude – (1) feeling or opinion regarding a particular fact or situation (Morris, 2000). (2) "a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object" (Fishbein & Ajzen, 1975, p.10). (3) "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (Allport, 1935, p. 810).

Attitude toward computer – includes three categories: Anxiety: fear of failing to use a computer. Computer Enjoyment: pleasure drawn from using a computer. Computer importance: perceived value or significance of knowing how to use computers. In this study, attitude toward computer were operationalized by the

Computer Attitude Questionnaires (CAQ; Knezek, Christensen, & Miyashita, 1998).

Computer literacy – includes a lifelong use of pertinent concepts, skills, and problem solving ability in an increasingly more computer dependent culture (AAUW, 2000).

Computer self-efficacy (CSE) – (1) individuals' confidence in their ability to use a computer in diverse situations and assists in determining the ease of skill acquisition (Compeau & Higgins, 1995; Marakas et al., 1998). (2) personal judgment of one's capability to use a computer effectively (also referred to as computer competence or computer literacy) (Delcourt & Kinzie, 1993; Milbrath & Kinzie, 2000). In this study CSE was measured by the Computer Self-Efficacy Scale (Torkzadeh & Koufteros, 1994), which is a slightly modified version of Murphy's (1989) Computer Self-Efficacy Scale.

Computer Usage – average number of hours per week individuals used the computer.

Perceived self-efficacy- People's beliefs about their capabilities to produce effects (Bandura, 1997).

Self-efficacy – individuals' perception of their ability to plan and take action to achieve a certain goal (Bandura, 1977).

Target parent – In the present study the term "parent" included either of the biological parents (if divorced they answered if they were the primary or secondary parent), legal guardians, or step parents. As described in the Family Educational Rights and Privacy Act of 1974, target participants will include a "natural parent, a guardian, or an individual acting as a parent in the absence of a parent or a guardian and their child(ren)" (Federal Register, 2000, p.41856). Primary parents were those who the child lives with more than 50% of the time.

Technology – (1) application of scientific knowledge to the practical aims of human life, or to the change and manipulation of the human environment (Encyclopedia Britannica, 2007) (2) "technologies are the tools that allow people to share their knowledge representations with others" (Reeves, 1998, p. 5). (3) the field of study that applies knowledge, resources, materials, tools and information to the design, production, use of products, structures and systems; increases and adds to the capability of humans to modify and control their environment (NSF, 1996). (4) "system comprised of artifacts, social practices, and systems of knowledge" (Fox, Johnson, & Rosser, 2006, p. 2).

Delimitations

Several factor delimitated the study. The characteristics of the sample delimited the findings to be generalizable only to children age 10 - 14 and their parents. Parental impact does not take place in isolation and the network of contexts in which parenting is embedded calls for its exploration. The contexts consisted of the children's school, peers, neighborhoods in which they live, and the times in which they lived. Self-report data has problems of reliability and accuracy emanating from the respondents' potential inaccurate estimations and faulty memory. Since participants volunteered for the study, it is possible that their willingness to take part in the research could affect their reported attitude toward computers. Only participants that could read, write, and speak English took part in the study. Inaccurate responses on the demographic forms may have occurred as a result of participants' flawed memory, lack of comprehension and reading ability, embellished responses to appear more socially acceptable, and hurried and careless responses.

Summary

Attitudes towards computers, computer self-efficacy, and usage of computers play an important role in the ability of children to recognize that the computer is a valuable learning tool (Teo, 2007). Parental attitudes and behaviors impact their children's attitudes toward computers, computer self-efficacy, and their usage of computers (Bandura, 1986; Kirkman, 1993; Shashaani, 1994a). Studies on children and computer usage reveal that gender differences are greater among older children and less apparent in younger students in the usage of computers (Comber et al., 1997; Durndell et al., 1995). The purpose of this study was to concurrently examine the attitudes toward computers, computer self-efficacy, and computer usage of parents and of their children ages 10 - 14. This study also investigated gender differences in parents' and their children's attitudes toward computers, computer self-efficacy, and computer usage. An exploration of factors that may contribute to children's attitudes toward computers, computer self-efficacy, computer usage, and the formation of negative opinions regarding computers was undertaken.

CHAPTER II

REVIEW OF LITERATURE

The passageway of children into the adult world in this century necessitates access, use, and fluency with technology. The 21st century has ushered in the technological and information era, and successful individuals in society are required to be able to manage and convey information from and to numerous and diverse sources. One of the tools utilized in this process is the computer. Gender plays a role in an individual's involvement and commitment to computer usage (Brunner, Bennett, & Honey, 1998; Yeland & Rubin, 2002).

Participation by women in computing disciplines and occupations is at a historical low. Women make up 51 percent of the population, 46 percent of the labor force, and 23 percent are scientists and engineers (Mervis, 2000; NSF, 2000; U.S. Bureau of Labor Statistics, 1997). Over half of all United States college graduates are women and they receive only 28 percent of all bachelors degrees in Computer and Information Sciences; a decrease of nine percent since 1987 (Barker et al., 2003). The review of the research by Dryburgh (2000) states that the 1990s' studies revealed a decline of participation by women in computer science and cultural factors contributed to this condition. Most of the research was conducted on post-secondary education with non-randomly selected participants.

Over the past three decades, numerous researchers have studied and advanced theories regarding the factors that underlie gender differences in educational and vocational goals as well as choices in technology. Eccles (1987) has spent over 30 years studying this issue and has used decision making, achievement theory, and attribution theory in her research. She posits that there is a relationship between cultural and personal beliefs, attitudes, and behaviors regarding achievement in math, physical science, and information technology (Eccles, 2005a). She further states that educational and occupational choices are directed by several factors including: personal efficacy, psychological needs, social identities, gender, social class, ethnicity, and religion. In researching computers and gender bias in young children, one study found that the differences in computer usage can be attributed to several factors: biased classroom practice, short supply of bias free software, lack of female role models, and gender bias in the child's home (Bhargava, Kirova-Petrovna, & McNair, 2002). Colley (2003) conducted research on gender differences in adolescents about perceptions regarding computers at the beginning and end of secondary school. Significant gender differences were found. Girls viewed computers as tools for accomplishing tasks. Boys considered computers to be technological tools for play and mastery.

In attempting to organize the factors that have been identified as barriers contributing to the computer gender gap, Nelson and Watson (1991) grouped the factors into four categories: (a) attitude and performance factors, (b) family factors, (c) software factors, and (d) educational factors.

Theoretical Framework

The present study was guided by the following theories: (a) Social Cognitive Learning Theory, (b) Bioecological Systems Theory, and (c) Theory of Planned Behavior. These theories along with key landmark studies guided the research, assisted in creating a cohesive argument for the current research, and informed the analysis.

Social Cognitive Learning Theory

An individual's functioning is viewed by Bandura (1986) as being a resultant of a dynamic, bi-directional interplay of personal, behavioral, and environmental factors. This view is referred to as being *reciprocal determinism*. The personal factors include the cognitive, affective, and biological events. Family, teachers, peers, and technological tools certainly are included as being some of the environmental factors having an influence on children. This theory maintains that individuals are engaged proactively in their development and behaviors. Individuals' self-beliefs as well as cognitive, affective, and biological factors facilitate the ability to exercise control over their thoughts, feelings, and behaviors.

Self-Efficacy

Self-efficacy is a construct that relates to how capable one believes oneself to be and is an element of the Social Cognitive Theory (Bandura, 1977). Perceived self-efficacy is concerned with individuals' beliefs in their capabilities to exhibit a skill, accomplishment, or distinction through their own effort (Bandura, 1997). These beliefs are important ingredients for human functioning and a critical determinant of an individual's attainment of knowledge and skill. A source of self-efficacy can be developed through the vicarious experiences provided by social models. Children's earliest social models are their parents. Studies have indicated that computer use and the ability to learn to use computers are impacted by computer self-efficacy (Bandura, 1997). Research has suggested that computer self-efficacy, gender, and education are potential factors that decrease women's participation in technology (Galpin et al., 2003).

Self-efficacy beliefs are the nucleus of the Social Cognitive Learning Theory. It is the anticipation that one will be able to succeed at a task, and is predicated upon one's own previous success and self-belief. Self-belief was first described by the ancient poet Virgil (70BC-19BC). Virgil stated, "they are able who think they are able" (Pajares & Schunk, 2002, p.19). Individuals evaluate their own thoughts and behaviors through self-reflection (Dewey, 1910). Decades after Dewey's speculation, Bandura posited that self reflective judgments involved perceptions of self-efficacy which he considered to be confidence in one's abilities.

Human behavior is viewed as, "what people think, believe, and feel affects how they behave" (Bandura, 1986, p.25). The individual does not exist alone and consequently the collective agency has an influence and is influenced by the individual. The environmental factors affect the individual and some examples of that impact are evident in: self-regulation, ambition, emotional state, and self-efficacy (Bandura, 1997; Pajares, 2002). Bandura further emphasized the significant role of self-beliefs in cognition, motivation, and behavior.

Since individuals function individually and as a group, self-efficacy is a personal and a social construct. Self-efficacy plays an essential role in affecting individual functioning. It is the foundation for personal motivation, well-being, performance, and it affects all aspects of life. This assertion is in concert with the view of prior philosophers and theorists (e.g., Aristotle, James, Dewey, Kant, and Maslow) who posited that beliefs produce filters through which new experiences are read and understood (Pajares & Schunk, 2002).

Achievements by individuals are better predicted by their self-efficacy beliefs than what they are actually capable of accomplishing. As Bandura (1997) stated, "people's level of motivation, affective states, and actions are based more on what they believe than on what is objectively true" (p.2). This may account for the discrepancy between people's abilities and their accomplishments.

The formation of self-efficacy stems from four sources: (a) one's prior performance; (b) vicarious experience of observing others perform (modeling); (c) social messages experienced as persuasions which can be negative or positive; and (d) physiologic states (Bandura, 1997). In children, self-efficacy impacts the choices they make (engage in or avoid a task), the amount and duration of the effort exerted in an activity, the emotional reaction, the recovery time from failure, and the enhanced sense of accomplishment and well-being (Aronson, 2002). Parents are an important source for their children's development of self-efficacy beliefs; they nurture those beliefs in their children. A child's belief of personal competence is a key component of human agency.

Young children are not skilled at making self assessments; therefore, they depend on the judgment of others such as parents, teachers, and significant adults in their lives to generate confidence and self-worth.

Research on college students regarding gender differences in self-efficacy and attitudes toward computers was conducted by Busch (1995). After completion of a computer course, the students were asked to complete a questionnaire. The researcher found that there were gender differences in perceived self-efficacy regarding completion of complex tasks, but no gender differences in simple computer tasks.

Self-efficacy has been employed in numerous pieces of research emanating from a variety of disciplines. Stajkovic and Luthans (1998) discovered in a meta-analysis of a group of studies, that an individual's self-efficacy beliefs are strong indicators of the ability to attain self selected goals. Self-efficacy has been included in many studies and is especially prominent in research on academic achievement, attributions of success and failure, memory, problem solving, careers, and teaching.

Self-efficacy source: Family. A child first experiences self-efficacy in the family and it is broadened throughout the life span. Play and exploration provide occasions for the development of self-efficacy in infants. The relationships with parents and siblings throughout the lifespan offer opportunities for bi-directional responsiveness and establishment of self-efficacy. A continuation of building a sense of self-efficacy contributes to the establishment of feeling capable and achieving accomplishments. The experiences of adolescence nurture the growth or create diminishment of self-efficacy.

Adulthood presents occasions for further development of self-efficacy beliefs. During the middle years, self-efficacy in the area of personal functioning stabilizes. Advanced age involves reappraisals of one's capabilities since diminishment in various domains occurs. Self-efficacy continues to play an important role in maintaining an individual's various functions. Bandura (1994) proposes that self-efficacy impacts life choices, level of motivation, quality of functioning, resilience, and emotional state throughout the lifespan.

Measurement of self-efficacy. The Children's Perceived Self-Efficacy Questionnaire was developed by Bandura (1993). The Italian version of the instrument validated the multidimensionality of the self-efficacy construct (Pastorelli, Caprara, & Bandura, 1998).

Cassidy and Eachus (2002) developed an instrument while they investigated the relationship between computer user self-efficacy (CUSE), gender, and experience with computers. They found that the CUSE correlated with computer experience. Males demonstrated a significantly higher CUSE than the females, even when the females were highly experienced with computers.

Computer self-efficacy. Computer self-efficacy has been found to be associated with attitudes toward the computer and positively related to increased use of computers (Zhang & Espinoza, 1998). Technology brings about change; it takes place continuously, and rapidly. It necessitates adaptation, establishment and maintenance of self-efficacy, and self-reappraisals of one's perceived capabilities. Successful computer usage requires computer self-efficacy. Use of a computer is essential for a wide array of personal, household, leisure, educational, and vocational pursuits. Past research has shown that if girls lack computer self-efficacy from an early age, this leads to lower interest and engagement with computers (Miura, 1987). Reportedly, the female's lower self-efficacy regarding computer use continues into college and beyond (Murphy, Coover, & Owen, 1989). The women who have advanced positions requiring the use of computers have more positive than negative attitudes toward computers (Miura). Scheye and Gilroy (1994) studied the effects of the educational setting and maintained that the environment impacts women's perceived efficacy regarding careers. According to the research of Lapan, Boggs, and Morrill (1989), interest and participation in technical fields is affected by perceived efficacy which mediates gender differences in educational and career choices. Females convey that they experience low self confidence which precipitates the student switching out of technology courses (Cohoon, 2002).

Measurement of computer self-efficacy. A Computer Self-Efficacy Scale has been created by Murphy, et al. (1989). Using this instrument, it has been shown that self-percepts of efficacy influence the preferences of a person's behaviors and if appropriate assessments of efficacy are made, the determination of the behavior can be more accurately established (Bandura, 1986; Schunk, 1981).

Bioecological Systems Theory

The developmental process of an individual is affected by the relationship between that individual and the immediate settings in which she/he live, and by the larger settings in which these are embedded (Bronfenbrenner, 1979). The Bioecological Systems Theory posits that there is a bi-directional interaction between the child's maturing biology, child's immediate family/environment, and the societal landscape as it impacts the child's development throughout the life span (Bronfenbrenner, 2004).

Family Environment

The influence and relationship of parents' attitudes, beliefs, and behaviors on their children is an important factor to consider. Parents' behaviors have been studied by analyzing videotaped records of their interaction with their young children in a science museum (Crowley, 2000). Results showed that parents provided an explanatory context for their science museum experience primarily for their male child. Both parents, especially the fathers, explained the interactive science exhibits three times more to their sons than to their daughters, even to the one year-olds. The music exhibits were explained two times more to their female children than to the male children.

Lee, Vandewater, and Bartolic (2007) examined the predictors of children's media use. It is one of the first studies to investigate the effect of early contextual factors on children's media use throughout the life span.

A German study evaluated gender differences of children ages 10-16 in their choice of computer courses at the early high school level (Dickhauser, 2003). The boys took computer courses more frequently than girls. This finding correlated with several factors: values placed on computers, expectation of success, and perceived parental attitudes.

Women are reticent to pursue careers in technology, science, and math because they believe that these careers are isolating, and they receive messages from their parents that undermine their self-confidence (Eccles, 2005b). A 30-year longitudinal study started in 1983 on 1200 young men and women were last interviewed in 2002 when they were 30. Researchers noted that parents had provided multiple messages to their daughters throughout the years that resulted in undermining the females' confidence in technology, science, math, and interest in careers in these fields.

The impact of children's perceived parental beliefs regarding gender and attitude toward computers on the children's self-confidence, interest, and attitude is apparent from the research of Shashaani (1993). The study was conducted with 1,754 ninth and twelfth graders to measure the gender differences in attitudes towards computers. Boys had more positive attitudes towards computers than girls in both grades. Girls expressed a lower level of confidence than boys in their ability to use computers. Both genders perceived that teachers and parents were of the belief that computers are more suitable for males. The students' interests in computers correlated with the amount of support they received from their parents and teachers. Females' low computer self-confidence strongly correlated with their perception that their fathers believed that computers were more appropriate for males than for females.

A qualitative, contextual, and developmental case study design was conducted to ask the overarching, research guiding question: what factors influenced, supported, and/or encouraged 12 female participants to become proficient in the technology profession (Smith, 2000). The analysis revealed that gender-based differences in the technology field are a multifactorial issue with no one event operating in isolation. The women expressed that the important factors impacting their career choices in technology fields were strong female technology role models and encouragement from their fathers, male siblings, and male peers.

Computer

According to the Bioecological perspective, the child is viewed as being nested within successive distal layers of environmental influences which interact bi-directionally and are mediated by the influence of the others. The environments with which the individual child interacts are considered to be behavior systems. Bronfenbrenner's four levels of the environment are the microsystem, mesosytem, exosystem, and macrosystem (1979).

> A microsystem is a pattern of activities, roles, and interpersonal relations experienced by the developing person in a given face-to-fact setting with particular physical, social, and symbolic features that invite, permit, or inhibit engagement in sustained, progressively more complex interaction with, and activity in the immediate environment. (Bronfenbrenner, 1993, p. 15)

The Bioecological perspective considers media to be a part of the micro-system and it serves as an immediate transmitter of cultural messages to the child. Media refers to the various types of communication. These include print, published, recording, and electronic forms of communication. The computer is one of the electronic forms of communication. In accordance with the Bioecological perspective, the computer is an influence that affects a child's development, interaction, and behavior.

Attitude Theories

Attitude is latent, extensively investigated construct, defined by numerous disciplines, observed indirectly, and its measurement relies on attitude being disclosed in overt responses (Eagly & Chaiken, 1993). An early definition of attitude was "a mental or neural state of readiness, organized through experience, exerting a directive or dynamic influence on the individual's response to all objects and situations to which it is related" (Allport, 1935, p.810). A contemporary explanation, "attitude is a psychological tendency that is expressed by evaluating a particular entity with the some degree of favor or disfavor" (Eagly & Chaiken, p.1).

Construct of Attitudes

Attitude has been defined in numerous ways, debated and researched extensively, and recognized as being an important factor and predictor of behavior (Allport, 1935; Fishbein, 1967; Fishbein & Ajzen, 1975). Initially attitude was considered to be a disposition clarifying action and characterized as "readiness for attention or action of a definite sort" (Baldwin, 1901, as cited in Ajzen & Fishbein, 1980, p.13). Allport posited that attitude was a complex, all-embracing construct containing a cognitive element. Later researchers added that attitude was multidimensional and consisted of cognition, affect, and action (Ajzen & Fishbeing, 1980). Fishbein (1967) defined attitude as "a learned predisposition to respond to an object or class of objects in a consistently favorable or unfavorable way" (p. 477). Attitudes can be regarded as both the determinants and consequences of factors such as self-efficacy, gender, tools, parents, teachers, socio-economic status, and culture (Coon, 1995; Weiner, 1994).

Attitude research underwent much debate as to what the term meant. Originally the term attitude was limited only to the aspect of anxiety. Some researchers considered attitude as consisting of affective, behavioral, and cognitive aspects while others directed their studies only to the affective domain (Francis, 1993). Researchers began to measure attitudes toward computers when they became a part of the general public's daily life. The assumption was made that a correlation existed between children's anxiety toward computers and successful performance (Bear, 1990).

Theory of Reasoned Action

Fishbein and Ajzen (1975) posited that the relationship between attitude and behavior was multifaceted and a possibility exists that other factors were contributing to an individual taking action. The resultant model was The Theory of Reasoned Action (TRA) presented by Fishbein and Ajzen. The TRA model suggested a connection between an individual's beliefs, attitudes, intentions, and behavior. TRA maintains that attitudes are not innate but are developed, learned, can be modified, are measureable, and are "organized through experience" (Fishbein, 1967, p. 8). This theory did not take into consideration other external factors. TRA proposes that an individual assesses attitudes toward a particular action as well as subjective norms that establish the potency of their intention to conclude an action. A subjective norm is the perceived social stress to engage or not engage in a particular behavior.

Theory of Planned Behavior

Ajzen and Madden (1986) developed a successor model called The Theory of Planned Behavior (TPB) after the discovery that not all behavior is voluntary or under one's control. TBP affirms that individuals' behaviors are influenced by their intention to engage in a behavior. The intention is impacted by the persons' attitude toward the behavior, their subjective norm and their perceived control. The perceived behavior control is the persons' perceptions of their ability to execute a particular behavior. Ajzen's and Fishbein's (1977) Theory of Planned Behavior provides a link, prediction, and relationship between attitudes, beliefs, and behaviors.

The Technology Acceptance Model

Attitudes toward the use of the computer or the selection of a career have been researched as being influential in future behavior. Davis, Bagozzi, and Warshaw (1989) devised The Technology Acceptance Model (TAM) and expanded the TRA and TPB. The TAM was developed to explain computer usage and adoption. The external variables of perceived usefulness (PU) and perceived ease of use (PEOU) are defined as impacting the attitude toward computer usage. The attitude toward use of computers influences the behavioral intention which in turn affects the actual use of the computer and other technological tools.

The Unified Theory of Acceptance and Use of Technology Model (UTAUT) was developed through the consolidation of eight constructs gleaned from prior theories (Venkatesh, Morris, Davis, & Davis, 2003). The intent was to integrate the major acceptance and user models and produce a unified theory of acceptance and use of technology. UTAUT aspires to explain the user's intent to accept and use a computer and other technologies. The UTAUT maintains that the constructs performance expectancy, effort expectancy, social influence, and facilitating conditions directly affect usage intention and behavior. Gender, age, experience, and voluntariness of use are the moderators (Vankatesh et al).

Attitudes Toward Computers

Early studies of attitudes toward computers originated from self-efficacy theory (Bandura, 1977). The concept of attitudes toward computers has been examined by numerous researchers for decades and has been considered to be a predictor of an individual's learning and achievement (Francis, 1993; Lee, 1970). Attitudes are influenced by the family, schools, and society (Brown & Gilligan, 1992). Differentiation of attitudes toward technology by gender begins as early as elementary and middle school. During this time children begin to comprehend what societal roles are ascribed to them (Belenkey, Clinchy, Goldberger, & Tarule, 1986; Seymour, 1999). Fox (1998) posits that "the status of women is attributed to, or said to correspond to, women's individual characteristics, such as attitudes, behaviors, aptitudes, skills, performance, and experience" (p. 202).

What children learn is dependent on their attitudes toward learning and their current context (Butler, 1998). Teo (2007) proposed that parental attitudes toward computers are influential in determining to what extent children accept the computer as a learning tool, and how they will use it in the future. Whether children incorporate computers into their lives depends upon their attitudes towards these machines. Attitude is a factor that has been identified as being involved in the gender gap of computer usage (Sacks, Bellisimo, & Mergendoller, 1993; Shashanni, 1994b).

Gender and Attitudes Toward Computers

Gender related differences in attitudes, computer self-efficacy, and behavior can be viewed as a product of the social construction that determines what models of behavior are given to children of each gender (Turkle, 1984). Researchers have studied the level of girls' involvement with technology and related activities and found in the last few decades the presence of girls was becoming increasingly more diminished (Sutton, 1991; Tillberg & Cohoon, 2005). The review noted little disparity between younger boys and girls in how they view or are involved with computer activities, but this increased as the girls grew older. Beeson and Williams (1985) found no sex stereotyping among preschool children in computer usage. The digital gender divide is clearly seen when girls are teens (Yelland & Rubin, 2002). Girls' participation in technology decreases as their age increases, and this has been progressive throughout the 1990s (AAUW, 2000).

In the AAUW's commission report, *Tech-Savy: Educating Girls in the New Computer Age* (2000), it is emphasized that girls' use of computers is not promoting their "fluency." Yelland and Rubin (2002) affirm that many factors account for the girls being "disenfranchised" from computer technology. The research conducted by Kahle and Meece (1994) illustrated that girls form many beliefs about themselves and feelings about technology at a very young age. Computer usage and the digital gender divide are evident in the home, the school, and the workplace. Various explanations are given for the existence of this divide from different attitudes toward computers to environmental factors including the home (Shashaani, 1994b).

A survey study conducted on 351 students found no effect of gender with respect to dimensions of computer attitude (Jennings & Onwuegbuzie, 2001). Younger students reported higher levels of confidence than other age groups, and the students with the highest math attitude had the highest computer attitude scores.

The behavior of children and computer activity is impacted by the home environment. Bame et al. (1993) and Boser et al. (1998) concluded that environment at home impacts the gender differences in computer attitude and usage. The girls' home experience with the computer has reciprocal impacts with the school. Lack of exposure, experience, parental encouragement, and positive attitude all contribute to a lack of confidence and self-efficacy. The Massachusetts Institute of Technology (MIT) researchers Turkle (1984) and Papert (1984) uphold the position that many girls and women find computer use aversive. The females view it as a formal, analytical approach, and conceptualize computers as being for the "techies," masculine, and abstract, rather than flexible, intuitive, and friendly. The girls like creativity, communication, and fashion and experience working with computers as isolative, tedious, and lacking in human contact (Yelland & Rubin, 2002).

Quantitative and qualitative studies have been conducted to determine if there are gender differences in attitudes, perceptions, and usage of computers. Significant differences were found (Bame et al., 1993; Boser et al., 1998; Comber et al., 1997; Durndell et al., 1995; Nelson & Cooper, 1997; Teasdale & Lupart, 2001). In the study by Bain and Rice (2006), significant quantitative results were not found, but qualitative analysis revealed gender differences in time spent on the computer and attitudes toward technology.

Rajagopal and Bojin (2003) conducted a study to ascertain if gender was a significant variable in computer usage in learning and to examine the differences between male and female higher education students. In order to understand this question, they posited that it was necessary to look at attitudes towards technology, learning goals, and level of computer skills. They agreed with Shashanni (1994a) that the family influenced attitudes in their children towards computers, and that the gender gap in learning computers was a result of family socialization of the children. Their findings suggest that there is a gender difference in the perception and the role of technology in education. Their views differed on the effect of technology on education by gender pertaining to what attracts students, how it improves learning and productivity, and how it links socially. Students' views of the impact of computers on learning varied by gender; the greatest difference was on how it made research easy (more females), and learning enjoyable (more males). The greatest obstacle for females was their lack of time for learning new technologies which created a lower interest in technology.

Gender is a frequently reported factor in attitude studies, including attitudes toward computers (Chen, 1986; Kirkpatrick & Cuban, 1998b; Raub, 1981; Rosen, Sears, & Weil, 1987; Shashaani, 1993). Parental attitudes toward computers are influential in determining to what extent children accept the computer as a learning tool, and how they will use it in the future (Teo, 2007).

International Studies

Studies conducted globally on the attitudes toward computers, computer self-efficacy, and usage of computers demonstrates how these elements are mediated by gender and the environment. A study of gender differences in perceived self-efficacy and attitudes toward computers was conducted with 147 undergraduate business administration students in Norway (Busch, 1995). Results revealed that gender differences in levels of computing self-efficacy were strongest with regard to complex tasks. Girls had less computing self-efficacy than boys. Gender differences were not found in computer attitude. Computer experience and encouragement were the best predictors of computer attitudes. Encouragement was the strongest predictor of computer attitudes and parents gave it more to boys than to girls. These parents regarded computers as a male domain rather than a female or common domain.

In the Netherlands, girls' and boys' attitudes towards computers were assessed with no significant gender effects reported on the nomothetic global attitude scale

(Oosterwegel, Litteton, & Light, 2004). Significant gender effects, however, were evident for specific computer uses. The researchers concluded that there is a need to differentiate between different forms of computer use.

In a German study of students grades 5 through 10, 1035 students were surveyed regarding computers; all measures favored the boys (Bannert & Arbinger, 1996). The boys felt more confident and in control, and the girls expressed a decreased interest in computers over time and a higher expectation of failure.

A study comparing computer self-efficacy and gender across cultures study revealed that in Scotland and Romania males had significantly higher self-efficacy than females for beginning and advanced computer skills (Durndell, Haag, & Laithwaite, 2000). In Yugoslavia, ninth-graders were given a survey to assess computer attitude and determine if gender differences exist (Kadijevich, 2000). The results showed that males had more positive attitudes toward computers than females even when the experience variable was controlled.

Investigating the relationship of computer anxiety, gender, and grade was undertaken in Australia by King, Bond, & Blandford (2002). Overall, males were slightly more anxious about using the computer than females. Females' anxiety was higher than males in grade 7^{th} grade, equal in the 9^{th} grade, and lower than the males' in the 11^{th} grade.

Studies have been conducted in Hong Kong to explore students' attitudes toward technology and the gender perspective of women's status in education and labor (Mak & Chung, 1997; Volk, Yip, & Lo, 2003).

Gender Differences and Age

The literature reveals conflicting results regarding the association of computer attitudes, age, and gender. Gender was a frequently reported factor in attitude studies. Some studies have found that gender is related to computer attitudes (Chen, 1986; Kirkpatrick & Cuban, 1998b; Raub, 1981; Rosen, Sears, & Weil, 1987; Shashaani, 1993; Vale & Leder, 2004), while other researchers did not find gender to be significantly related to computer attitudes (Armitage, 1993; Busch, 1995; Koohang, 1989; Loyd, Loyd, & Gressard, 1987).

Studies examining attitudes towards computers have revealed more positive attitudes in boys than girls at the secondary school level. Attitudes were established by the eighth grade and were attributed to parental influence (Collis, 1985; Kay, 1992; Wilder, Mackie, & Cooper, 1985). More recent research in identification of gender differences regarding computers include AAUW (2000); Cooper and Weaver (2003); and Christensen, Knezek, and Overall (2005). These studies found that around the sixth grade there is a change from girls being more positive toward computers to boys being more positive. A higher proportion of boys than girls have computers that are their own and are used for recreational purposes (Roberts, Foehr, & Rideout, 2005). The study further revealed that the two genders allocate their computer time differently, and parental demographics are a factor in computer behaviors of their children.

Christensen, Knezek, and Overall (2005) determined that there are few or no differences in attitudes toward computers based on gender when children enter the first grade. Around the sixth grade, girls' attitudes are less positive than boys, and before the eighth grade the girls' attitudes are significantly lower than boys. The researchers suggest that further studies are necessary to determine the underlying basis for this transformation.

Research was conducted in Canada to determine computer attitudes of preschool children, ages three through six (Bernhard, 1992). They found that boys displayed more enthusiastic, inquisitive, and repetitive behavior toward the computer than girls. DeRemer (1990) administered an attitude questionnaire to third and sixth graders. Girls scored significantly higher than boys in liking computers at both grade levels. Boys and girls had similar confidence regarding computers and the boys perceived computers as a male domain.

Age was a factor that was considered in most studies on children's attitudes toward computers. Findings regarding age influencing attitudes toward computers are inconsistent. Age as a significant factor was reported by Jennings and Onwuebuzie (2001), and Colley and Comber (2003). Dyck and Smither (1994) did not find differences in age impacting attitude, however, computer experience was a significant factor.

Measurement of Attitudes Toward Computers

Attitudes are not inborn but can be learned, developed, measured, and are "organized through experience" (Fishbein, 1967, p. 8). The measurement is indirect and deduced from other observable data (Halloran, 1967). It has been established that mathematical skills are positively correlated to computer ability (Howell, Vincent, & Gay, 1967), and consequently the origins of assessing attitudes toward computers emanate from the study of attitudes toward mathematics (Fennema & Sherman, 1976).

Fennema and Sherman (1976) constructed an *Attitudes Toward Success in Mathematics Scale* in which one of the objectives was to ascertain if attitudes toward mathematics were mediated by gender differences. Fennema (1977) originated the study of gender differences in attitudes toward mathematics and achievement. Subsequent early researchers of attitudes toward computers were Stevens (1980), Raub (1981), and Griswold (1983). According to Dwyer (1993), attitude can be examined through direct observation of the participant's behavior or by obtaining the participant's self-reported data. Both methods have their limitations and challenges.

Loyd and Gressard (1984) developed a widely used, reliable, and valid instrument, Computer Attitude Scale (CAS) which measured attitudes toward computers. Subsequently 14 other instruments measuring attitude toward computers were developed. Christensen and Knezek (2000) conducted a study on these instruments and determined that they all continued to be reliable and valid. Researchers Knezek, Christensen, and

Miyashita (1998) developed five instruments to measure attitudes toward information technology that are intended to provide a profile of the teacher and the child.

Summary

This literature review has provided a framework for examining attitudes toward computers, computer self-efficacy, and computer usage of parents and their children and presented the background for the current study. Studies examining variation in usage of the computer by gender provided an additional perspective to consider.

A gap in the literature exists regarding ways in which parental attitudes toward computers, computer self-efficacy, and computer usage impact their children and how they are mediated by gender. The undertaking of the present study was to address this gap and investigate whether a relationship exists between children's and their parents' attitudes toward computers, computer self-efficacy, and computer usage.

CHAPTER III

METHODOLOGY

The purpose of this study was to investigate how the parent-child relationship affects gender differences in children's attitudes toward computers, computer self-efficacy, and computer usage. This chapter includes sections describing (a) population and sample, (b) protection of human participants, (c) instrumentation, (c) procedures, (d) pilot study, (e) analyses, (f) variables, (g) statistical analysis plan, and (h) summary.

Population and Sample

The population for this study consisted of children ages 10-14 years of age and their parents, residing in Dallas County or Tarrant County, or any of the contiguous counties in Texas. The child participants may have been patients in a pediatric or family practice clinic. The parents of these children were also part of the study. Parents may have included either the biological parents (if divorced they answered if they are the primary or secondary parent), legal guardians, or step parents. Based on the definition in the Family Educational Rights and Privacy Act of 1974, target participants included a "natural parent, a guardian, or an individual acting as a parent in the absence of a parent or a guardian and their child(ren)" (Federal Register, 2000, p. 41856).

Using g*power (version 3.0; Erdfelder, Faul, & Buchner, 1996), the minimum sample size was calculated as 120 pairs for a power of .80, and alpha of .05 and a moderate effect size. The sample was drawn from children and their parent(s) living in the extended metropolitan area who were patients of medical clinics in those counties, and who voluntarily agreed to participate in the study. Potential participants were parents or guardians who brought their child age 10 – 14 to one of the clinics. The Institutional Review Board (IRB) of Texas Woman's University reviewed and approved the project before the pilot study was conducted and any changes made to the project from the pilot study results were also approved by IRB. The medical clinics were contacted, the study was described, and permission was obtained from the medical director of each clinic to use the site.

Protection of Human Participants

The participant parent(s) were provided with information necessary to enable them to give informed consent for themselves and their children. A letter explaining the anonymity and confidentiality of the data collected was given to the participants (see Appendix A). They were also given a letter containing the contact information of the researcher in the event that they may have additional questions or require additional information. Children were given information about the study and an assent form (see Appendix B).

Instrumentation

The instruments to used in this study for the parents were: Computer Self-Efficacy Scale (CSE; see Appendix C), Parents Attitudes Toward Computers (PAC; see Appendix D), and the parent demographic and computer usage form (see Appendix E). The children were given: Computer Self-Efficacy Scale (CSE), the Computer Attitude

Questionnaire (CAQ – child; see Appendix F), and the child demographic and computer usage form (see Appendix G). The demographic forms for the study were developed by the researcher.

Computer Self-Efficacy Scale (CSE)

The CSE is a self-report questionnaire, consisting of 32 items, developed to measure perceptions of one's ability regarding computer knowledge and skills, and used by many researchers in the technology field (Murphy, Coover, & Owen, 1989). The CSE's development was informed by Bandura's (1986, 1997) theory of self-efficacy and Schunk's (1989) classroom learning. After a literature review, Murphy created 42 items that were submitted to a panel of experts and the form was abridged to 32 items with a 5-point Likert-type response format. Factor analysis produced a 3-factor solution. The factors were beginning level computer skills, advanced level computer skills, and mainframe computer skills. The alpha reliabilities for these factors were .97, .96, and .92 indicating that the items within each subscale have good consistency. Numerous other researchers have also found strong reliability for the instrument, alphas between .83 and .97 (Davis & Davis, 1990; Durndell, Haag, & Laithwaite, 2000; Harrison & Rainer, 1992, 1997; Langford & Reeves, 1998).

For the purposes of the present study, only the 29 items that make up the beginning and advanced level computer skills factors were used. The items deleted related to mainframe computer skills, which are not commonly needed today (Khorrami-Arani, 2001; Torkzadeh & Koufteros, 1994). These modified scales also have excellent reliability scores, alphas between .86 and .96 (Khorrami-Arani, 2001; Torkzadeh & Koufteros, 1994).

Both parents and child completed the CSE. Beginning Level Scores were created, per the CSE manual, for each participant by summing scores for the CSE items 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16 (see Table 1). Advanced Level Scores were created for each participant by summing scores for the CSE items 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29 (see Table 1). See Appendix C for the text of the items.

Table 1

Children's Variables, Source, and Question Numbers

Variables	Source	Questions
Computer Self Efficacy (CSE)		
Beginning Level CSE	CSE Scale (Appendix C)	Sum(Q1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16)
Advanced Level CSE	CSE Scale (Appendix C)	Sum(Q17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29)
Total CSE	CSE Scale (Appendix C)	Sum(Beginning Level CSE; Advanced Level CSE)
Computer Attitudes	(Appendix E)	Mean(Q1 – Q67)
Hours of Computer Use	(Appendix F)	Sum (School Work, Recreation, Communication, Other hours)
School Work	(Appendix F)	Q17
Recreation	(Appendix F)	Q17
Communication	(Appendix F)	Q17
Other	(Appendix F)	Q17

Computer Attitudes Questionnaire (CAQ)

The CAQ is a 67-item, 5-point Likert-type self-report questionnaire to be utilized with children who are in the fourth through eight grades (Knezek, Christensen, & Miyashita, 1998). It was constructed to measure attitudes toward a person, thing, or dispositions. The CAQ "is based upon the Young Children's Computer Inventory (YCCI) which was developed and refined between 1990 and 1993 for use in a multinational study of psychological impact of computer use on young children" (Knezek & Miyashita, 1994, p. 125). While only the total attitude score was used for the present study, the CAQ measures students' attitudes and dispositions toward computers on eight subscales: Computer Importance, Computer Enjoyment, Computer Anxiety, Computer Seclusion, Motivation/Persistence, Study Habits, Empathy, and Creative Tendencies. Excellent internal consistency has been found by the authors for the eight subscales, Cronbach's α = .80-.87, as well as by other researchers (Schumacher & Morahan-Martin, 2001; Zhang & Espinoza, 1998). Total computer attitude was calculated as the mean of the 67 items. Means, rather than sums, were calculated for comparisons with parent computer attitudes (Knezek, Christensen, & Miyashita, 1998). Appendix H shows the factor analysis results.

Parent Attitudes Toward Computers (PAC)

The PAC (Knezek, Christensen, & Miyashita, 1998) is a Likert/Semantic Differential Instrument was originally designed for measuring teachers' attitudes toward computers on 6-20 constructs. The present study used the 94-item parent version that loads on six constructs (see Appendix D). The six constructs were

Enthusiasm/Enjoyment, Anxiety, Avoidance/Acceptance, Negative Impact on Society, Productivity, and Semantic Perception of Computers (see Table 2), however only the total attitude score was used for the present study due to the lack of significant findings amongst the subscales for any of the demographic and independent variable comparisons. Internal consistency reliability estimates reported by the researchers are Cronbach's α = .85 -.98, and excellent reliabilities were also found by other researchers (Chua, Chen, & Wong, 1999; Shaw, & Giacquinta, 2000). The PAC was used in the present study to measure parents' attitudes toward computers. Total computer attitude was calculated as the mean of the 94 items (see Table 2). Means, rather than sums, were calculated for comparisons with parent computer attitudes (Knezek, Christensen, & Miyashita, 1998).

Computer Usage

The computer usage and demographic questionnaires for parents and children contained items that were used to establish the participants' usage of computers (see Appendices E and G). The type of activity and time spent with the computer may have been mediated by gender, age, ethnicity, level of education, academic performance, type of career, employment, geographic area, experience with the computer, presence of computer in the home, when first introduced to the computer, ethnicity, and social economic status. The participants' experiences of previous successes or failures with the computer, their observation of others' computer experiences, verbal persuasions or criticism in regards to computers, and affective arousal are factors that may have impacted computer usage. For this study, computer use was measured as the average total number of hours participants use the computer for various activities. Comparisons were also made for the number of hours of the various types of use (communication, recreation, schoolwork/learning, other).

Table 2

Parents' Variables, Source, and Question Numbers

Variables	Source	Questions
Computer Self Efficacy		
Beginning Level CSE	CSE Scale (Appendix C)	Sum(Q1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16)
Advanced Level CSE	CSE Scale (Appendix C)	Sum(Q17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29)
Total CSE	CSE Scale (Appendix C)	Sum(Beginning Level CSE; Advanced Level CSE)
Computer Attitudes		Mean (Q1 – Q94)
Hours of Computer Use	(Appendix E)	Sum (Communication, Recreation, Work, Learning, Shopping, Other hours)
Communication	(Appendix E)	Q44
Recreation	(Appendix E)	Q44
Work	(Appendix E)	Q44
Learning	(Appendix E)	Q44
Shopping	(Appendix E)	Q44
Other	(Appendix E)	Q44

Demographics

A short introduction to the computer usage and demographic items was provided so that the participants could make sense of the questionnaire and help put them in a proper frame of mind for answering the questions. Both open-ended and closed-ended questions were included. The development of the closed-ended questions was guided by the requirement that the response categories provided be exhaustive and categories mutually exclusive (Babbie, 2004; Creswell, 2003).

The child computer usage and demographic questionnaire provided information on the participant's age, gender, ethnicity, and living arrangements, geographic area, parental education level and career, and sib-ship. Data on child's education level, like and dislike of subjects in school, ease or difficulty of subject matter, and future career data was collected. Child's definition of technology, at what age and by who was the computer introduced, when, where, how long and for what purpose is the computer utilized by the participant, who supports the child in the usage of the computer, and what is their perception on computer usage and gender was gathered.

The parental demographic and computer usage questionnaire sought information about their age, sex, marital status, number of household members, ethnicity, level of education, employment status, career, and annual income level. Parents provided information regarding their ownership of a computer, perceived benefits of a computer in the home (see Appendix E).

Procedures

Parents were given written information regarding the study and an opportunity to ask questions was provided. The instructions were clearly written and introductory comments were provided when necessary. Written consent from the parent was obtained. The child was asked to assent to participating in the study. The informed consent form contained two locations for the parent(s) to sign: one indicating that the parent was voluntarily participating in the study and the second indicated that parent gave permission for the child(ren) to be involved in the study. Packets for the parent and child each contained a brief description of the study, and the instruments: computer self-efficacy, attitudes toward computers, and the computer usage and demographics questionnaire. If parents brought more than one child ages 10 – 14, each child would fill out the questionnaire and the data file would include all their children with the same parent information. Upon completion, the parent returned the materials in a sealed envelope to the researcher's representative who was responsible for delivering the sealed envelope to the researcher. Parents and children who complete the survey each received a $5 Walmart gift card.

Pilot Study

A pilot study was conducted with 22 parents and their children age 10 - 14 to test the approximate time and feasibility of the study. The instruments for this pilot study were the same as described above. No issues were discovered during the pilot test and the average completion time was 18 minutes.

Analyses

Descriptive statistics were conducted on the independent variables listed below to examine the potential relationships of computer self-efficacy, attitudes toward computers, and computer use, as well as with the parent–child relationship of these three dependent measures.

Variables

Child Variables

Gender, age, ethnicity, who they live with, siblings (age and gender), grade, favorite subject, most difficult subject, future occupation, age of computer use, who taught computer use, self perception of ease of computer use, where they use the computer, number of hours of how they use the computer (school work, recreation, communication, other), and who they view as better at working on the computer (boys, girls, or both the same).

Parent Variables

Gender, age, ethnicity, language at home, own or rent home, community size, county of residence, marital status, their parent's use of computers, their childhood experiences with computers, age of computer use, occupation, self perception of ease of computer use, other technology tools at home, who supports computer use, work preferences, where they use the computer, number of hours of how they use the computer (learning, recreation, communication, work, shopping, other), education, computer use in their job, work status, household income, others living in the household, children (ages and gender), childcare and school type, child's best and worst subject, child's computer access in the classroom and home, opinion of teacher's computer literacy, child's future occupation, who they view as better at working on the computer (boys, girls, or both the same), definition of technology.

Statistical Analysis Plan

Measures of central tendency, including means and standard deviations, and frequencies and percentages, were calculated to describe the sample on the various independent and dependent variables. Crosstab analyses with Pearson's chi-square (χ^2) test and Cramer's *V* test were conducted on the categorical parent demographic variables and on the categorical child demographic variables. Pearson's product moment correlations were conducted to test the relationships between continuous measures. Paired samples t tests were conducted to examine the difference between parent and child computer attitudes, and parent and child computer self-efficacy. Analysis of Variance (ANOVA), Multivariate Analyses of Variance (MANOVA) and Independent Samples t tests were conducted to test for differences between the levels of categorical variables on the continuous dependent measures. Multiple regressions were conducted to examine predictors of computer self-efficacy, attitudes, and usage. One-tailed significance was used to test the hypotheses.

The standard approach to modeling categorical variables is to include the categorical variables in the regression equation by converting each level of each categorical variable into a variable of its own, usually coded 0 or 1. In general, a categorical variable with k levels was transformed into k-1 variables each with two levels. For example, if a categorical variable had six levels, then five dichotomous variables could be constructed that would contain the same information as the single categorical variable. One of the levels has to be left out of the regression model to avoid perfect multicollinearity (singularity; redundancy), which will prevent a solution (for example, leave out "Male" to avoid singularity). The omitted category is the reference category because b coefficients must be interpreted with reference to it.

Hypotheses

H_1: 1. There will be significant positive relationships between parents' and their children's attitudes toward computers, computer self-efficacy and computer usage.

Pearson's product moment correlations and paired samples t tests were calculated for parent and child attitudes toward computers, self-efficacy, and computer usage (see Table 3).

H_1: 2. There will be a significant difference between boys and girls on attitudes toward computers, computer self-efficacy, and computer usage such that boys will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than girls.

Independent Samples t tests were calculated to test for differences between boys and girls on attitudes toward computers, computer self-efficacy, and computer usage (see Table 4).

Table 3

Data Analysis Summary for Hypothesis 1

H_1: *1.* There will be significant positive relationships between parents' and their children's attitudes toward computers, computer self-efficacy, and computer usage.

IV	DV	Statistical Tests
Parent	Child	Pearson's product moment correlations between total score
Attitudes Toward Computers Total Scores	Attitudes Toward Computers Total Scores	Paired Samples t tests between total scores
Self-Efficacy Total Scores Beginning Level Scores Advanced Level Scores	Self-Efficacy Total Scores Beginning Level Scores Advanced Level Scores	Pearson's product moment correlations between total scores Paired Samples t tests between total scores
Computer Usage Total Hours of Use Work, Recreation, Communication	Computer Usage Total Hours of Use Work, Recreation, Communication	Pearson's product moment correlations between total score and all subscales Paired Samples t tests between total scores and similar subscales

Table 4

Data Analysis Summary for Hypothesis 2

H_1: 2. There will be a significant difference between boys and girls on attitudes toward computers, computer self-efficacy, and computer usage such that boys will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than girls.

IV	DV	Statistical Tests
Children' Gender	Total Computer Attitudes	Independent Samples t test between boys and girls on total attitudes
	Total Computer Self Efficacy Beginning Level CSE Advanced Level CSE	Independent Samples t tests between boys and girls on Total CSE
	Hours of Computer Use School Work Recreation Communication Other	Independent Samples t tests between boys and girls on Total Computer Use MANOVAs between boys and girls on Computer Use Subscales

H_1. 3. There will be a significant difference between fathers and mothers on attitudes toward computers, computer self-efficacy, and computer usage such that fathers will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than mothers.

Independent Samples t tests tested for differences on attitudes toward computers, computer self-efficacy, and computer usage between mothers and fathers (see Table 5).

H_1: 4. Children's and parents' gender, parental attitude toward computers, parental computer self-efficacy, parental computer usage, parental education, parental career will significantly predict children's attitude toward computers, computer self-efficacy, and computer usage.

Multiple regressions were conducted to predict child's attitude toward computers, computer self-efficacy, and computer usage from parents' gender, parental attitudes toward computers, parental computer self-efficacy, parental computer usage, parental education, parental career, geographic location, family SES, and ethnicity (see Tables 6).

Research Questions

Research Question 1. What are the attitudes toward computers, computer self-efficacy, and computer usage of children age 10 - 14?

Descriptive statistics were used to develop a description of the basic demographics of the participants. As reflected in Table 7, descriptive statistics including means and standard deviations, and frequencies and percentages were calculated on children's attitudes toward computers, computer self-efficacy, and computer usage.

Research Question 2. What are the attitudes toward computers, computer self-efficacy, and computer usage of parents of children age 10 - 14?

Descriptive statistics were used to develop a description of the basic demographics of the participants. As reflected in Table 7, descriptive statistics including means and standard deviations, and frequencies and percentages were calculated on parents' attitudes toward computers, computer self-efficacy, and computer usage.

Summary

This chapter outlines the design and methodology for this research study examining concurrently the attitudes toward computers, computer self-efficacy, and computer usage of parents and of their children ages 10 – 14 and how gender and other factors may contribute to children's attitudes toward computers, computer self-efficacy, computer usage, and the formation of negative opinions regarding computers. Participants were recruited from medical offices located in Dallas County, Tarrant County, or any of the contiguous counties in Texas.

Parents were asked to complete the Computer Self-Efficacy Scale, Parent Attitudes toward Computers Scale, and Parent Computer Usage and Demographic Questionnaire. Each child completed the Computer Self-Efficacy Scale, Computer Attitudes Questionnaire-Child, Child Computer Usage and Demographic Questionnaire. Methods employed to allow for the protection of the participants and the confidentiality of the data was specified. A review of the instruments included statistical information and description of the factors used. Data collection, storage, and analysis were outlined.

Table 5

Data Analysis Summary for Hypothesis 3

H_1: 3. There will be a significant difference between fathers and mothers on attitudes toward computers, computer self-efficacy, and computer usage such that fathers will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than mothers.

IV	DV		Statistical Tests
Parents' Gender	Total Computer Attitudes		Independent Samples t tests between mothers and fathers on Total Computer Attitudes
	Total Computer Self Efficacy Beginning Level CSE Advanced Level CSE		Independent Samples t tests between mothers and fathers on Total CSE
Parents' Gender	Hours of Computer Use Work Communication Shopping	 Recreation Learning Other	Independent Samples t tests between mothers and fathers on Total Computer Use MANOVAs between mothers and fathers on Computer Use Subscales

Table 6

Data Analysis Summary for Hypothesis 4

H_1: 4. Children's and parents' gender, toward computers, parental computer self-efficacy, parental attitudes, parental computer usage, parental education, parental career, geographic location, family socio-economic status, and ethnicity will significantly predict children's computer self-efficacy, attitude toward computers, and computer usage.

IV	DV	Statistical Tests
Parent Computer Attitudes	Child	Multiple regressions
Parent Career		
Parent Self-Efficacy	Total Attitudes Toward Computers	
Parent Gender		
Parent Computer Usage	Self-Efficacy	
Family SES	Total	
Geographic Location	Beginning Level	
Ethnicity Parent Education	Advanced Level	
	Computer Usage - Total Hours of Use	

Table 7

Data Analysis Summary for Research Questions 1 and 2

Research Question 1. What are the attitudes toward computers, computer self-efficacy, and computer usage of children age 10 - 14?

IV	DV	Statistical Tests
Child	Attitudes Toward Computers Self-Efficacy Computer Usage	Descriptive Statistics including means and standard deviations; frequencies and percentages

Research Question 2. What are the attitudes toward computers, computer self-efficacy, and computer usage of parents of children age 10 - 14?

IV	DV	Statistical Tests
Parent	Attitudes Toward Computers	Descriptive Statistics including means and standard deviations; frequencies and percentages

CHAPTER IV

RESULTS

Attitudes toward computers, computer self-efficacy, and computer usage play an important role in the ability of children to recognize that the computer is a valuable learning tool and a necessity for future educational and vocational pursuits in the 21st century (Teo, 2007). Research shows differences between males and females on attitudes towards computers, computer self-efficacy, and computer usage. The influence of parents' attitudes toward computers, computer self-efficacy, and computer usage on their children's attitudes toward computers, computer self-efficacy, and resultant children's computer usage has not been researched.

The primary purpose of this study was to concurrently examine the attitudes toward computers, computer self-efficacy, and computer usage of parents and of their children ages 10 – 14. Additional aims were to examine gender differences in parents' and their children's attitudes toward computers, computer self-efficacy, and computer usage and to explore the factors that may contribute to children's attitudes toward computers, computer self-efficacy, computer usage, and the formation of negative opinions regarding computers expressed by females ages 10 - 14 (AAUW, 2000; Goh et al., 2007).

Description of Sample

The sample for the current study included 160 parents and 163 children (three parents had two children who completed the survey). The frequencies and percentages for parent and child gender, ethnicity, and ratings of who is better with computers are displayed in Table 8. For parents, there were more females (83.8%) than males (16.2%). For children, there were more males (59.5%) than females (40.5%). For parents, a majority of the sample was Caucasian (62.6%) and a moderate proportion was Hispanic (17.8%), whereas only a small proportion of the sample was African-American (11.0%), Asian American (3.1%), Native American (1.8%), or another ethnicity (1.8%). For children proportions were similar. A majority of the sample was Caucasian (47.9%), a moderate proportion was Hispanic (19.6%), and only a small proportion of the sample was Bi-racial (10.4%), African-American (9.2%), Asian American (1.8%), Native American (4.9%), or another ethnicity (5.5%). Ethnicity was recoded into a dichotomous variable with two levels in order to numerically describe ethnicity in terms of Caucasian and all other ethnicities. This process of creating dichotomous variables from categorical variables is called dummy coding (Cohen & Cohen, 1983). Ethnicity was dummy coded for further analysis by setting Caucasian to 1 and all other ethnicities to 0. From this point on, ethnicity will be discussed as a dichotomous variable consisting of the two levels Caucasian and all other ethnicities.

Table 8

Frequencies and Percentages for Categorical Parent and Child Demographic Variables

	Parent		Child	
	Frequency	%	Frequency	%
Gender				
Male	26	16.2	97	59.5
Female	134	83.8	66	40.5
Race				
African American	18	11.0	15	9.2
Asian American	5	3.1	3	1.8
Caucasian	102	62.6	78	47.9
Hispanic	29	17.8	32	19.6
Native American	3	1.8	8	4.9
Bi-racial	0	.0	17	10.4
Other	3	1.8	9	5.5
Who is better with computers?				
Girls	4	2.5	12	7.4
Boys	14	8.6	27	16.6
Both Same	98	60.1	82	50.3
Do Not Know	44	27.0	38	23.3

Note: Percentages not adding to 100 reflect missing data

When asked who was better with computers, the majority of parents responded that boys and girls were the same (60.1%), several responded that they did not know (27.0%), whereas only a small proportion rated boys (8.6%) or girls (2.5%) as being better with computers. Approximately half of the children responded that boys and girls were the same (50.3%), several responded that they did not know (23.3%) or rated boys as better (16.6%), and a small proportion rated girls as better with computer (7.4%).

Means and standard deviations for parent and child age and number of family members are displayed in Table 9. The average age for parents was 40 years (*SD* = 9.46) and ranged from 26 to 75 years. The average age for children was 12 years (*SD* = 1.43) and ranged from 10 to 14 years. The average number of family members living with the respondents was 4 (*SD* = 1.54) and ranged from 1 to 8 members.

Table 9

Means and Standard Deviations for Continuous Parent and Child Demographic Variables

	N	*Mean*	*SD*	Min	Max
Age					
Parent	160	40.43	9.46	26	75
Child	163	11.67	1.43	10	14
Number of Family Members	160	3.61	1.54	1	8

Frequencies and percentages for parent's sociocultural factors, presence of a computer in the home, use of computers at work, child's school type, and perception of how their child spends time on the computer can be found in Table 10. Over half of the sample indicated that they were married (62.6%) and nearly 20% indicated that they were divorced (18.4%). The remaining respondents were single (9.2%), widowed (3.7%), separated (2.5%), or had a different marital status (1.8%). Due to the distribution for marital status, in particular to the small proportions of respondents that indicated that they were single, separated, widowed, or other, marital status was recoded for use in further analysis. More specifically, marital status was dummy coded so that married was set to 1 and not married (i.e., all other marital categories) was set to 0. High school graduation was the highest education level achieved by nearly 20% (16.6%) of the parents, 43.0% had attended some college or technical school, 14.7% had graduated from college, and 12.3% had obtained a graduate degree. A small proportion of the sample (9.8%) had not obtained a high school diploma. Further, a small proportion indicated that they were currently students in some capacity (11.0%; see Table 10).

Over half of the parents indicated that they worked full-time (59.5%), 12.9% reported that they worked part-time, and 23.3% were not employed for wages. Nearly 90% of the parents reported having a computer in the home, whereas approximately 10% did not have a computer in the home. Approximately half of the respondents reported that they used computers none, little or some of the time at their job (47.3%), whereas the reminder used computers at their job much or very much of the time (52.7%). Over 25%

of the sample indicated that their income levels were less than $30,000 (26.0%), 15.2% of the sample reported incomes greater than $30,000 and less than $50,000, 16.5% of the sample had incomes between $50,000 and $75,000, 17.1% had incomes between $75,000 and $100,000 and 24.7% had incomes exceeding $100,000 (see Table 10).

Table 10

Frequencies and Percentages for Parent Demographic Variables

	Frequency	%
Marital Status		
Married	102	62.6
Separated	4	2.5
Divorced	30	18.4
Widowed	6	3.7
Single	15	9.2
Other	3	1.8
Education Status		
Less than high school	16	9.8
HS diploma or GED	27	16.6
Some college	44	27.0
Associates degree/Technical school	26	16.0
4-year college degree	24	14.7
Graduate degree (MA, PhD)	20	12.3
Parent Student Status		
Yes	18	11.0
No	138	84.7
Work Status		
Full-Time	97	59.5
Part-Time	21	12.9
Not working for pay	38	23.3

Note: percentages not adding to 100 reflect missing data

Table 10, continued

Frequencies and Percentages for Parent Demographic Variables

	Frequency	%
Computer in the home		
Yes	143	87.7
No	15	9.8
The extent job involves the use of computers		
None	31	20.7
Little	8	5.3
Some	32	21.3
Much	27	18.1
Very Much	52	34.6
Income Level		
Less than $20,000	26	16.0
$20,000-$29,999	16	10.0
$30,000-$49,999	24	15.2
$50,000-$74,999	26	16.5
$75,000-$99,999	27	17.1
$100,000-$149,999	21	13.3
$150,000 or more	18	11.4
Type of school children attend		
Public School	146	89.6
Private School	12	7.4
Home Schooled	2	1.2
Children spend more time on the computer for:		
Educational Purposes	34	20.9
Recreational	76	46.6
Same Amount	47	28.8
Does not use it	3	1.8

Note: percentages not adding to 100 reflect missing data

Nearly 90% of the children attended public school (89.6%), whereas only a small proportion attended private school (7.4%) or were home schooled (1.2%). Parents reported that nearly half of the children spent more time on the computer for recreational use than educational purposes (46.6%), 20.9% reported that their children spent more time on the computer for educational purposes than recreational purposes, 28.8% reported their children spent about the same amount of time on the computer for educational and recreational purposes, and 1.8% reported that their children did not use the computer (see Table 10).

Frequencies and percentages for child's living situation, difficulty using computer, and primary location for computer usage are shown in Table 11. Slightly less than half of the children lived with both their mother and father (45.4%), 29.4% lived with their mother, 1.2% lived with their father, 16.6% lived with a biological parent and a step parent, and 7.4% had other living arrangements. Child living situation was collapsed into three groups for further analysis; both mother and father (45.4%), mother (29.4%), dad or biological parent and step parent, or another situation (25.2%). The majority of the children found using the computer easy or very easy (79.8%), 17.2% found it average, whereas only a small proportion found using the computer difficult or very difficult (2.4%). Most children used the computer primarily at home (63.8%), 26.4% used the computer primarily at school, and 8.6% used the computer primarily at other locations. The place of computer usage was recoded into two groups to reflect use of computer primarily at home compared to use of the computer at other places (school, friends' home, library, other).

Table 11

Frequencies and Percentages for Child Demographic Variables

	Frequency	%
Child lives with		
Mother and Father	74	45.4
Mother	48	29.4
Father	2	1.2
Biological parent and Step parent	27	16.6
Other	12	7.4
Difficulty for the child to use the computer		
Very Difficult	1	.6
Difficult	3	1.8
Average	28	17.2
Easy	50	30.7
Very Easy	80	49.1
Child uses the computer mostly at		
Home	104	63.8
School	43	26.4
Friends home	2	1.2
Library	6	3.7
Other	6	3.7

Note: percentages not adding to 100 reflect missing data

The means and standard deviations for parent's computer usage are displayed in Table 12. On average, parents used the computer for communication 4.64 hours per weekday (*SD* = 8.10) and 2.08 hours (*SD* = 4.60) during the weekend. Recreational computer usage during the week was lower, with parents reporting an average of 2.00 hours per weekday (*SD* = 3.30) of computer usage for recreation and 1.72 hours (*SD* = 1.97) during the weekend. On an average weekday, parents reported that they used the computer for work 10.99 hours (*SD* = 14.26). The hours of computer usage for work per day was less on the weekends, with parents reporting 2.14 hours (*SD* = 3.95) of work computer usage during weekends. On an average weekday, parents used the computer for learning 3.52 hours (*SD* = 6.81) and 1.83 hours (*SD* = 2.66) during the weekend. The amount of reported computer usage for shopping was much lower, on average, than other computer usages. Parents reported using the computer for shopping for less than an hour (M = .60, *SD* = .95) on an average weekday. They reported a similar amount of shopping on the computer during the weekend (M = .74, *SD* = 1.36). In terms of other computer usages, parents used the computer for other activities an average of 1.47 hours per weekday (*SD* = 2.62) and .60 hours (*SD* = .70) during the weekend.

The means and standard deviations for parent and child reports of children's computer usage are shown in Table 13. In general, parents' reports tended to overestimate the time that their children used the computer for school/learning and for recreation (parent's report for child's school/learning weekday computer usage: *M* = 2.06, *SD* = 3.03; child's report for weekday school/learning computer usage: *M* = 1.79, *SD* = 2.09; parent's report for child's weekday recreation computer usage: *M* = 1.99, *SD* = 2.51; child's report for weekday recreation computer usage: *M* = 1.32, *SD* = 1.68).

Table 12

Means and Standard Deviations for Hours of Parent Computer Usage

	N	*Mean* (Hrs)	*SD* (Hrs)	Min (Hrs)	Max (Hrs)
Communication					
Weekdays	121	4.64	8.10	0	48
Weekends	109	2.08	4.60	0	40
Recreation					
Weekdays	116	2.00	3.30	0	20
Weekends	108	1.72	1.97	0	10
Work					
Weekdays	124	10.99	14.26	0	50
Weekends	99	2.14	3.95	0	24
Learning					
Weekdays	116	3.52	6.81	0	36
Weekends	97	1.83	2.66	0	10
Shopping					
Weekdays	102	.60	.95	0	5
Weekends	95	.74	1.36	0	10
Other					
Weekdays	34	1.47	2.62	0	10
Weekends	31	.60	.70	0	2

In general, parents' reports tended to underestimate the time that their children used the computer for communication and other activities (parent's report for child's weekday communication computer usage: $M = .46$, $SD = .72$; child's report for weekday communication computer usage: $M = .80$, $SD = 1.38$; parent's report for child's weekday computer usage for other activities: $M = .31$, $SD = .63$; child's report for weekday computer usage for other activities: $M = 1.49$, $SD = 2.44$; see Table 13).

Attitudes Toward Computers, Computer Self-Efficacy, and Computer Usage

The descriptive analyses presented thus far have examined the average amount of child computer usage as rated by child and parent respondents. In order to examine the hours of computer usage in subsequent analyses, variables were created to reflect the hours of computer usage during the week, the hours of computer usage during the weekend, and the total hours of computer usage. More specifically, the number of hours children spent using the computer for different uses on weekdays (School/Learning, Recreation, Communication, Other) were summed to create the hours of computer usage during the week. Similarly, the number of hours children spent using the computer for different purposes on the weekends were summed to create the hours of computer usage during the weekends. Finally, the two summed scores for weekday and weekend computer usage were combined to create the total number of hours of computer usage. The new variables reflect the total, or summed, computer hours, as opposed to the average computer hours as previously presented (see Table 13).

Table 13

Means and Standard Deviations for Parent and Child Reports of Child Computer Usage

	Parent's Report					Child's Report				
	N	*Mean* (Hrs)	*SD* (Hrs)	Min (Hrs)	Max (Hrs)	N	*Mean* (Hrs)	*SD* (Hrs)	Min (Hrs)	Max (Hrs)
1. School/Learning										
Weekday	136	2.06	3.03	0	30	143	1.79	2.09	0	15
Saturday	100	.77	1.38	0	10	116	.67	1.42	0	12
Sunday	93	.49	.76	0	4	112	.54	1.32	0	12
2. Recreation										
Weekday	116	1.99	2.51	0	15	129	1.32	1.68	0	12
Saturday	119	2.06	1.55	0	7	125	1.78	2.18	0	14
Sunday	107	1.74	1.47	0	6	118	1.35	1.76	0	10
3. Communication										
Weekday	95	.46	.72	0	4	123	.80	1.38	0	8
Saturday	88	.56	.85	0	4	118	1.11	1.99	0	12
Sunday	87	.53	.86	0	4	114	.70	1.27	0	7
4. Other										
Weekday	13	.31	.63	0	2	39	1.49	2.44	0	12
Saturday	12	.25	.45	0	1	38	1.83	2.66	0	12
Sunday	4	.25	.50	0	1	37	1.41	1.86	0	6

Children's Attitudes Toward Computers, Computer Self-Efficacy, and Computer Usage

Means and standard deviations for attitude toward computers, computer self-efficacy, and computer usage for children can be found in Table 14. The variables for both the attitudes toward computers and computer self-efficacy measures were scaled so that the lower end of the measures reflected more negative ratings and the upper end reflected more positive ratings. On average, children's total computer attitude was 3.65 (SD = .46). Scores ranged from 2 to 5. The mean rating for child's beginning computer self-efficacy was 56.52 (SD = 13.04) and ranged from 17 to 80. The mean rating for child's advanced computer self-efficacy was 44.79 (SD = 12.89) and ranged from 4 to 65. The mean rating for child's total computer self-efficacy was 101.03 (SD = 25.00) and ranged from 29 to 145. On average, children used the computer 3.46 hours (SD = 3.97) during the week and 6.10 hours (SD = 6.14) during the weekend. Children's number of hours using the computer ranged from 0 to 23 during the week and 0 to 28 during the weekend. Children used the computer an average of 9.56 hours (SD = 9.01) total. Children's weekday total number of hours using the computer ranged from 0 to 45 hours.

Parents' Attitudes Toward Computers, Computer Self-Efficacy, and Computer Usage

Means and standard deviations for attitude toward computers, computer self-efficacy, and computer usage for parents can be found in Table 15. The variables for both the attitudes toward computers and computer self-efficacy measures were scaled so that the lower end of the measures reflected more negative ratings and the upper end of the measures reflected more positive ratings. On average, parent's total computer attitude was 4.09 (*SD* = .61). Scores ranges from 2 to 6.

Table 14

Means and Standard Deviations for Children's Attitude Toward Computers, Computer Self-Efficacy, and Computer Usage

	N	*Mean*	*SD*	Min	Max
Child Total Computer Attitude	163	3.65	.46	2	5
Child Beginning CSE	163	56.52	13.04	17	80
Child Advanced CSE	162	44.79	12.89	4	65
Child Total CSE	163	101.03	25.00	29	145
Child Weekday Computer Hours	148	3.46	3.97	0	23
Child Weekend Computer Hours	135	6.10	6.14	0	28
Child Total Computer Hours	150	9.56	9.01	0	45

Note: CSE = Computer Self-Efficacy

The average rating for parent's beginning computer self-efficacy was 60.61 (*SD* = 16.90) and ranged from 16 to 80. The average rating for parent's advanced computer self-efficacy was 45.98 (*SD* = 13.32) and ranged from 13 to 65. The average rating for parent's total computer self-efficacy was 106.58 (*SD* = 29.51) and ranged from 29 to 145. Parents used the computer an average of 17.75 hours (*SD* = 22.08) during the week and 6.67 hours (*SD* = 9.03) during the weekend. Parent's number of hours using the computer ranged from 0 to 110 during the week and 0 to 65 during the weekend. On average, parents used the computer 24.42 hours (*SD* = 27.41) total. Parent's total number of hours using the computer ranged from 0 to 162 (see Table 15).

Table 15

Means and Standard Deviations for Parents' Attitude Toward Computers, Computer Self-Efficacy, and Computer Usage

	N	*Mean*	*SD*	Min	Max
Parent Total Computer Attitude	163	4.09	.61	2	6
Parent Beginning CSE	163	60.61	16.90	16	80
Parent Advanced CSE	163	45.98	13.32	13	65
Parent Total CSE	163	106.58	29.51	29	145
Parent Weekday Computer Hours	145	17.75	22.08	0	110
Parent Weekend Computer Hours	124	6.67	9.03	0	65
Parent Total Computer Hours	146	24.42	27.41	0	162

Note: CSE = Computer Self-Efficacy

Hypothesis Testing

Preliminary analyses were conducted in order to uncover potential covariates among the demographic variables and the computer related variables: attitudes, self-efficacy and usage prior to testing the hypotheses. These tests were important in establishing potential confounds of the hypothesized relationships A description of these analyses can be found in Appendices I, J, and K.

Computers: Attitudes, Self-Efficacy, and Usage

H_1: 1. There will be significant positive relationships between parents' and their children's attitudes toward computers, computer self-efficacy and computer usage.

Paired samples *t* tests were conducted to examine the difference between parent and child total computer attitude (see Table 16). Results showed that parents ($M = 4.09$, $SD = .61$) scored significantly higher than children ($M = 3.65$, $SD = .46$) on total computer attitude, $t\ (162) = 7.98$, $p < .01$. Pearson's product moment correlations were conducted to examine the relationship between parent and child's attitude toward computers. A significant positive correlation was found between child's attitude toward computers and parent's attitude toward computers, $r\ (158) = .173$, $p < .025$, indicating that parents who have higher total computer attitudes tended to have children with higher total computer attitudes.

Paired samples *t* tests were also conducted to examine the relationship between parent and child computer self-efficacy (see Table 16). Results showed that parents ($M = 60.61$, $SD = 16.90$) scored significantly higher than children ($M = 56.52$, $SD = 13.04$) in beginning computer self-efficacy, $t\ (162) = 2.60$, $p < .01$. However, results showed that parents ($M = 45.87$, $SD = 13.29$) and children ($M = 44.79$, $SD = 12.89$) did not significantly differ in advanced computer self-efficacy, $t\ (161) = .78$, $p = .44$. Parents ($M = 106.58$, $SD = 29.51$) and children ($M = 101.03$, $SD = 25.00$) also did not significantly differ in total computer self-efficacy, $t\ (162) = 1.91$, $p = .06$.

Table 16

Means and Standard Deviations for Paired Samples t Tests of Parent and Child Computer Self-Efficacy Measures, and Total Computer Attitude

	N	Mean	*SD*	*t*	*p*
Total Computer Attitude				7.98	<.001*
Parent	163	4.09	.61		
Child	163	3.65	.46		
Beginning CSE				2.60	.010*
Parent	163	60.61	16.90		
Child	163	56.52	13.04		
Advanced CSE				.78	.440
Parent	162	45.87	13.29		
Child	162	44.79	12.89		
Total CSE				1.91	$.060^{\Psi}$
Parent	163	106.58	29.51		
Child	163	101.03	25.00		

Note: CSE = Computer Self-Efficacy, * $p < .05$, $^{\Psi}p < .10$

Pearson's product moment correlations were also conducted to examine the relationship between parent and child's computer self-efficacy. The analysis failed to find a significant relationship between child's self-efficacy and parent's self-efficacy, r (158) = .083, *ns*. Pearson's product moment correlations examined the relationship between parent and child's computer usage. The analysis failed to find a significant relationship between child's computer usage (total hours) and parents' computer usage (total hours), *r* (158) = .066, *ns*.

Computers: Attitudes, Self-Efficacy, and Usage by Gender

H_1: 2. There will be a significant difference between boys and girls on attitudes toward computers, computer self-efficacy, and computer usage such that boys will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than girls.

An ANOVA examined the difference of child's computer attitude by child gender (see Table 17). Males (M = 3.68, SD = .45) and females (M = 3.75, SD = .42) did not significantly differ in total computer attitude, F (1, 160) = .96, p = .34. An ANOVA was conducted to examine the difference of child's total computer self-efficacy by child gender (see Table 17). Results showed that males (M = 100.84, SD = 26.78) and females (M = 101.32, SD = 22.31) did not significantly differ in total computer self-efficacy, F (1, 160) = .12, p = .90.

One-way ANOVAs were conducted to examine the differences in child gender on child beginning computer self-efficacy scores and child advanced computer self-efficacy scores (see Table 17). The one-way ANOVA for child gender on beginning computer self-efficacy, F (1, 160) = .07, p = .79, and child advanced computer self-efficacy, F (1, 160) = .02, p = .89, also failed to reveal a significant difference, indicating that there were no differences for child's computer self-efficacy subscales by child's gender.

A one-way ANOVA was also conducted to examine the difference of child's total computer usage by child gender (see Table 17). Results showed that males (M = 8.65, SD = 7.90) and females (M = 10.86, SD = 10.31) did not significantly differ in total hours spent on the computer, F (1, 147) = 1.42, p = .16.

Table 17

Means and Standard Deviations for ANOVAs of Child Attitude Toward Computers, Child Computer Self-Efficacy, and Child Computer Usage by Child Gender

	N	Mean	SD	F	p
Total Computer Attitude				.96	.338
Male	97	3.68	.45		
Female	66	3.75	.42		
Total Computer Self-Efficacy				.12	.904
Male	97	100.84	26.78		
Female	66	101.32	22.31		
Beginning Computer Self-Efficacy				.07	.793
Male	96	56.91	13.66		
Female	66	56.36	11.81		
Advanced Computer Self-Efficacy				.02	.893
Male	96	44.68	13.16		
Female	66	44.95	12.58		
Total Computer Hours					
Male	88	8.65	7.90	1.42	.158
Female	62	10.86	10.31		

One-way ANOVA was conducted to examine the differences between gender of the child on the types of computer usage of the child (see Table 18). The one-way ANOVA for child gender on child use of computers for schoolwork failed to reveal any significant differences between boys and girls, F (1, 117) = .58, p = .45. The one-way ANOVA for child gender on child use of computers for recreation failed to reveal any significant differences, F (1, 117) = .03, p = .87. However, the one-way ANOVA for child gender on child use of computers for communication revealed a significant effect, F (1, 117) = 6.29, p < .025. On average, females used the computer more for communication (M = 3.41, SD = 4.85) than males (M = 1.68, SD = 2.60). These findings indicate that there were no differences for child's use of computer for schoolwork and recreation by child's gender, but that differences between males and females exist for child's computer usage for communication.

H_1: 3. There will be a significant difference between fathers and mothers on attitudes toward computers, computer self-efficacy, and computer usage such that fathers will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than mothers.

A one-way ANOVA was conducted to examine the difference of parent's attitude toward computers by parent gender (see Table 19). Results showed that males (M = 4.09, SD = .61) and females (M = 4.05, SD = .57) did not significantly differ in total computer attitude, F (1, 157) = .29, p = .77. A one-way ANOVA was conducted to examine the difference of parent's computer self-efficacy by parent gender (see Table 19). Results showed that males (M = 109.08, SD = 34.23) and females (M = 105.31, SD = 28.44) did not significantly differ in total computer self-efficacy, F (1, 157) = .60, p = .55.

Table 18

Means and Standard Deviations for ANOVAs of Types of Child Computer Usage by Child Gender

	N	Mean	SD	F	p
Schoolwork Computer Hours				.58	.448
Male	69	2.54	2.63		
Female	50	3.12	5.48		
Recreation Computer Hours				.03	.866
Male	69	4.41	5.40		
Female	50	4.25	4.35		
Communication Computer Hours				6.29	.013 *
Male	69	1.68	2.60		
Female	50	3.41	4.85		

Note: * $p < .05$

A one-way ANOVA was conducted to examine the difference of parent's total computer usage by parent gender (see Table 19). Results also showed that males (M = 20.35, SD = 12.23) and females (M = 25.22, SD = 29.47) did not significantly differ in total hours spent on the computer, F (1, 144) = 1.33, p = .19.

Table 19

Means and Standard Deviations for ANOVAs of Parent Attitude Toward Computers, Parent Computer Self-Efficacy, and Parent Computer Usage by Parent Gender

	N	*Mean*	*SD*	*F*	*p*
Total Computer Attitude				.29	.772
Male	26	4.09	.61		
Female	134	4.05	.57		
Total Computer Self-Efficacy				.60	.551
Male	26	109.08	34.23		
Female	134	105.31	28.44		
Total Computer Hours				-1.33	.187
Male	24	20.35	12.23		
Female	122	25.22	29.47		

Predictive Models: Children's Attitudes Toward Computers

Multiple regression models were used to predict child total attitude scores (see Figure 1). Multiple regression analysis is used with continuous dependent variables and categorical or continuous independent variables. Because categorical predictor variables cannot be entered directly into a regression model and be meaningfully interpreted, dummy variables are a way of adding the values of a nominal or ordinal variable to a regression equation. See dummy coding description for more details (p. 4).

H_1: 4. Children's and parents' gender, parental attitude toward computers, parental computer self-efficacy, parental computer usage, parental education, parental career will significantly predict children's attitude toward computers, computer self-efficacy, and computer usage.

A multiple regression analysis was conducted on the child total computer attitude (see Table 20). Each category of predictors was entered as a separate block into the model, in the following order: (a) sociocultural factors, including parent's and child's gender, parent's ethnicity and education, F (5, 136) = .60, p = .70; (b) parent's work status, income, and total hours parent spent on the computer, F (8, 133) = .46, p = .88; and (c) parent's attitudes toward computers and computer self-efficacy, F (10, 131) = .56, p = .85. All three blocks were nonsignificant, accounting for only 4.1% of the variance. Results failed to reveal any significant predictors of child total computer attitude.

A multiple regression analysis was conducted on variables predicting child total computer self-efficacy score (see Table 21). Each category of predictors was entered as a separate block into the model, in the following order: (a) sociocultural factors, including parent's gender, child's gender, parent's ethnicity, and parent's education; (b) parent's work status, income, and total hours parent spent on the computer; and (c) parent's attitudes toward computers and computer self-efficacy. The results revealed that the three blocks were all non-significant, all *F*s, *ns*. Results failed to reveal any significant predictors of child total computer self-efficacy. Multiple regressions predicting child beginning and advanced computer self-efficacy can be found in Appendix K.

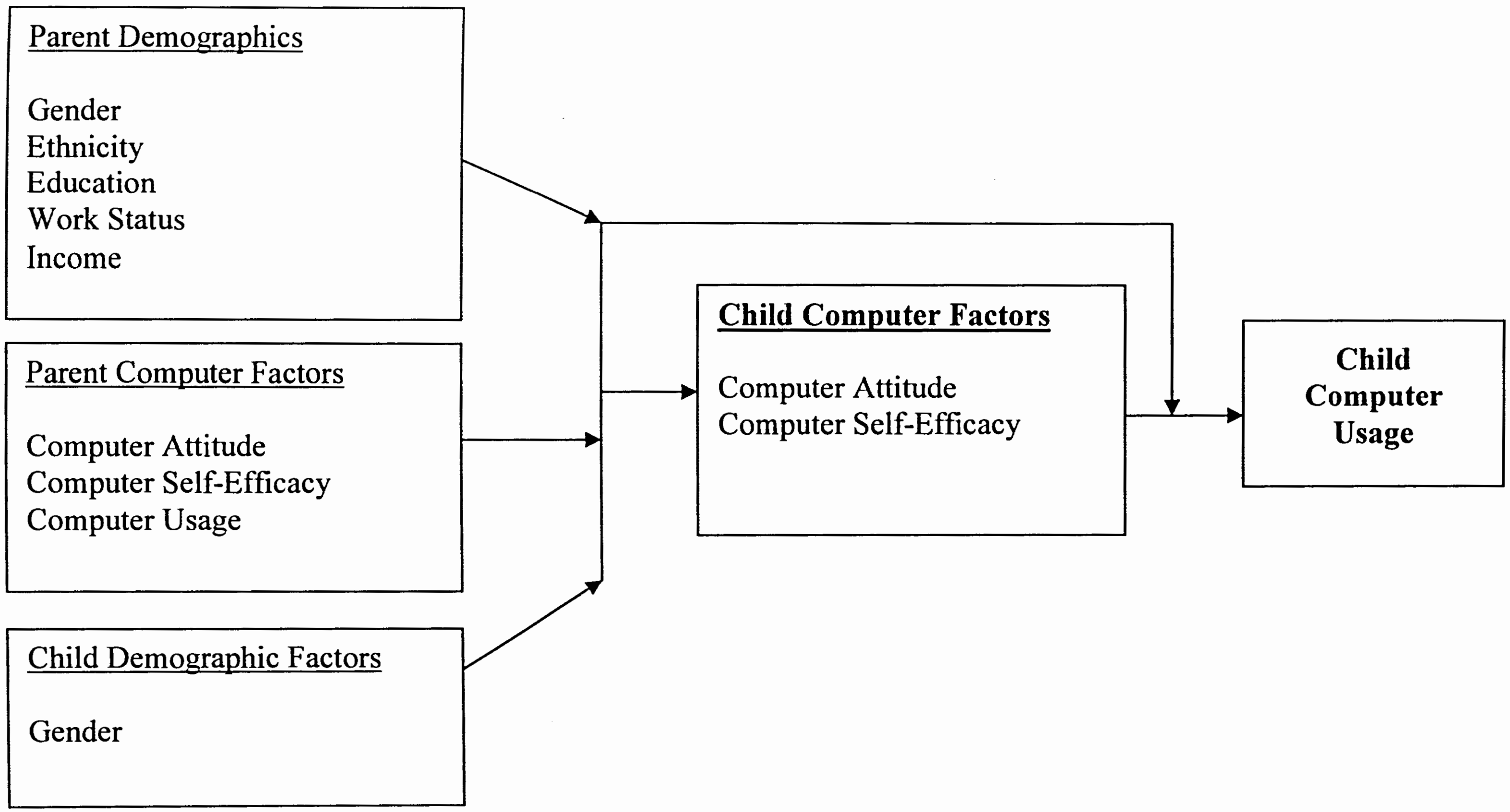

Figure 1. Overview of proposed predictors of child computer attitude, self-efficacy, and usage.

Table 20

Summary of Multiple Regression Analysis for Variables Predicting Child Computer Total Attitude Score (Computer Attitudes; N = 142)

	Unstandardized *B*	SE	*Beta*	*t*	*p*
Female Parent	-.026	.10	-.024	-.27	.791
Female Child	.061	.08	.071	.80	.425
Parent Caucasian	-.010	.08	-.012	-.13	.896
College or More	.063	.12	.069	.52	.603
Some College or Assoc. Degree	-.053	.10	-.063	-.52	.607
Parent - Full Time Work Status	.001	.08	.001	.01	.993
High Income	-.041	.08	-.047	-.48	.631
Parent - Computer Hours	.011	.08	.014	.14	.889
Parent - Total CSE	.002	.00	.107	.94	.348
Parent - Total Computer Attitude	.029	.09	.037	.33	.742

Note: CSE = Computer Self-Efficacy

Table 21

Summary of Multiple Regression Analysis for Variables Predicting Child Total Self-Efficacy Scores (Computer Self-Efficacy; N = 142)

	Unstandardized *B*	SE	*Beta*	*t*	*p*
Female Parent	6.350	5.84	.095	1.09	.279
Female Child	-.327	4.49	-.006	-.07	.942
Parent Caucasian	1.946	4.65	.037	.42	.676
College or More	8.339	7.08	.152	1.18	.241
Some College or Assoc. Degree	-2.971	6.00	-.059	-.50	.621
Parent - Full Time Work Status	-6.294	4.98	-.120	-1.27	.208
High Income	-7.869	4.97	-.153	-1.58	.116
Parent - Computer Hours	4.993	4.75	.100	1.05	.295
Parent - Total CSE	.112	.11	.113	1.02	.311
Parent - Total Computer Attitude	-4.828	5.09	-.105	-.95	.344

Note: CSE = Computer Self-Efficacy

Similarly, results for the model predicting total computer usage revealed no significant models. The final block, Block 4, $F(9, 133) = 1.33$, $p = .229$, accounted for 8.2% of the total variance. As shown in Table 22, the results for the full model revealed two marginally significant predictors. Younger child age at first computer usage was a marginal predictor of more child total computer hours (*Beta* = -.164, p = .056). In addition, greater child total computer attitudes marginally predicted less child total computer hours (*Beta* = -.161, p = .086).

Table 22

Summary of Multiple Regression Analysis for Variables Predicting Child Total Usage of Computers (N = 141)

	Unstandardized B	*SE*	*Beta*	*t*	*p*
Child Gender	1.173	1.56	.065	.75	.454
Age when first used computer	- .638	.33	- .164	-1.93	.056$^{\Psi}$
Child Favorite Subject - Math	-1.596	2.06	- .088	- .78	.439
Child Favorite Subject - Science	-1.165	2.19	- .059	- .53	.596
Parent Rating Child Favorite – Math	-1.112	2.02	- .059	- .55	.584
Parent Rating Child Favorite – Science	-1.836	2.20	- .089	- .84	.405
Child – Total Computer Attitude	-3.289	1.90	- .161	-1.73	.086$^{\Psi}$
Child - Beginning CSE	.032	.10	.044	.33	.741
Child - Advanced CSE	.094	.10	.126	.97	.336

Note: CSE = Computer Self-Efficacy, $^{\Psi}p < .10$

Predictive Models: Low Versus High Children's Computer Usage

Child total usage scores were also split into two categories: low attitude and high attitude. More specifically, the computer usage variables were grouped into dichotomous variables based on their distributions. Child total computer usage hours less than seven were coded as 0 and seven or more were coded as 1. The dichotomous variables were then used as dependent variables in logistic regression analysis.

A multiple logistic regression analysis was conducted to predict total hours children spent using the computer using the sociocultural factors, parent's total hours spent on the computer, and parent's attitudes toward computers and computer self-efficacy as predictors. The predictors included parent's gender, child's gender, parent's ethnicity (Caucasian vs. others), college graduate, some college, work status (full time vs. not full time), income, total hours parents spent on the computer, parent's total computer self-efficacy, and parent's total attitude toward computers. As Table 23 shows, the results revealed that the more time that parents spent using the computer predicted greater odds of children spending more time on the computer (*Odds Ratio* = 1.333, $p < .025$). In addition, the results also revealed that the child being female was a marginal predictor of greater odds of the child spending more time on the computer (*Odds Ratio* = 2.235, $p = .08$). Results for the logistic regression models predicting use of the computer for communication, recreation, and schoolwork can be found in Appendix K.

Table 23

Summary of Multiple Logistic Regression Analysis for Variables Predicting Child Total Hours of Computer Usage

	β	SE	Wald	df	p	*Odds Ratio*
Female Parent	-.055	.57	.01	1	.924	.947
Female Child	.804	.45	3.16	1	.076	2.235 $^{\Psi}$
Parent Caucasian	-.122	.46	.07	1	.792	.886
College	.622	.74	.71	1	.400	1.862
Some College	.097	.62	.02	1	.876	1.102
Work Fulltime	-.591	.49	1.46	1	.227	.554
High Income	.416	.50	.69	1	.405	1.516
Parent – Computer Hours	1.099	.46	5.61	1	.018	1.333 *
Parent – CSE	-.008	.01	.45	1	.503	.992
Parent – Computer Attitude	.116	.53	.05	1	.828	1.123

Note: CSE = Computer Self-Efficacy, * $p < .05$, $^{\Psi}p < .10$

Hypothesis Summary

H_1: 1. There will be significant positive relationships between parents' and their children's attitudes toward computers, computer self-efficacy and computer usage.

A significant positive correlation between child's total attitude toward computers and parent's total attitude toward computers, $r\ (158) = .173$, $p < .025$, indicating that parents who have a higher rating on total computer attitude have children with higher ratings on total computer attitude. Parents (*M* = 106.58, *SD* = 29.51) and children (*M* = 101.03, *SD* = 25.00) did not significantly differ in total computer self-efficacy, t (162) = 1.91, p = .06. These results indicated that parents and their children had statistically similar self-efficacy scores. Pearson's product moment correlations between parent and child computer usage revealed no significant correlations. These findings partially support the hypothesis (see Table 24).

H_1: 2. There will be a significant difference between boys and girls on attitudes toward computers, computer self-efficacy, and computer usage such that boys will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than girls.

Results showed that males (*M* = 3.68, *SD* = .45) and females (*M* = 3.75, *SD* = .42) did not significantly differ in total computer attitude, F (1, 160) = -.96, p = .34, thus the hypothesis is not accepted. The one-way ANOVA for child gender on beginning computer self-efficacy failed to reveal a significant difference, F (1, 160) = .07, p = .79.

Furthermore, the one-way ANOVA for child gender on child advanced computer self-efficacy also failed to reveal a significant difference, F (1, 160) = .02, p = .89. Results showed that males (*M* = 100.84, *SD* = 26.78) and females (*M* = 101.32, *SD* = 22.31) did not significantly differ in total computer self-efficacy, F (1, 160) = -.12, p = .90. These results indicate that there were no differences for child's computer self-efficacy subscales by child's gender.

Table 24

Hypothesis Testing Summary for Hypothesis 1

H_1: *1.* There will be significant positive relationships between parents' and their children's attitudes toward computers, computer self-efficacy and computer usage.

IV	DV	Statistical Tests	Findings
Parent Attitudes Toward Computers	Child Attitudes Toward Computers	Paired Samples t tests between total scores	Parents scored significantly higher ($M = 4.09$) than children ($M = 3.65$) on total attitude, $t\,(162) = 7.98$, $p < .01$. Parent's attitude and Child's attitude had a significantly positive correlation, $r\,(158) = .17$, $p < .025$, indicating that parents with high attitudes tended to have children with high attitudes.
Self-Efficacy Total Scores	Self-Efficacy Total Scores	Pearson's product moment correlations between total scores	Parents were not significantly different ($M = 106.58$, $SD = 29.51$) than children ($M = 101.03$, $SD = 25.00$) on total self-efficacy scores, $t\,(162) = 1.91$, $p = .06$. Parent's total self-efficacy scores and Child's total self-efficacy scores were not significantly related, $r\,(158) = .08$, *ns*.
Computer Usage Total Hours	Computer Usage Total Hours		Parent's computer usage and Child's computer usage were not significantly related, $r\,(158) = .07$, *ns*.

The one-way ANOVA for child gender on child use of computers for schoolwork failed to reveal any significant differences, $F(1, 117) = .58, p = .45$. The one-way ANOVA for child gender on child use of computers for recreation failed to reveal any significant differences, $F(1, 117) = .03, p = .87$. However, the ANOVA for child gender on child use of computers for communication revealed a significant effect, $F(1, 117) = 6.29, p < .025$. On average, females used the computer more for communication ($M = 3.41$, $SD = 4.85$) than males ($M = 1.68$, $SD = 2.60$). These findings indicate that there were no differences for child's use of computer for schoolwork and recreation by child's gender, but that differences between males and females exist for child's computer usage for communication. Males ($M = 8.65$, $SD = 7.90$) and females ($M = 10.86$, $SD = 10.31$) did not significantly differ in total hours spent on the computer, $F(1, 147) = -1.42, p = .16$. These findings indicate that the hypothesis is not supported (see Table 25).

H_1: 3. There will be a significant difference between fathers and mothers on attitudes toward computers, computer self-efficacy, and computer usage such that fathers will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than mothers.

Results showed that males ($M = 4.09$, $SD = .61$) and females ($M = 4.05$, $SD = .57$) did not significantly differ in total computer attitude, $F(1, 157) = .29, p = .77$. Results showed that males (fathers) ($M = 109.08$, $SD = 34.23$) and females (mothers) ($M = 105.31$, $SD = 28.44$) did not significantly differ in total computer self-efficacy, $F(1, 157) = .60, p = .55$.

Table 25

Hypothesis Testing Summary for Hypothesis 2

H_1: 2. There will be a significant difference between boys and girls on attitudes toward computers, computer self-efficacy, and computer usage such that boys will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than girls.

IV	DV	Statistical Tests	Findings
Child Gender	Attitude toward Computers	ANOVAs between boys and girls on Total Scores	Boys were not significantly different (*M* = 3.68, *SD* = .45) than girls (*M* = 3.75, *SD* = .42) on total computer attitude scores, *F* (1, 160) = -.96, *p* = .34
	Self-Efficacy Total Scores		Boys were not significantly different (*M* = 100.84, *SD* = 26.78) than girls (*M* = 101.32, *SD* = 22.31) on total computer self-efficacy scores, *F* (1, 160) = -.12, *p* = .90
	Computer Usage Total Hours		Boys were not significantly different (*M* = 8.65, *SD* = 7.90) than girls (*M* = 10.86, *SD* = 10.31) on total computer hours, *t* (148) = -1.42, *p* = .16

Results also showed that males (fathers) (M = 20.35, SD = 12.23) and females (mothers) (M = 25.22, SD = 29.47) did not significantly differ in total hours spent on the computer, F (1, 143) = -1.33, p = .19. These findings indicate that the hypothesis is not supported (see Table 26).

H_1: 4. Children's and parents' gender, parental attitude toward computers, parental computer self-efficacy, parental computer usage, parental education, parental career will significantly predict children's attitude toward computers, computer self-efficacy, and computer usage.

The results failed to reveal any significant predictors of child total computer attitude, child beginning, advanced or total computer self-efficacy, and child computer usage, thus the hypothesis is not accepted (see Table 27).

Summary of the Research Questions

Research Question 1. What are the attitudes toward computers, computer self-efficacy, and computer usage of children age 10 - 14?

On average, computer attitudes of children were positive (Mean = 3.65 SD = .46). Scores ranged from 2 to 5. Child's total computer self-efficacy was 101.03 (SD = 25.00) and ranged from 29 to 145. On average, children used the computer 3.46 hours (SD = 3.97) during the week and 6.10 hours (SD = 6.14) during the weekend, ranging from 0 to 23 during the week and 0 to 28 during the weekend. Children used the computer an average of 9.56 hours (SD = 9.01) in total, ranging from 0 to 45 (see Table 28).

Table 26

Hypothesis Testing Summary for Hypothesis 3

H_1: 3. There will be a significant difference between fathers and mothers on attitudes toward computers, computer self-efficacy, and computer usage such that fathers will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than mothers.

IV	DV	Statistical Tests	Findings
Parent Gender	Attitude Toward Computers	ANOVAs between males and females on Total Scores	Males (fathers) were not significantly different (M = 4.09, SD = .61) than females (mothers) (M = 4.05, SD = .57) on total computer attitude scores, F (1, 157) = .29, p = .77
	Self-Efficacy Total Scores		Males (fathers) were not significantly different (M = 109.08, SD = 34.23) than females (mothers) (M = 105.31, SD = 28.44) on total computer self-efficacy scores, F (1, 157) = .60, p = .55
	Computer Usage Total Hours		Males (fathers) were not significantly different (M = 20.35, SD = 12.23) than females (mothers) (M = 25.22, SD = 29.47) on total computer hours, F (1, 157) = -1.33, p = .19

Table 27

Hypothesis Testing Summary for Hypothesis 4

H_1: *4.* Children's and parents' gender, parental attitude toward computers, parental computer self-efficacy, parental computer usage, parental education, parental career will significantly predict children's attitude toward computers, computer self-efficacy, and computer usage.

IV	DV	Statistical Tests	Findings
Parent Gender Child Gender Parent Ethnicity Parent Education Parent Work Status Family SES (Income) Parent Computer Usage Parent Computer Attitudes Parent Self-Efficacy	Child Total Computer Attitude Scores	Multiple regressions	The results failed to reveal any significant predictors of child total computer attitude.
	Child Total Self-Efficacy		The results failed to reveal any significant predictors of child total computer self-efficacy.
	Child Computer Usage Total Hours		The results failed to reveal any significant predictors of child total computer usage

Table 28

Data Analysis Summary for Research Questions 1 and 2

Research Question 1. What are the attitudes toward computers, computer self-efficacy, and computer usage of children age 10 - 14?

Research Question 2. What are the attitudes toward computers, computer self-efficacy, and computer usage of parents of children age 10 - 14?

IV	DV	Statistical Tests	Findings
			Child
Child	Attitudes Toward Computers	Descriptive Statistics including means and standard deviations; frequencies and percentages	Mean = 3.65, SD = .46. Scores ranged from 2 to 5
Parent	Self-Efficacy		Mean = 101.03, SD = 25.0. Scores ranged from 29 to 145
	Computer Usage		Mean = 9.56, SD = 9.01. Scores ranged from 0 to 45
			Parent
			Mean = 4.09, SD = .61. Scores ranged from 2 to 6.
			Mean = 106.58, SD = 29.51. Scores ranged from 29 to 145
			Mean = 24.42, SD = 27.41. Scores ranged from 0 to 162

Research Question 2. What are the attitudes toward computers, computer self-efficacy, and computer usage of parents of children age 10 - 14?

On average, parent's total computer attitude was 4.09 ($SD = .61$). Scores ranged from 2 to 6. The average rating for parent's beginning computer self-efficacy was 60.61 ($SD = 16.90$) and ranged from 16 to 80. The average rating for parent's advanced computer self-efficacy was 45.98 ($SD = 13.32$) and ranged from 13 to 65. The average rating for parent's total computer self-efficacy was 106.58 ($SD = 29.51$) and ranged from 29 to 145 (see Table 28).

Parents used the computer an average of 17.75 hours ($SD = 22.08$) during the week and 6.67 hours ($SD = 9.03$) during the weekend. Parent's number of hours using the computer ranged from 0 to 110 during the week and 0 to 65 during the weekend. On average, parents used the computer 24.42 hours ($SD = 27.41$) total. Parent's total number of hours using the computer ranged from 0 to 162 (see Table 28).

Additional Analyses

A series of additional analyses were conducted in order to uncover potential relationships between the parent and child variables concerning child's favorite and/or worst subject (e.g., math, science or computers, other) and demographic variables (e.g., gender). A selection of these additional analyses can be found below in the following section of text. The remaining analyses, not reported in the following text can be found in Appendix L.

As Table 29 shows, parents of male children tended to report that their child's favorite subject was math (37.2%) or science/computers (33.0%) more than parent of female children reported that their child's favorite academic subject was math (28.6%) or science/computers (14.3%). Furthermore, parents of female children tended to report that their child's favorite academic subject was something other than math or science/computers (57.1%) more than parents of male children (29.8%), $\chi^2(2) = 12.94$, $p < .01$, Cramer's $V = .29$.

As further shown in Table 29, female children tended to report that their worst academic subject was math (41.3%) or science/computers (17.5%) more than male children reported that their worst academic subject was math (27.8%) or science/computers (9.3%). Furthermore, male children tended to report that their worst academic subject was something other than math or science/computers (62.9%) more than female children (41.3%), $\chi^2(2) = 7.41$, $p < .025$, Cramer's $V = .22$.

Finally, as shown in Table 29, parents of female children tended to report that their child's worst academic subject was math (48.2%) or science/computers (21.4%) more than parent of male children reported that their child's worst academic subject was math (30.3%) or science/computers (5.6%). Furthermore, parents of male children tended to report that their child's worst academic subject was something other than math or science/computers (64.0%) more than parents of female children (30.4%), $\chi^2(2) = 17.92$, $p < .01$, Cramer's $V = .35$.

Table 29

Frequencies and Percentages for Crosstabulation of Child and Parent Ratings of Child Favorite and Worst Academic Subjects by Child Gender

	Male		Female			
	N	%	N	%	χ^2	*P*
Child Favorite Subject					3.75	.154
Math	40	41.2	26	40.6		
Science or Computers	31	32.0	13	20.3		
Other	26	26.8	25	39.1		
Parent Rating of Child Favorite Subject					12.94	.002*
Math	35	37.2	18	28.6		
Science or Computers	31	33.0	9	14.3		
Other	28	29.8	36	57.1		
Child Worst Subject					7.41	.025*
Math	27	27.8	26	41.3		
Science or Computers	9	9.3	11	17.5		
Other	61	62.9	26	41.3		
Parent Rating of Child Worst Subject						
Math	27	30.3	27	48.2	17.92	<.001*
Science or Computers	5	5.6	12	21.4		
Other	57	64.0	17	30.4		

Note: percentages not adding to 100 reflect missing data, * $p < .05$, $^{\Psi}p < .10$

The frequencies and percentages for parent and child's attitude toward computer category (low versus high) and computer self-efficacy category (low versus high) by child's worst subject are displayed in Table 30. The relationship between child's worst subject and child's computer attitude category was marginally significant, χ^2 (2) = 5.16, p = .08, Cramer's V = .18. Children who reported their worst subject was math (62.3%) or science/computer (60.0%) tended to have low computer attitudes more than children who reported their worst subject was a class other than math or science/computers (43.7%).

As further shown in the Table 30, the relationship between child's worst subject and parent's computer attitude category was significant, χ^2 (2) = 10.72, $p < .01$, Cramer's V = .26. Children who reported their worst subject was math (62.3%) or science/computer (60.0%) tended to have parents were categorized with a low computer attitudes more than children who reported their worst subject was something other than math or science/computers (40.2%).

Also shown in Table 30, the relationship between child's worst subject and child's computer self-efficacy category was significant, χ^2 (2) = 6.72, $p < .025$, Cramer's V = .18. Children who reported their worst subject was math (62.3%) or science/computer (65.0%) tended to have low computer self-efficacy more than children who reported their worst subject was something other than math or science/computers (42.5%). There was not a significant relationship between child's rating of their worst subject and parent computer self-efficacy category (low vs. high), χ^2 (2) = 1.00, p = .605.

Table 30

Frequencies and Percentages for Crosstabulation of Parent and Child Computer Attitude Category and Computer Self-Efficacy Category by Child Worst Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Child Computer Attitude Category[a]						
Low	33	62.3	12	60.0	38	43.7
High	20	37.7	8	40.0	49	56.3
Parent Computer Attitude Category[b]						
Low	36	67.9	12	60.0	35	40.2
High	17	32.1	8	40.0	52	59.8
Child Computer Self-Efficacy Category[c]						
Low	33	62.3	13	65.0	37	42.5
High	20	37.7	7	35.0	50	57.5
Parent Computer Self-Efficacy Category[d]						
Low	30	56.6	11	55.0	42	48.3
High	23	43.4	9	45.0	45	51.7

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (2) = 5.16, $p = .076$, [b] χ^2 (2) = 10.72, $p < .01$, [c] χ^2 (2) = 6.72, $p < .025$, [d] χ^2 (2) = 1.00, $p = .605$

The above results show that female children tended to report that their worst academic subject was math or science/computers more than male children reported that their worst academic subject was math or science/computers. Male children tended to report that their worst academic subject was something other than math or science/computers more than female children. Parents of female children tended to report that their child's worst academic subject was math or science/computers more than parent of male children reported that their child's worst academic subject was math or science/computers. Furthermore, parents of male children tended to report that their child's worst academic subject was something other than math or science/computers more than parents of female children.

Children who reported their worst subject was math or science/computer tended to have low computer attitudes more than children who reported their worst subject was something other than math or science/computers. Children who reported their worst subject was math or science/computer tended to have parents were categorized with a low computer attitudes more than children who reported their worst subject was something other than math or science/computers. Children who reported their worst subject was math or science/computer tended to have low computer self-efficacy more than children who reported their worst subject was something other than math or science/computers.

Summary

The primary purpose of this study was to concurrently examine the attitudes toward computers, computer self-efficacy, and computer usage of parents and of their children ages 10 – 14. Additional aims were to examine gender differences in parents' and their children's attitudes toward computers, computer self-efficacy, and computer usage and to explore the factors that may contribute to children's attitudes toward computers, computer self-efficacy, computer usage. Descriptive statistics and major findings of the study were presented in this chapter.

Each of the four hypotheses and two research questions were tested. Results revealed a significant positive correlation between parents and their children's attitude toward computers, indicating that parents who had higher computer attitudes tended to have children who had higher computer attitudes. Parents and their children had statistically similar self-efficacy scores. There was no statistically significant positive relationship between parents' computer usage and their children's computer usage. Results showed that boys and girls did not significantly differ in their computer attitude and computer self-efficacy. Findings from the study indicated that there were no significant difference in the number of total hours of computer usage between boys and girls. Male and female parents did not significantly differ in total computer attitude, computer self-efficacy, or computer usage. The results failed to reveal any significant predictors of child total computer attitude, computer self-efficacy, and computer usage.

On average, children's computer attitudes and total computer self-efficacy were positive. Children's computer usage during the week totaled an average of 9.56 hours (SD = 9.01). Parents' computer attitudes and total computer self-efficacy were positive. Parents' average computer usage during the week was 24.42 hours (SD = 27.41).

Children who were categorized with a low computer self-efficacy tended to report their worst subject was math or science/computer more often than other subjects. Children who were categorized with a high computer self-efficacy tended to report their worst subject was something other than math or science/computer. Parents of male children tended to report that their child's favorite academic subject was math or science/computers more than parent of female children reported that their child's favorite academic subject was math or science/computers. Furthermore, parents of female children tended to report that their child's favorite academic subject was something other than math or science/computers more than parents of male children.

CHAPTER V

DISCUSSION

Overview of the Study

This research concurrently examined the attitudes toward computers, computer self- efficacy, and computer usage of parents and of their children ages 10 – 14 years. Additional objectives were to examine gender differences in parents' and their children's attitudes toward computers, computer self-efficacy, and computer usage, as well as to explore the factors that may contribute to children's attitudes toward computers, computer self-efficacy, computer usage, and the formation of negative opinions regarding computers expressed by females ages 10 – 14 years (AAUW, 2000; Goh et al., 2007). Quantitative methods were utilized to collect and interpret the data.

The objective of this chapter is to review and summarize the findings of the research and present the conclusions. Additionally, a discussion of limitations, implications, and recommendations of the study are included. The study was based upon the following hypotheses and research questions.

Hypotheses

H_1: 1. There will be significant positive relationships between parents' and their children's attitudes toward computers, computer self-efficacy and computer usage.

H_1: 2. There will be a significant difference between boys and girls on attitudes toward computers, computer self-efficacy, and computer usage such that boys will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than girls.

H_1: 3. There will be a significant difference between fathers and mothers on attitudes toward computers, computer self-efficacy, and computer usage such that fathers will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than mothers.

H_1: 4. Children's and parents' gender, parental attitude toward computers, parental computer self-efficacy, parental computer usage, parental education, parental career will significantly predict children's attitude toward computers, computer self-efficacy, and computer usage.

Research Questions

Research Question 1. What are the attitudes toward computers, computer self-efficacy, and computer usage of children age 10 - 14?

Research Question 2. What are the attitudes toward computers, computer self-efficacy, and computer usage of parents of children age 10 - 14?

In order to answer the study's hypotheses and questions, a sample was obtained from several counties in North Texas. The sample included 163 children who were patients in medical clinics and 160 of their respective parents who volunteered to participate in the research. The instruments used in the study for the parents were: the parent demographic form, Computer Self-Efficacy Scale (CSE), and Teachers Attitudes Toward Computers (TAC) modified for parents. The children were given the child demographic form, Computer Self-Efficacy Scale (CSE), and the Computer Attitude Questionnaire (CAQ - child). The demographic forms were developed by the researcher to be completed by the children and the parents of the participating children.

Correlation and repeated measures analyses were conducted to examine the relationships between parent and child computer attitudes, computer self-efficacy, and computer usage. Analyses were also conducted to examine child and parent gender differences on computer attitude scores, computer self-efficacy, and computer usage. Multiple regression analyses were conducted to predict total attitude scores from socio-cultural factors, including parent's gender, child's gender, parent's ethnicity, parent's education, parent's work status, family income, total hours parent spent on the computer, and parent's attitudes toward computers and computer self-efficacy.

Description of the Sample

The majority of the parent respondents were female (82.2%), married (62.6%), and Caucasian (62.6%), whereas the majority of the child respondents were male (59.5%) and Caucasian (47.9%). On average, parents were 40 years old and children were 11 years old. Over half of the parents worked full-time (59.5%), but only 19% of the parents indicated that their job involved no use of computers. A little less than half of the children lived with their mother and father (45.4%), and 29.4% reported that they lived with their mother. A majority of the children respondents indicated that it was either easy (30.7%) or very easy (49.1%) for them to use computers. More than half of the children indicated that they used the computer mostly at home (63.8%).

A majority of the parents indicated that both boys and girls were the same in terms of computer skills (60%), and 27% indicated that they did not know. Slightly less than 10% of the parents reported that boys were better (8.6%) with computers and only 2.5% indicated that girls were better with computers. A similar pattern emerged from the child-respondent ratings of computer skills. Half of the child respondents indicated that boys and girls were the same (50.3%), 23.3% reported that they did not know, 16.6% reported that boys were better, and 7.4% reported that girls were better with computers.

Hypothesis Summary

Parents who have a higher rating on total computer attitude have children with higher ratings on total computer attitude. Parents and children did not significantly differ in total computer self-efficacy, indicating that parents and their children had statistically similar self-efficacy scores. Pearson's product moment correlations between parent and child computer usage revealed no significant correlations, thus hypothesis 1 was partially supported. Results showed that boys and girls did not significantly differ in total computer attitude, beginning, advanced or total computer self-efficacy. Results showed that boys and girls did not significantly differ on total hours spent on the computer. Females used the computer more for communication than males. Thus hypothesis 2 was not supported. Results also showed that males and females did not significantly differ in total computer attitude, total computer self-efficacy, or total hours spent on the computer, indicating that hypothesis 3 was not supported. The results also failed to reveal any significant predictors of child total computer attitude, child beginning, advanced or total computer self-efficacy, and child computer usage, thus the hypothesis is not accepted (see Table 31).

Table 31

Hypothesis Summary

H_1		Supported
H_1: *1.*	There will be significant positive relationships between parents' and their children's attitudes toward computers, computer self-efficacy and computer usage.	Partially Supported
H_1: *2.*	There will be a significant difference between boys and girls on attitudes toward computers, computer self-efficacy, and computer usage such that boys will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than girls.	Not Supported
H_1: *3.*	There will be a significant difference between fathers and mothers on attitudes toward computers, computer self-efficacy, and computer usage such that fathers will have more positive attitudes toward computers, higher self-efficacy scores, and more computer usage than mothers.	Not Supported
H_1: *4.*	Children's and parents' gender, parental attitude toward computers, parental computer self-efficacy, parental computer usage, parental education, parental career will significantly predict children's attitude toward computers, computer self-efficacy, and computer usage.	Not Supported

Findings

Child and Parent Computer Attitudes, Computer Self-Efficacy, and Computer Usage

On average, the relationship between children's computer attitudes and total computer self-efficacy was positive. Children's computer usage during the week averaged 9.56 hours. Parents' computer attitudes and total computer self-efficacy was positive also. Average computer usage by parents during the week was 24.42 hours. It was expected that the computer attitudes and total computer self-efficacy of the children and their parents would be congruently high. It has been established that parental influence and support is an important factor in children's pursuit and acceptance of technology (Davidson & Ritchie, 1994). Some of the parents and most of their children have grown up in the information era and have had computer exposure and experience from an early age. This would enhance their computer attitudes and computer self-efficacy. When children experience their parents' positive attitude and self-efficacy with regard to the computer, they are likely to express similar attitudes and self-efficacy. This is supported by the theoretical frameworks of this study. It was expected that the children's computer usage during the week would be higher than reported in a past study (Subrahmanyam, Greenfield, Kraut, & Gross, 2001). This may be due to more computers available in the households studied, children having been exposed to them at an early age, access to computers that are much easier to use, and many programs that were designed specifically for children.

This study found that parents who have higher computer attitude have children with higher computer attitude. While parents had statistically higher computer attitudes than their children, there was a significant relationship between parent and child computer attitudes such that parents with higher attitudes had children with higher attitudes; parents with lower computer attitudes had children with lower computer attitudes. The majority of the prior research has focused more on children and teachers than on parents and their children (Scott & Hannafin, 2000).

From this study's findings, it was determined that the total computer self-efficacy was statistically the same for parents and their children. Results showed that the average total computer self-efficacy scores between parents and their children was statistically similar indicating they had similar computer self-efficacy scores.

Perceived self-efficacy is posited to be a critical factor and shaper of children's career choices (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). The authors maintain that the parents' self-efficacy impacts and mediates their children's career choices through the children's perceived efficacy. The perceived efficacy of the child has a greater impact on career choice than the child's actual academic achievement. Parents who are of the opinion that they are a key factor in their child's development are more likely to be involved in enhancing their children's capabilities. Based on the review of the literature and the results from this study, it is evident that parents play a key role in the establishment of their children's computer self-efficacy.

The study further examined computer usage of parents and their children. Correlation between parents and their children's total computer usage was not significant in this study. This indicated that parents with high computer usage did not necessarily have children with high computer usage. Research by Miura (1987) found that parents' verbal encouragement and computer self-efficacy was the most influential factor in children's computer usage. The parents' high computer usage was usually during the week, job related, and often their children were not directly viewing their parents using the computer or receiving verbal encouragement.

Gender Differences

Investigation of the role that gender plays in children's and their parents' computer attitude, self-efficacy, and usage did not show statistically significant differences between boys and girls or between male and female parents. There was, however, a gender difference in the way the computer was used. Females tended to use it more for communication purposes, whereas males used it more for recreational purposes. This finding was consistent with the research conducted by Bain and Rice (2006). The participants were children age 11-12 years and there were no significant gender differences in attitudes, perceptions, and uses of computers, but gender differences were present in the way they used the computer. Females used the computer more than males in chat rooms, instant messaging, and doing school assignments. Multiple studies report opposite findings. They posit that there are gender differences in computer attitudes, self-efficacy, and usage (AAUW, 2000; Christensen, Knezek, & Overall, 2005; Colley, &

Comber, 2003; Cooper, 2006; Sanders, 2006; Shashaani, & Khalili, 2001; Volman, & van Eck, 2001; Wong, & Hanafi, 2007).

A possible explanation is that children of this age group grew up with technology, whereas the other studies focused on high school and undergraduate aged subjects who may not have had as much access to computers at a young age. In those studies, a gender difference was revealed in attitude toward computers and computer confidence (Broos, 2005; Shashaani & Khalili, 2001; Tsai, Lin, & Tsai, 2001). In this researcher's study, gender differences in parents' computer attitude, self-efficacy and usage were not evident perhaps due to the fact that the majority of parents involved in the study were female and consequently it diminished the representation of the male parents.

The importance of gender differences in technology has been studied by many researchers. They concluded that other variables must be taken into consideration when gender differences are being studied (Lester & Brown, 2004; Wong & Hanafi, 2007). Some of these variables are: computer experiences, age, socioeconomic status, peers, teachers, societal stereotype, role models, different interests, and media. In this study gender differences were not significant and may have been mitigated by a combination of the above mentioned factors.

Predictors of Child Computer Attitudes, Computer Self-Efficacy, and Computer Usage

The results in this study failed to reveal any significant predictors of child total computer attitude, computer self-efficacy, and computer usage. A literature review of recent research on gender issues in technology brought to light that parental support and, to a lesser degree, peer support were factors associated with positive computer self-efficacy, attitude and use in elementary school children (Vekiri & Chronaki, 2008). International studies maintain that gender differences continue to exist in students' computer usage and beliefs regarding computers (Volman & vanEck, 2001). The concern about gender differences in computer attitudes continues to be of interest because it may be an explanation for the current deficit of females in technology related fields of study and careers (Margolis & Fisher, 2002). Diminished computer attitudes, computer self-efficacy, and computer usage in females may adversely effect their academic selections and future careers in the field of technology.

Additional Findings

Academic Subject: Worst and Favorite

Parents' rating of their child's worst and favorite subject were statistically similar to the child's own rating of their worst and best subjects. This suggests that parents are in tune with their children's academic likes and dislikes and can potentially impact their children's ratings of subject likes and dislikes.

Gender Implications on Academic Subject: Worst and Favorite

A significant gender association was found between favorite and worst subject. The findings revealed that female children and their parents tended to report their worst subject was math or computer science more so than male children and their parents. Children who said their worst subject was math/computer science tended to have low computer attitude more than children reporting that their worst subject was other than math/computer science. In addition, these children tended to have parents reporting low computer attitude. Similar findings for computer self-efficacy were noted. When children reported that their worst subject was math/computer science they tended to have low computer self-efficacy more than children reporting that their worst subject was something other than math/computer science. These findings are in concert with the report presented by AAUW, 1998 and the study of Bussey and Bandura, 1999. They recount that females enroll in fewer mathematics, science, and computer science courses, have less interest in these subjects than males, and view these subjects as less useful. From a longitudinal study tracing the source of the gender gap in math and science, researchers determined that fathers have a major impact on the degree of interest their daughters cultivate in math and science (University of Michigan, 2007). Parents, family, and peers interact with children and have significant influence on them with regard to attitudes and self-efficacy toward technology (Facer, Sutherland, Furlong, & Furlong, 2001). Others have shown that when parents are involved in their children's school-related activities, provide encouragement and praise, and have positive expectations, beliefs, and values, that their children are more likely to have positive self-efficacy for all types of learning (Gonzalez-DeHass, Willems, & Holbein, 2005).

Limitations

Seven limitations of the study were noted:

1. Participation in the study was self selected by parents for themselves and their children. The participants volunteered for the study and it was possible that their

willingness to participate reflects a discrete personality type or mindset that could have had an effect on their responses.

2. The children's and parents' accuracy in their responses may have been limited by diminished reading ability and/or comprehension, and their desire to give their perceived or socially acceptable responses.
3. Information amassed in the study was self-reported and may have been impacted by inaccuracy due to diminished recall, lack of information, or disclosure reluctance related to self or family. Consequently, the reliability of some responses may have been affected.
4. The data gathered from the parents may have been skewed because the majority of the parent respondents were female.
5. Respondents were from suburban pediatric medical clinics and their responses may not be representative of the general population.
6. In spite of specific training sessions and written instructions, it was possible that the presentation and instructions in a busy office practice by the front desk personnel and the office manager to the parents and patients could have been inconsistent. This could have resulted in inconsistencies in responses to the questionnaires or skewed which parents decided to participate.
7. The study used a survey design, rather than an experimental design, allowing for only correlational not causal findings.

Implications

Through the centuries, society has migrated from an agricultural society to an industrial one, and most recently to an information based culture (Toffler, 1970, 1980). During the twenty-first century the prevalence and utilization of technology will continue to increase, evolve, and gain in importance. In order for individuals to succeed in this information society, they will be required to manage the tools of this era. One of the necessary tools of the information society is the computer. The computer, the embodiment of modern technology (Papert, 1984), is a major factor and plays a dynamic and critical role in teaching, learning, communication, entertainment, and vocation. Computers contribute to children's education by making it more effective, meaningful, and interesting (Armstrong & Casement, 2000). An important factor in preparing children to be successful members of the 21st century's society is the computer (Butzin, 2000; Hopson, Simms, & Knezek, 2002; Reiser, 2001; Wajcman, 2005).

From a very early age, women have been underrepresented in the usage of computers, technology classes in school, information technology graduate degrees, and technology jobs. In general, they have been left out of the technology revolution (AAUW, 2000). According to the National Science Foundation (January, 2007), the gender digital divide has widened. The "genderization" of technology emanates from culture and socialization in early childhood. Other contributing factors acquired in the early ages are attitudes that produce a belief that computers are for males (Cooper & Weaver, 2003). Computer literacy must be achieved by all members of society. The gender digital divide is detrimental to women and in turn to society. It is important to have an equitable representation of women in the technology field. A more gender inclusive technological workforce will result in an increase in a qualified labor pool, provide for financial well-being of a greater portion of the population, and amplify diversity and creativity (McGrath & Aspray, 2006).

Research findings have suggested that gender, parents' attitudes toward computers, socio-economic status, computer knowledge, experience, and computer self-efficacy are some of the essential components influencing children's computer behaviors. Numerous studies have investigated these factors (Anand & Krosnick, 2005; Bain & Rice 2006; Barker & Garvin-Doxas, 2004; Christensen, Knezek, & Overall, 2005; Cohoon, 2002; Collis, 1985; Cooper & Weaver, 2003; Crowley, 2000; Eccles, 2005a; Fox, Johnson, & Rosser, 2006; Galpin, Sanders, Turner, & Venter, 2003; Goh, Ogan, Ahuja, Herring, & Robinson, 2007; Kohrrami-Arani, 2001; Li & Kirkup, 2007; Margolis & Fisher, 2002; North & Noyes, 2002; Rideout & Hamel, 2006; Sanders, 2006; Subrahmanyam, Greenfield, Kraut, & Gross, 2001; Teo, 2007; Van Braak, J. & Kavadias, D., 2005; Vandewater, Rideout, Wartella, Huang, Lee, & Shim, 2007; Wajcman, 2005).

The current study concurrently examined children ages 10-14 years of age and their parents. It measured attitudes toward computers, computer self-efficacy, computer usage, and investigated whether there are gender differences. Gender differences were not noted, and this is in concert with the findings of Kirkpatrick and Cuban (1998a). They posited that in the early grades, the gender gap in achievement, attitude and confidence is minor. Due to an increase in access to computers and exposure to technology at an earlier age, the gender digital divide may not be evident in the age group of 10-14 years. Studying an older age group is warranted since the literature demonstrates an inequality of women in the field of technology.

This study revealed that children and their parents have similar computer attitudes and computer self-efficacy. This implies that the relationship with parents is a powerful shaping force on their children. In developing policies and educational programs to remedy the underrepresentation of women in the field of technology, the role of parents must be taken into consideration and included in the redress. Parents are important socializers of children and they can assist in developing positive computer attitudes and computer self-efficacy in their children. In order for children to develop computer self-efficacy and occupational interests in technology/computers, it is important for parents to have awareness of this process. Empowering, educating, and encouraging parents to develop computer efficacy will work in concert with other factors to positively impact their children's computer efficacy and career choices. This would assist in preventing the formation of barriers to entering technology fields.

The pursuit of technology careers and computer usage is a process involving numerous psychological, social, and structural factors involved in children's developmental trajectories, which impact their educational and vocational decision processes. After examining the Bioecological theory, it is evident that other systems are influencing children's behavior and these need further exploration (Bronfenbrenner, 2004).

An interesting outcome from this study revealed that children who said that their worst subject was math/computer science tended to have low computer attitude, low computer self-efficacy; their parents reported that this was their worst subject also, and that they had low computer attitude scores. This outcome was reported more by female children than male children. The findings validate an international study that revealed the existence of marginalization of girls in technology and math classes, female diminished attitudes toward technology, and the decreased participation of females in math/computer science (Vale, 2002). Interest in math is one of the determinants considered to play an important role in choosing technology related careers (Simpkins, Davis-Kean, & Eccles, 2004).

Cultivating interest, a positive attitude, and math self-efficacy during the early years of a girl's education are influential in developing equal gender representation in technology later in life. Research findings from this study and others underscore the fact that children's career trajectories take shape early in the developmental process (Bandura, 1997). Parents are a critical factor in shaping children's attitudes, occupational expectations, and future occupational choices (Watt & Eccles, 2008). Consequently, interventions to reduce biases must take place early in children's development so that career choices are not restricted or foreclosed.

The foreclosure of females pursuing technology careers has economic implications. If women's potentials are not realized, their contribution to the technology field and the economy will be reduced. The demand of the information society during the 21st century will continue to increase. Meeting this demand for human resources in the computer/technology field will be imperative. If we do not have the resources to satisfy the demands, then it will be necessary to depend on foreign human resources. Steps to alleviate barriers to females pursuing technology careers from occurring early in child development are especially important. This will allow a broader range of career choices to be available, lead to an increase in our own country's human resources, and a more robust economy.

Future Recommendations

Directions for Future Research

This study led to a number of recommendations by the researcher. The contexts of children's lives are important to consider when one examines children and computers. Bronfenbrenner's Bioecological approach considers the various environments that impact children. This perspective simultaneously focuses on the child, home, and cultural environment. Computer attitudes, computer self-efficacy, computer usage, and career aspirations are influenced by the family, educational system, computing experience, peers, mass media, visible female models of technology, as well as other aspects of culture, and are supported by the theoretical frameworks that were utilized for this research study (Ajzen and Fishbein. 1980; Bandura, 1997; Eccles, 1987; Bronfenbrenner, 2004). In this study the simultaneous focus was on the children and their parents. Future research may be expanded to include the cultural impact with special emphasis on the role that peers, teachers, gender of the peers and teachers, and media play in shaping the contexts of children. Several sources influence self-efficacy and it is recommended that future studies investigate the child's past experiences with computers, vicarious experiences, verbal persuasions experienced by the child, and the child's affective states. The investigation of the affective states may include examining children's stress level, tension, anxiety, and other physiological conditions.

It is also recommended that a longitudinal study be conducted to study the changes in computer attitudes, computer self-efficacy, and computer usage of a cohort of children ages 14-19 years. Another recommendation is to replicate this study using participants from different geographic, ethnic, cultural or economic settings. Replication of the study using participants from a private, all female school and a co-educational school would be beneficial to providing a more complete picture with reference to the gender issue.

Recommendations For Families

The researcher recommends initiating programs and literature advising parents of the importance of their role in their children attaining positive computer attitudes, computer self-efficacy, computer usage, and the role that they play in the career choices and the future economic status of their children. Encouraging increased parental communication with their children and appropriate role modeling for computer usage is a concurrent goal. Parents will profit from being informed about the benefits of being involved in their children's school-related activities, extracurricular activities, impart encouragement and praise, expressing positive computer attitudes and self-efficacy, and modeling the usage of computers. When parents are interacting with their children, refraining from the expression of any gender-stereotyped views about the computer/technology abilities of men and women is important. Based on this study's findings of gender difference in parents' and children's favorite and worst subjects, a recommendation is especially suggested to fathers of female children. It is vital that fathers be mindful of these research results regarding their impact on their female offspring's math attitude and self-efficacy.

Educational and Policy Recommendations

It is advised that administrators, principals, school boards, and teachers be mindful of the impact that math, science, and computer science classes have on students' attitude, self-efficacy, and usage of computers. Inform legislators of these findings which policy initiatives including funding are needed that address the issues of technology. The needs of the information era, as well as adequate funding for technology research and development, are key recommendations.

Summary

The computer attitude, and self-efficacy of children ages 10-14 years old and their parents, and usage by these children and parents were concurrently examined. Further objectives were to examine gender differences in parents' and their children's attitudes toward computers, computer self-efficacy, and computer usage, and in addition to explore the factors that may contribute to children's attitudes toward computers, computer self-efficacy, and computer usage. Several instruments were administered to the participants and quantitative methods were used to analyze the data.

Findings revealed a positive relationship between computer attitudes of the children and those of their parents. Parents who had higher computer attitudes had children with higher computer attitudes. In addition, parents and their children had statistically similar self-efficacy scores. Children's computer usage during a week totaled an average of 9.56 hours. Average computer usage by the parents during the week was 24.42 hours. Investigation of the role that gender plays in children's and their parents' computer attitude, self-efficacy, and usage did not show a statistically significant difference between boys and girls, or between male and female parents. The results of this study failed to reveal any significant predictors of total child computer attitude, computer self-efficacy, or computer usage.

Additional findings uncovered a significant gender association between favorite and worst subject. Female children and their parents tended to report their worst subject was math or computer science more so than male children and their parents. Children who said their worst subject was math/computer science tended to have low computer attitude, low computer self-efficacy, and have parents that reported low computer attitude and computer self-efficacy also. These findings are in concert with the report presented by AAUW, 1998, and the study by Bussey and Bandura, 1999. "Worst subject was math/computer" may identify which females enroll in fewer mathematics, science, and computer science courses, have less interest in these subjects than males, and view these subjects as less useful. This helps to elucidate the reasons behind the gender digital divide. Findings from this study are useful to parents, students, teachers, administrators, practitioners, and policy makers.

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APPENDIX A

PARENT/GUARDIAN CONSENT TO PARTICIPATE AND PERMISSION FOR CHILD TO PARTICIPATE

TEXAS WOMAN'S UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH

Title: Computer Attitudes, Self-Efficacy, and Computer Usage of children and Their Parents: Viewed through the Gender Lens

Investigator: Luba Levy ....xxx-xxx-xxxx
Advisor: JoAnn Engelbrecht, Ph.D.. xxx-xxx-xxxx

Explanation and Purpose of the Research

You are being asked to participate in a research study for Ms. Levy's dissertation at Texas Woman's University. The purpose of this research is to explore through the gender lens computer attitudes, self-efficacy, and usage of children 10-14 years old and their parents.

Research Procedures

Parents/guardians who agree to participate will complete the attached survey. Your total time commitment in the study is estimated to be approximately 30 minutes.

Potential Risks to Participants

The potential risk related to your participation in this study is release of confidential information. Confidentiality will be protected to the extent that is allowed by law. A code number, rather than a real name, will be given to you and your child to enter on the research instruments. Only the investigator, her advisor and the statistician will have access to the information. All information will be stored in a locked file cabinet. All data will be shredded by May 31, 2012. It is anticipated that the results of this study will be published in the investigator's dissertation as well as in other research publications. No names or other identifying information will be included in any publication.

The researchers will try to prevent any problem that could happen because of this research. If you have any questions about the research study, you may contact the researchers; their phone numbers are listed at the top of this form. You should let the researchers know at once if there is a problem and they will help you. However, TWU does not provide medical services or financial assistance for injuries that might happen because you are taking part in this research.

Potential benefit(s) to participants

Your involvement in this research study is completely voluntary, and you may discontinue your participation at any time. Your only direct benefit from this study to you is a $5 Wal-Mart gift card after you complete the surveys. The results of the completed study will be mailed to you if requested.

____
Participant/Parent/Guardian Initials

Research Records

All information provided by participants will be protected and held in confidence. The names will be separated from the body of the survey once the parent or guardian and child surveys have been matched. The names will be stored in a locked file cabinet. Only the code numbers, not names will be used when the information is analyzed on the computer.

Questions Regarding the Study

You will be given a copy of this signed and dated consent form to keep. If you have any questions about the research study, you should contact the researchers by phone. If you have questions about your rights as a participant in this research or the way this study has been conducted, you may contact the Texas Woman's University Office of Research and Sponsored Programs at xxx-xxx-xxxx or via e-mail at xxx@xxx.xxx.

By signing this form, you are indicating that you have read the information provided and freely agree to participate.

I agree to participate in the research project and give permission for my child to participate in the research project.

____
Print your full name

____
Print your child's full name

____
Parent or guardian signature

____
Parent or guardian signature

____
Date

Please print your contact information below, if you would like to have a copy of the research results.

____
Your name

____
Street address

____
City ST ZIP

APPENDIX B

CHILD ASSENT TO PARTICIPATE

CHILD'S ASSENT FORM

Title: Computer Attitudes, Self-Efficacy, and Usage of Children and Their Parents: Viewed through the Gender Lens

Investigator: Luba Levy ....xxx-xxx-xxxx
Advisor: JoAnn Engelbrecht, Ph.D.. xxx-xxx-xxxx

Explanation and Purpose of the Research

You are being asked to participate in a research study for Ms. Levy's dissertation at Texas Woman's University. The purpose of this research is to explore children's and their parents' computer attitudes, self-efficacy, and usage.

Research Procedures

Each participant's maximum total time commitment in the study is estimated to be approximately 30 minutes. You may stop at any time without penalty.

Potential Risks to Participants

Potential risks related to your participation in this study include release of confidential information. A code number, rather than a real name, will be given to you to enter the research instrument. Only the investigator, her advisor and the statistician will have access to the information. All information will be stored in a locked file cabinet. All data will be shredded by May 31, 2009. No names or other identifying information will be included in any publication. All information provided by participants will be protected and held in confidence. Only code numbers, not names will be used when the information is analyzed on the computer.

Potential benefit(s) to participants

Your involvement in this research study is completely voluntary and you may discontinue at any time without any consequences. Your only direct benefits from this study are a gift card for $5 to Wal-Mart after your completion of the survey and the results will be mailed to you if requested.

Contact Information

If you have any questions about the research study you may ask the researchers; their phone numbers are at the top of this form.

By signing this form, you are indicating that you have read the information provided and freely agree to participate.

I agree to participate in the research project.

________________________ ______________________________________

Print your full name Signature Date

APPENDIX C

COMPUTER SELF-EFFICACY SCALE

Please indicate the degree to which you feel confident with the statements below.

Part 1

<u>VL</u>	<u>L</u>	<u>S</u>	<u>A</u>	<u>QA</u>
Very Little Confidence	**Little Confidence**	**Some Confidence**	**A Lot of Confidence**	**Quite a Lot of Confidence**

		VL	L	S	A	QA
1	I feel confident working on a personal computer.	1	2	3	4	5
2	I feel confident getting the software up and running.	1	2	3	4	5
3	I feel confident using the user's guide when help is needed.	1	2	3	4	5
4	I feel confident entering and saving data (numbers or words) into a file.	1	2	3	4	5
5	I feel confident escaping/exiting from a program or software.	1	2	3	4	5
6	I feel confident choosing a data file to view on a monitor screen.	1	2	3	4	5
7	I feel confident understanding terms/words relating to computer hardware.	1	2	3	4	5
8	I feel confident understanding terms/words relating to computer software.	1	2	3	4	5
9	I feel confident handling a floppy disk correctly.	1	2	3	4	5
10	I feel confident learning to use a variety of programs (software).	1	2	3	4	5
11	I feel confident learning advanced skills within a specific program (software).	1	2	3	4	5
12	I feel confident making selections from an onscreen menu.	1	2	3	4	5
13	I feel confident using the computer to analyze number data.	1	2	3	4	5
14	I feel confident using a printer to make a "hard copy" of my work.	1	2	3	4	5
15	I feel confident copying a disk.	1	2	3	4	5

16	I feel confident copying an individual file.	1	2	3	4	5
17	I feel confident adding and deleting information to and from a data file.	1	2	3	4	5
18	I feel confident moving the cursor around the monitor screen.	1	2	3	4	5
19	I feel confident writing simple programs for the computer.	1	2	3	4	5
20	I feel confident using the computer to write a letter or essay.	1	2	3	4	5
21	I feel confident describing the function of computer hardware (keyboard, monitor, disk drives, processing unit)	1	2	3	4	5
22	I feel confident understanding the three stages of data processing: input, processing, and output.	1	2	3	4	5
23	I feel confident getting help for problems in the computer system.	1	2	3	4	5
24	I feel confident storing software correctly.	1	2	3	4	5
25	I feel confident explaining why a program (software) will or will not run on.	1	2	3	4	5
26	I feel confident using the computer to organize information.	1	2	3	4	5
27	I feel confident getting rid of files when they are no longer needed.	1	2	3	4	5
28	I feel confident organizing and managing files.	1	2	3	4	5
29	I feel confident troubleshooting computer problems.	1	2	3	4	5

APPENDIX D

PARENT ATTITUDES TOWARD COMPUTERS SCALE

Instructions: Please read each statement and then circle the number which best shows how you feel.

Part 1

SD – Strongly Disagree	D – Disagree	U – Undecided	A – Agree	SA – Strongly Agree

		SD	D	U	A	SA
1	I enjoy doing things on a computer.	1	2	3	4	5
2	I am tired of using a computer.	1	2	3	4	5
3	I will be able to get a good job if I learn how to use a computer.	1	2	3	4	5
4	I concentrate on a computer when I use one.	1	2	3	4	5
5	I enjoy computer games very much.	1	2	3	4	5
6	I would work harder if I could use computers more often.	1	2	3	4	5
7	I think that it takes a long time to finish when I use a computer.	1	2	3	4	5
8	I know that computers give me opportunities to learn many things.	1	2	3	4	5
9	I can learn many things when I use a computer.	1	2	3	4	5
10	I enjoy lessons on the computer.	1	2	3	4	5
11	I believe that it is very important for me to learn how to use computer.	1	2	3	4	5
12	I think that computers are very easy to use.	1	2	3	4	5
13	I feel comfortable working with a computer.	1	2	3	4	5
14	I get a sinking feeling when I think of trying to use a computer.	1	2	3	4	5
15	Working with a computer makes me nervous.	1	2	3	4	5
16	Using a computer is very frustrating.	1	2	3	4	5
17	I will do as little work with computers as possible.	1	2	3	4	5
18	Computers are difficult to use.	1	2	3	4	5
19	Computers do not scare me at all.	1	2	3	4	5
20	I can learn more from books than from a computer.	1	2	3	4	5

Part 2

Instructions: Place an 'x' between each adjective pair to indicate how you feel about the object.

Computers are:

21	Unlikable	___	___	___	___	___	___	___	Likable
22	Unhappy	___	___	___	___	___	___	___	Happy
23	Bad	___	___	___	___	___	___	___	Good
24	Unpleasant	___	___	___	___	___	___	___	Pleasant
25	Tense	___	___	___	___	___	___	___	Calm
26	Uncomfortable	___	___	___	___	___	___	___	Comfortable
27	Artificial	___	___	___	___	___	___	___	Natural
28	Empty	___	___	___	___	___	___	___	Full
29	Dull	___	___	___	___	___	___	___	Exciting
30	Suffocating	___	___	___	___	___	___	___	Fresh

Part 3

SD- Strongly Disagree **D – Disagree** **U - Undecided** **A – Agree** **SA – Strongly Agree**

		SD	D	U	A	SA
31	Computers do not scare me at all.	1	2	3	4	5
32	I would like working with computers.	1	2	3	4	5
33	Figuring out computer problems does not appeal to me.	1	2	3	4	5
34	I'll need a firm mastery of computers for my future work.	1	2	3	4	5
35	I don't understand how some people can spend so much time working with computers and seem to enjoy it.	1	2	3	4	5
36	I can't think of any way that I will use computers in my career.	1	2	3	4	5
37	I do not think I could handle a computer course.	1	2	3	4	5
38	I have a lot of self-confidence when it comes to working with computers.	1	2	3	4	5

39	Knowing how to use computers is a worthwhile skill.	1	2	3	4	5
40	A job using computers would be very interesting.	1	2	3	4	5
41	Computer lessons are a favorite subject for me.	1	2	3	4	5
42	I want to learn a lot about computers.	1	2	3	4	5
43	A computer test would scare me.	1	2	3	4	5
44	I see the computer as something I will rarely use in my daily life as an adult.	1	2	3	4	5
45	Computers have the potential to control our lives.	1	2	3	4	5
46	Our country relies too much on computers.	1	2	3	4	5
47	I will use a computer in my future occupation.	1	2	3	4	5
48	Computers dehumanize society by treating everyone as a number.	1	2	3	4	5
49	I feel apprehensive about using a computer.	1	2	3	4	5
50	Computers are changing the world too rapidly.	1	2	3	4	5
51	Computers isolate people by inhibiting normal social interactions among users	1	2	3	4	5
52	If I had to use a computer for some reason, it would probably save me some time and work.	1	2	3	4	5
53	Having a computer available to me would improve my general satisfaction.	1	2	3	4	5
54	If I had a computer at my disposal, I would try to get rid of it.	1	2	3	4	5
55	I sometimes get nervous just thinking about computers.	1	2	3	4	5
56	I will probably never learn to use a computer.	1	2	3	4	5
57	I sometimes feel intimidated when I have to use a computer.	1	2	3	4	5
58	Computers will improve education.	1	2	3	4	5
59	Someday I will have a computer in my home.	1	2	3	4	5
60	Training should include instructional applications of computers	1	2	3	4	5
61	Computers can be used successfully with courses which demand creative activities.	1	2	3	4	5

62	Computers can be a useful instructional aid in almost all subject areas.	1	2	3	4	5
63	Use of computers in education almost always reduces the personal treatment of students.	1	2	3	4	5
64	I feel at ease when I am around computers.	1	2	3	4	5
65	Learning about computers is boring to me.	1	2	3	4	5
66	I like learning on a computer.	1	2	3	4	5
67	Working with a computer would make me very nervous.	1	2	3	4	5
68	I think working with computers would be enjoyable and stimulating.	1	2	3	4	5
69	Computers are not exciting.	1	2	3	4	5
70	Studying about computers is a waste of time.	1	2	3	4	5
71	I enjoy learning how computers are used in our daily lives.	1	2	3	4	5
72	Computers would increase my productivity.	1	2	3	4	5
73	Computers would help me learn.	1	2	3	4	5
74	Computers improve the overall quality of life.	1	2	3	4	5
75	The challenge of learning about computers is exciting.	1	2	3	4	5
76	Learning to operate computers is like learning any new skill - the more you practice, the better you become.	1	2	3	4	5
77	I am afraid that if I begin to use computers I will become dependent upon them and lose some of my reasoning skills	1	2	3	4	5
78	I dislike working with machines that are smarter than I am.	1	2	3	4	5
79	If given the opportunity, I would like to learn about and use computers.	1	2	3	4	5
80	I feel computers are necessary tools in both educational and work settings.	1	2	3	4	5
81	Computers intimidate and threaten me.	1	2	3	4	5
82	Working with a computer makes me feel tense and uncomfortable.	1	2	3	4	5
83	Computers are difficult to understand.	1	2	3	4	5

84	Working with computers makes me feel isolated from other people.	1	2	3	4	5
85	I would like to learn more about computers.	1	2	3	4	5
86	Working with computers means working on your own, without contact with others.	1	2	3	4	5
87	Using a computer prevents me from being creative.	1	2	3	4	5
88	You have to be a "brain" to work with computers.	1	2	3	4	5
89	Not many people can use computers.	1	2	3	4	5
90	I get a sinking feeling when I think of trying to use a computer.	1	2	3	4	5
91	Computers frustrate me.	1	2	3	4	5
92	I will use a computer as soon as possible.	1	2	3	4	5
93	I enjoy computer work.	1	2	3	4	5
94	I would never take a job where I had to work with computers.	1	2	3	4	5

APPENDIX E

PARENTS' COMPUTER USAGE AND DEMOGRAPHIC QUESTIONNAIRE

Demographics

The following items ask information about you and your child. For each question below, please choose the best answer for you at this time.

1. Your Age: __________

2. Sex: ( ) Male or ( ) Female

3. What is your ethnic background? Please check one:

   ( ) African-American
   ( ) Asian-American
   ( ) Caucasian
   ( ) Hispanic
   ( ) Native American
   ( ) Bi-racial
   ( ) Other, please specify ________________________________

4. What is your marital status? Please check one:

   ( ) Married
   ( ) Separated
   ( ) Divorced
   ( ) Widowed
   ( ) Single
   ( ) Other, please describe ______________________________

5. How many family members live with you? ______________

6. Are you currently a student? ( ) Yes ( ) No

7. What is the HIGHEST level of education that you have achieved? Please check one:

   ( ) Do not have high school degree
   ( ) HS diploma or GED
   ( ) Some college
   ( ) Associates degree/Technical school
   ( ) 4-year college degree
   ( ) Graduate degree (e.g. M.A., Ph.D., M.D., J.D.)

8. What is your work status? Please check one:

( ) Full-time ( ) Part-time ( ) Not working for pay

9. What is your current occupation? ________________________________

10. What is the extent your job involves the use of computers?

____	____	____	____	____
None	Little	Some	Much	Very Much

11. What is your household gross income before taxes in the current year? Please check one:

( ) less than $10,000
( ) $10,000-$14,999
( ) $15,000-$19,999
( ) $20,000-$29,000
( ) $30,000-$49,999
( ) $50,000-$74,999
( ) $75,000-$99,999
( ) $100,000-$149,999
( ) $150,000 or more

12. Your child(ren)/stepchild(ren) attend school that is:

( ) Public school ( ) Private school ( ) Home schooled

13. In school what subject is your child's

best ______________________ worst ______________________

14. Do you have computer(s) in your home? ( ) Yes ( ) No

15. If your home does not have a computer what is the main reason?

____

16. What benefit(s), if any, are there to owning a computer?

____

17. Check the response that best describes your child's use of the computer. Please check one.

( ) Educational purposes
( ) Recreational purposes
( ) Same amount of time is spent on educational and recreational purposes
( ) Does not use it

18. Who do you think is better at working on the computer?

( ) Girls
( ) Boys
( ) Both Same
( ) Do not know

19. At what age did/will your child(ren) have their own computer? ____________

20. For what purpose(s) do **you use** the computer and what amount of time do you spend on the computer per day?

ACTIVITY	**hours / week-days**	**hour/week-end**
Communication	______	______
Recreation	______	______
Work	______	______
Learning	______	______
Shopping	______	______
Other, please specify	______	______

____

21. Estimate the number of **hours** your child spends on the computer per day.

	WEEKDAYS	SATURDAY	SUNDAY
School work/learning			
Recreation			
Communication (email)			
Other , please specify ______________			

APPENDIX F

COMPUTER ATTITUDES QUESTIONNAIRE - CHILD

This survey consists of 6 parts. Within each part, read each statement and then circle the number which best shows how you feel.

Part 1

SD-Strongly Disagree D-Disagree U-Undecided A-Agree SA-Strongly Agree

		SD	D	U	A	SA
1	I enjoy doing things on a computer.	1	2	3	4	5
2	I am tired of using a computer.	1	2	3	4	5
3	I will be able to get a good job if I learn how to use a computer.	1	2	3	4	5
4	I concentrate on a computer when I use one.	1	2	3	4	5
5	I enjoy computer games very much.	1	2	3	4	5
6	I would work harder if I could use computers more often.	1	2	3	4	5
7	I know that computers give me opportunities to learn many things.	1	2	3	4	5
8	I can learn many things when I use a computer.	1	2	3	4	5
9	I enjoy lessons on the computer.	1	2	3	4	5
10	I believe that the more often teachers use computers, the more I will enjoy school.	1	2	3	4	5
11	I believe that it is very important for me to learn how to use computer.	1	2	3	4	5
12	I feel comfortable working with a computer.	1	2	3	4	5
13	I get a sinking feeling when I think of trying to use a computer.	1	2	3	4	5
14	I think that it takes a long time to finish when I use a computer.	1	2	3	4	5
15	Computers do not scare me at all.	1	2	3	4	5
16	Working with a computer makes me nervous.	1	2	3	4	5
17	Using a computer is very frustrating.	1	2	3	4	5
18	I will do as little work with computers as possible.	1	2	3	4	5
19	Computers are difficult to use.	1	2	3	4	5
20	I can learn more from books than from a computer.	1	2	3	4	5

Part 2

SD-Strongly Disagree D-Disagree U-Undecided A-Agree SA-Strongly Agree

	SD	D	U	A	SA
21 I study by myself without anyone forcing me to study.	1	2	3	4	5
22 If I do not understand something, I will not stop thinking about it.	1	2	3	4	5
23 When I don't understand a problem, I keep working until I find the answer.	1	2	3	4	5
24 I review my lessons every day.	1	2	3	4	5
25 I try to finish whatever I begin.	1	2	3	4	5
26 Sometimes, I change my way of studying.	1	2	3	4	5
27 I enjoy working on a difficult problem.	1	2	3	4	5
28 I think about many ways to solve a difficult problem.	1	2	3	4	5
29 I never forget to do my homework.	1	2	3	4	5
30 I like to work out problems which I can use in my life every day.	1	2	3	4	5
31 If I do not understand my teacher, I ask him/her questions.	1	2	3	4	5
32 I listen to my teacher carefully.	1	2	3	4	5
33 If I fail, I try to find out why.	1	2	3	4	5
34 I study hard.	1	2	3	4	5
35 When I do a job, I do it well.	1	2	3	4	5

Part 3

SD-Strongly Disagree D-Disagree U-Undecided A-Agree SA-Strongly Agree

	SD	D	U	A	SA
36 I feel sad when I see a child crying.	1	2	3	4	5
37 I sometimes cry when I see a sad play or movie.	1	2	3	4	5
38 I get angry when I see a friend who is treated badly.	1	2	3	4	5
39 I feel sad when I see old people alone.	1	2	3	4	5
40 I worry when I see a sad friend.	1	2	3	4	5
41 I feel very happy when I listen to a song I like.	1	2	3	4	5
42 I do not like to see a child play alone, without a friend.	1	2	3	4	5
43 I feel sad when I see an animal hurt.	1	2	3	4	5
44 I feel happy when I see a friend smiling.	1	2	3	4	5
45 I am glad to do work that helps others.	1	2	3	4	5

Part 4

SD-Strongly Disagree D-Disagree U-Undecided A-Agree SA-Strongly Agree

	SD	D	U	A	SA
46 I examine unusual things.	1	2	3	4	5
47 I find new things to play with or to study, without any help.	1	2	3	4	5
48 When I think of a new thing, I apply what I have learned before.	1	2	3	4	5
49 I tend to consider various ways of thinking.	1	2	3	4	5
50 I create many unique things.	1	2	3	4	5
51 I do things by myself without depending upon others.	1	2	3	4	5
52 I find different kinds of materials when the ones I have do not work or are not enough.	1	2	3	4	5
53 I examine unknown issues to try to understand them.	1	2	3	4	5
54 I make a plan before I start to solve a problem.	1	2	3	4	5

55 I invent games and play them with friends.	1	2	3	4	5
56 I invent new methods when one way does not work.	1	2	3	4	5
57 I choose my own way without imitating methods of others.	1	2	3	4	5
58 I tend to think about the future.	1	2	3	4	5

Part 5

59 Which would you rather do? (circle one of each pair):

read a book	or	write
write	or	watch television
watch television	or	use a computer
use a computer	or	read a book
read a book	or	watch television
write	or	use a computer

60 Which would be more difficult for you? (circle one of each pair):

read a book	or	write
write	or	watch television
watch television	or	use a computer
use a computer	or	read a book
read a book	or	watch television
write	or	use a computer

61 Which would you learn more from? (circle one of each pair):

read a book	or	write
write	or	watch television
watch television	or	use a computer
use a computer	or	read a book
read a book	or	watch television
write	or	use a computer

Part 6

SD-Strongly Disagree D-Disagree U-Undecided A-Agree SA-Strongly Agree

	SD	D	U	A	SA
62 I really like school.	1	2	3	4	5
63 School is boring.	1	2	3	4	5
64 I would like to work in a school when I grow up.	1	2	3	4	5
65 When I grow up I would not like to work in a school.	1	2	3	4	5

66 Do you use a computer at home?	Yes	No
67 Do you have World Wide Web (WWW) access at home?	Yes	No

APPENDIX G

CHILD DEMOGGRAPHIC AND COMPUTER USAGE FORM

The following items ask information about yourself. For each question below, please choose the best answer for you at this time.

1. Age: __________

2. Sex: ( ) Male or ( ) Female

3. What is your ethnic background? Please check one:

   ( ) African-American
   ( ) Asian-American
   ( ) Caucasian
   ( ) Hispanic
   ( ) Native American
   ( ) Bi-racial
   ( ) Other, please specify ______________________________

4. You live with: Please check one:

   ( ) Mom and Dad
   ( ) Mom
   ( ) Dad
   ( ) Biological parent & Step parent
   ( ) Other, please specify ______________________________

5. What grade are you currently attending? ______________________________

6. What is your favorite subject? ______________________________

7. What is the subject you find most difficult? ______________________________

8. What do you want to do when you grow up? ______________________________

9. How old were you when you were first allowed to use the computer? __________

10. Who taught you to use the computer? ______________________________

11. Currently how difficulty is it for you to use the computer? Please check one:

____ Very Difficult	____ Difficult	____ Average	____ Easy	____ Very Easy

12. Where is the computer that you use the most?
Please check one:

( ) Home
( ) School
( ) Friend's home
( ) Library
( ) Other, please specify ______________________
( ) Do NOT use a computer

13. Estimate the number of **hours** **<u>you</u>** spend on the computer per day

	WEEKDAYS	SATURDAY	SUNDAY
School work/learning			
Recreation			
Communication (email)			
Other , please specify ____________________			

14. Who do you think is better at working on the computer? Please check one:

( ) Girls
( ) Boys
( ) Both Same
( ) Do not know

APPENDIX H

FACTOR ANALYSIS

FACTOR ANALYSIS

A series of factor analyses were conducted in order to examine the structure of the subscales included in the computer attitude measures and the computer self-efficacy measure. The computer attitude measure completed by parents (PAC) included six subscales: 1) Enthusiasm/Enjoyment, 2) Anxiety, 3) Avoidance/Acceptance, 4) Negative Impact on Society, 5) Productivity, and 6) Semantic Perception of Computers. Separate factor analyses were conducted on the items included in each of the six subscales. In addition, the computer attitude measure completed by children (CAQ) included eight subscales: 1) Computer Importance, 2) Computer Enjoyment, 3) Study Habits, 4) Motivation/Persistence, 5) Empathy, 6) Creative Tendencies, 7) School, and 8) Anxiety. Separate factor analyses were conducted on the items included in each of the eight subscales.

Finally, the computer self-efficacy measure was completed by both parents and children and included measures of beginning computer self-efficacy and advanced computer self-efficacy. Separate factor analyses were conducted on the items included in the two factors for both parents and children. For all factor analyses, factors with eigenvalues greater than 1.00 were retained. Items with factor loadings less than .50 were considered criterion for removal from the next round of analyses, as well as items that loaded on multiple factors. The results of the factor analyses are presented in the below subsections.

Parent Computer Attitude Measure

Enthusiasm/Enjoyment. A factor analysis using varimax rotation was conducted on the 15 items included in the Enthusiasm/Enjoyment subscale. The analysis revealed a three-factor solution (See Table H.1) that accounted for 61.05% of the total variance. Although the items split into three separate factors, the results also revealed that the internal consistency of all 15 items was adequate, with Cronbach's alpha = .81.

Anxiety. A factor analysis using varimax rotation was conducted on the 15 items included in the Anxiety subscale. The analysis revealed a three-factor solution (see Table H.2) that accounted for 66.69% of the total variance. Although the items split into three separate factors, the results also revealed that the internal consistency of all 15 items was adequate, with Cronbach's alpha = .92.

Avoidance/Acceptance. A factor analysis using varimax rotation was conducted on the 12 items included in the Avoidance/Acceptance subscale. The analysis revealed a three-factor solution (see Table H.3) that accounted for 57.22% of the total variance. Although the items split into three separate factors, the results also revealed that the internal consistency of all 12 items was adequate, with Cronbach's alpha = .82.

Negative Impact on Society. A factor analysis using varimax rotation was conducted on the 11 items included in the Negative Impact on Society subscale. Analysis revealed a three-factor solution (see Table H.4) that accounted for 65.31% of the total variance. Although the items loaded into three separate factors, the results revealed that the internal consistency of all 12 items together was excellent, Cronbach's alpha = .81.

Table H.1

Parent Computer Attitude Enjoyment Subscale: Final Rotated Factor Loadings

	Factor		
	1	2	3
Q32 I would like working with computers.	**0.614**	0.416	0.183
Q33 Figuring out computer problems does not appeal to me. (reverse)	**0.637**	-0.282	0.368
Q40 A job using computers would be very interesting.	**0.758**	0.377	0.136
Q41 Computer lessons are a favorite subject for me.	**0.837**	0.134	0.016
Q42 I want to learn a lot about computers.	**0.747**	0.172	0.092
Q66 I like learning on a computer.	**0.591**	0.495	0.166
Q67 Working with a computer would make me very nervous.	-0.120	-0.549	**-0.602**
Q69 Computers are not exciting. (reverse)	0.432	0.319	**0.608**
Q70 Studying about computers is a waste of time. (reverse)	0.184	0.109	**0.641**
Q72 Computers would increase my productivity.	0.340	**0.636**	0.124
Q76 Learning to operate computers is like learning any new skill - the more you practive, the better you become.	0.101	**0.726**	0.176
Q80 I feel computers are necessary tools in both educational and work settings.	0.228	**0.719**	0.188
Q86 Working with computers means working on your own, without contact with others.	0.017	-0.011	**-0.670**
Q93 I enjoy computer work.	**0.666**	0.462	0.127
Q94 I would never take a job where I had to work with computers. (reverse)	0.115	0.364	**0.717**

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Table H.2

Parent Computer Attitude Anxiety Subscale: Final Rotated Factor Loadings

	Factor		
	1	2	3
Q13 I feel comfortable working with a computer.	0.234	**0.769**	0.176
Q18 Computers are difficult to use. (reverse)	0.541	0.543	0.144
Q31 Computers do not scare me at all	0.323	**0.626**	0.027
Q38 I have a lot of self-confidence when it comes to working with computers.	0.270	**0.778**	0.309
Q43 A computer test would scare me. (reverse)	**0.526**	0.384	0.221
Q49 I feel apprehensive about using a computer. (reverse)	**0.571**	0.259	0.250
Q55 I sometimes get nervous just thinking about computers. (reverse)	**0.755**	0.324	-0.090
Q57 I sometimes feel intimidated when I have to use a computer. (reverse)	**0.711**	0.495	0.166
Q65 Learning about computers is boring to me. (reverse)	0.484	-0.150	**0.720**
Q68 I think working with computers would be enjoyable and stimulating.	0.103	0.335	**0.817**
Q82 Working with a computer makes me feel tense and uncomfortable. (reverse)	**0.829**	0.351	0.104
Q83 Computers are difficult to understand. (reverse)	**0.751**	0.247	0.315
Q84 Working with computers makes me feel isolated from other people. (reverse)	**0.735**	0.003	0.291
Q91 Computers frustrate me. (reverse)	**0.783**	0.281	0.086
Q92 I will use a computer as soon as possible.	0.063	0.469	**0.632**

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Table H.3

Parent Computer Attitude Avoidance/Acceptance Subscale: Final Rotated Factor Loadings

	Factor		
	1	2	3
Q36 I can't think of any way that I will use computers in my career (reverse).	**0.648**	0.292	0.236
Q37 I do not think I could handle a computer course (reverse).	**0.653**	0.248	0.288
Q39 Knowing how to use computers is a worthwhile skill.	0.266	0.425	0.288
Q44 I see the computer as something I will rarely use in my daily life as an adult (reverse).	**0.689**	-0.038	0.372
Q54 If I had a computer at my disposal, I would try to get rid of it (reverse).	**0.635**	0.382	0.080
Q56 I will probably never learn to use a computer (reverse).	0.537	0.554	-0.086
Q60 Training should include instructional applications of computers.	0.004	**0.845**	-0.030
Q71 I enjoy learning how computers are used in our daily lives.	0.080	0.148	**0.862**
Q77 I am afraid that if I begin to use computers I will become dependent upon them and lose some of my reasoning skills (reverse).	**0.504**	0.196	-0.205
Q80 I feel computers are necessary tools in both educational and work settings.	0.162	**0.698**	0.359
Q89 Not many people can use computers (reverse).	**0.651**	-0.084	-0.348
Q90 I get a sinking feeling when I think of trying to use a computer (reverse).	**0.748**	0.106	0.201

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Table H.4

Parent Computer Attitude Negative Impact on Society Subscale: Final Rotated Factor Loadings

	Factor 1	Factor 2	Factor 3
Q45 Computers have the potential to control our lives (reverse).	**0.711**	0.048	0.102
Q46 Our country relies too much on computers (reverse).	**0.839**	0.204	-0.029
Q48 Computers dehumanize society by treating everyone as a number (reverse).	**0.835**	0.186	0.034
Q50 Computers are changing the world too rapidly (reverse).	**0.766**	0.079	0.012
Q51 Computers isolate people by inhibiting normal social interactions among users (reverse).	**0.756**	0.090	0.156
Q64 I feel at ease when I am around computers.	0.175	0.458	0.338
Q78 I dislike working with machines that are smarter than I am (reverse).	0.205	**0.699**	0.266
Q79 If given the opportunity, I would like to learn about and use computers.	0.042	0.192	**0.884**
Q85 I would like to learn more about computers.	0.064	0.059	**0.894**
Q87 Using a computer prevents me from being creative (reverse).	0.183	**0.835**	0.129
Q88 You have to be a "brain" to work with computers (reverse).	-0.003	**0.807**	-0.093

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Productivity. A factor analysis using varimax rotation was conducted on the 15 items included in the Productivity subscale. The analysis revealed a three-factor solution (see Table H.5) that accounted for 54.23% of the total variance. Although the items split into three separate factors, the results also revealed that the internal consistency of all 12 items was adequate, with Cronbach's alpha = .85.

Table H.5

Parent Computer Attitude Productivity Subscale: Final Rotated Factor Loadings

	Factor		
	1	2	3
Q11 I believe that it is very important for me to learn how to use computer.	**0.556**	0.312	-0.058
Q34 I will need a firm mastery of computers for my future work.	**0.781**	0.167	-0.211
Q39 Knowing how to use computers is a worthwhile skill.	**0.634**	0.238	0.057
Q47 I will use a computer in my future occupation.	**0.749**	0.125	0.199
Q52 If I had to use a computer for some reason, it would probably save me some time and work.	**0.617**	0.194	0.323
Q53 Having a computer available to me would improve my general satisfaction.	0.461	0.430	0.283
Q58 Computers will improve education.	0.219	**0.527**	0.403
Q60 Training should include instructional applications of computers.	0.329	**0.610**	-0.234
Q61 Computers can be used successfully with courses which demand creative activities.	0.184	**0.853**	0.084
Q62 Computers can be a useful instructional aid in almost all subject areas.	0.222	**0.827**	0.121
Q63 Use of computers in education almost always reduces the personal treatment of students.	0.053	-0.064	**-0.765**
Q73 Computers would help me learn.	**0.515**	0.335	0.249
Q74 Computers improve the overall quality of life.	**0.496**	0.330	0.308
Q75 The challenge of learning about computers is exciting.	**0.514**	0.370	0.214
Q81 Computers intimidate and threaten me (reverse).	0.436	0.001	**0.554**

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Semantic Perception of Computers. A factor analysis using varimax rotation was conducted on the 10 items included in the Semantic Perception of Computers subscale. The analysis revealed a two-factor solution (see Table H.6) that accounted for 70.61% of the total variance. Although the items split into two separate factors, results revealed that the internal consistency of all 12 items was adequate, with Cronbach's alpha = .92.

Table H.6

Parent Computer Attitude Semantic Perception of Computers Subscale: Final Rotated Factor Loadings

	Factor 1	Factor 2
Q21 Computers are Unlikable vs. Likable	**0.799**	0.349
Q22 Computers are Unhappy vs. Happy	**0.759**	0.382
Q23 Computers are Bad vs. Good	**0.825**	0.166
Q24 Computers are Unpleasant vs. Pleasant	**0.900**	0.137
Q25 Computers are Tense vs. Calm	0.426	**0.602**
Q26 Computers are Uncomfortable vs. Comfortable	**0.678**	0.466
Q27 Computers are Artificial vs. Natural	0.154	**0.877**
Q28 Computers are Empty vs. Full	**0.657**	0.419
Q29 Computers are Dull vs. Exciting	**0.643**	0.418
Q30 Computers are Suffocating vs. Fresh	0.308	**0.859**

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Child Computer Attitude Measure

Computer Importance. A factor analysis using varimax rotation was conducted on the 7 items included in the Computer Importance subscale. The analysis revealed a one-factor solution (see Table H.7) that accounted for 46.68% of the total variance. The results also revealed that the internal consistency of all 7 items was adequate, with Cronbach's alpha = .80.

Table H.7

Child Computer Attitude Computer Importance Subscale: Final Rotated Factor Loadings

	Factor 1
Q3 I will be able to get a good job if I learn how to use a computer.	0.592
Q6 I would work harder if I could use computers more often.	0.711
Q7 I know that computers give me opportunities to learn many things.	0.739
Q8 I can learn many things when I use a computer.	0.804
Q9 I enjoy lessons on the computer.	0.595
Q10 I believe that the more often teachers use computers, the more I will enjoy school.	0.644
Q11 I believe that it is very important for me to learn how to use computer.	0.671

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Computer Enjoyment. A factor analysis using varimax rotation was conducted on the 9 items included in the Semantic Perception of Computers subscale. The analysis revealed a three-factor solution (see Table H.8) that accounted for 53.46% of the total variance. The results also revealed that the internal consistency of all 9 items was low, with Cronbach's alpha = .62.

Table H.8

Child Computer Attitude Computer Enjoyment Subscale: Final Rotated Factor Loadings

	Factor		
	1	2	3
Q1 I enjoy doing things on a computer.	0.089	**0.744**	0.025
Q2 I am tired of using a computer (reverse).	0.355	**0.613**	-0.210
Q4 I concentrate on a computer when I use one.	-0.040	**0.595**	0.313
Q5 I enjoy computer games very much.	0.019	**0.586**	0.205
Q9 I enjoy lessons on the computer.	-0.081	0.095	**0.829**
Q12 I feel comfortable working with a computer.	0.312	0.160	**0.620**
Q13 I get a sinking feeling when I think of trying to use a computer (reverse).	**0.811**	-0.054	0.094
Q16 Working with a computer makes me nervous (reverse).	**0.660**	0.133	-0.055
Q19 Computers are difficult to use (reverse).	**0.708**	0.115	0.117

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Study Habits. A factor analysis using varimax rotation was conducted on the 10 items included in the Study Habits subscale. The analysis revealed a two-factor solution (see Table H.9) that accounted for 52.94% of the total variance. Although the items split into two separate factors, the results also revealed that the internal consistency of all 10 items was adequate with Cronbach's alpha = .84.

Table H.9

Child Computer Attitude Study Habits Subscale: Final Rotated Factor Loadings

	Factor 1	Factor 2
Q21 I study by myself without anyone forcing me to study.	**0.866**	-0.024
Q24 I review my lessons every day.	**0.697**	0.242
Q25 I try to finish whatever I begin.	0.375	0.387
Q26 Sometimes, I change my way of studying.	0.472	0.333
Q29 I never forget to do my homework.	**0.579**	0.279
Q30 I like to work out problems which I can use in my life every day.	0.413	**0.624**
Q31 If I do not understand my teacher, I ask him/her questions.	-0.035	**0.861**
Q32 I listen to my teacher carefully.	0.300	**0.739**
Q33 If I fail, I try to find out why.	0.395	**0.564**
Q34 I study hard.	**0.586**	0.454

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Motivation/Persistence. A factor analysis using varimax rotation was conducted on the 8 items included in the Motivation/Persistence subscale. The analysis revealed a two-factor solution (see Table H.10) that accounted for 53.16% of the total variance. Although the items split into two separate factors, the results also revealed that the internal consistency of all 8 items was adequate with Cronbach's alpha = .76.

Table H.10

Child Computer Attitude Motivation/Persistence Subscale: Final Rotated Factor Loadings

	Factor 1	Factor 2
Q21 I study by myself without anyone forcing me to study.	**0.498**	0.462
Q22 If I do not understand something, I will not stop thinking about it.	-0.245	**0.799**
Q23 When I do not understand a problem, I keep working until I find the answer.	0.475	**0.619**
Q25 I try to finish whatever I begin.	**0.642**	0.066
Q27 I enjoy working on a difficult problem.	0.447	0.443
Q28 I think about many ways to solve a difficult problem.	0.405	**0.671**
Q29 I never forget to do my homework.	**0.684**	0.098
Q34 I study hard.	**0.744**	0.156

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Empathy. A factor analysis using varimax rotation was conducted on the 10 items included in the Empathy subscale. The analysis revealed a two-factor solution (see Table H.11) that accounted for 50.76% of the total variance. Although the items split into two separate factors, the results also revealed that the internal consistency of all 10 items was adequate with Cronbach's alpha = .81.

Table H.11

Child Computer Attitude Empathy Subscale: Final Rotated Factor Loadings

	Factor	
	1	2
Q36 I feel sad when I see a child crying.	**0.700**	-0.204
Q37 I sometimes cry when I see a sad play or movie.	0.444	0.397
Q38 I get angry when I see a friend who is treated badly.	**0.569**	0.122
Q39 I feel sad when I see old people alone.	**0.726**	0.144
Q40 I worry when I see a sad friend.	**0.716**	0.225
Q41 I feel very happy when I listen to a song I like.	-0.085	**0.834**
Q42 I do not like to see a child play alone, without a friend.	**0.631**	0.363
Q43 I feel sad when I see an animal hurt.	**0.538**	0.446
Q44 I feel happy when I see a friend smiling.	0.304	**0.634**
Q45 I am glad to do work that helps others.	**0.662**	0.294

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Creative Tendencies. A factor analysis using varimax rotation was conducted on the 13 items included in the Creative Tendencies subscale. The analysis revealed a three-factor solution (see Table H.12) that accounted for 60.02% of the total variance. Although the items split into three separate factors, the results also revealed that the internal consistency of all 13 items was adequate, with Cronbach's alpha = .88.

School. A factor analysis using varimax rotation was conducted on the 4 items included in the School subscale. The analysis revealed a one-factor solution (see Table H.13) that accounted for 51.29% of the total variance. The results also revealed that the internal consistency of all 4 items was adequate, with Cronbach's alpha = .68.

Anxiety. A factor analysis using varimax rotation was conducted on the 8 items included in the Anxiety subscale. The analysis revealed a three-factor solution (see Table H.14) that accounted for 62.31% of the total variance. Although the items split into three separate factors, the results also revealed that the internal consistency of all 8 items was adequate, with Cronbach's alpha = .70.

Parent Computer Self-Efficacy Measure

Beginning Computer Self-Efficacy. A factor analysis using varimax rotation was conducted on the 16 items included in the Beginning Computer Self-Efficacy subscale. The analysis revealed a one-factor solution (see Table H.15) that accounted for 73.49% of the total variance. The results also revealed that the internal consistency of all 16 items was adequate, with Cronbach's alpha = .98.

Table H.12

Child Computer Attitude Creative Tendencies Subscale: Final Rotated Factor Loadings

	Factor		
	1	2	3
Q46 I examine unusual things.	**0.522**	0.393	0.049
Q47 I find new things to play with or to study, without any help.	0.351	**0.622**	0.137
Q48 When I think of new thing, I apply what I have learned before.	**0.779**	0.093	0.216
Q49 I tend to consider various ways of thinking.	**0.702**	0.333	0.238
Q50 I create many unique things.	0.099	**0.688**	0.388
Q51 I do things by myself without depending upon others.	0.160	-0.103	**0.811**
Q52 I find different kinds of materials when the ones I have do not work or are not enough.	0.439	0.354	**0.534**
Q53 I examine unknown issues to try to understand them.	**0.572**	0.435	0.300
Q54 I make a plan before I start to solve a problem.	0.459	0.194	0.176
Q55 I invent games and play them with friends.	0.117	**0.834**	-0.067
Q56 I invent new methods when one way does not work.	**0.738**	0.314	0.129
Q57 I choose my own way without imitating methods of others.	**0.812**	-0.085	0.100
Q58 I tend to think about the future.	0.203	0.333	**0.709**

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Table H.13

Child Computer Attitude School Subscale: Final Rotated Factor Loadings

	Factor 1
Q62 I really like school.	0.646
Q63 School is boring (reverse).	0.655
Q64 I would like to work in a school when I grow up.	0.778
Q65 When I grow up, I would not like to work in a school (reverse).	0.774

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Advanced Computer Self-Efficacy. A factor analysis using varimax rotation was conducted on the 13 items included in the Advanced Computer Self-Efficacy subscale. The analysis revealed a two-factor solution (see Table H.16) that accounted for 75.98% of the total variance. The results also revealed that the internal consistency of all 13 items was adequate, with Cronbach's alpha = .96.

Child Computer Self-Efficacy Measure

Beginning Computer Self-Efficacy. A factor analysis using varimax rotation was conducted on the 16 items included in the Beginning Computer Self-Efficacy subscale. The analysis revealed a three-factor solution (see Table H.17) that accounted for 55.56%

of the total variance. The results also revealed that the internal consistency of all 16 items was adequate, with Cronbach's alpha = .90.

Advanced Computer Self-Efficacy. A factor analysis using varimax rotation was conducted on the 13 items included in the Advanced Computer Self-Efficacy subscale. The analysis revealed a two-factor solution (see Table H.18) that accounted for 60.37% of the total variance. The results also revealed that the internal consistency of all 13 items was adequate, with Cronbach's alpha = .91.

Table H.14

Child Computer Attitude Anxiety Subscale: Final Rotated Factor Loadings

	Factor		
	1	2	3
Q12 I feel comfortable working with a computer.	0.259	-0.051	**0.795**
Q13 I get a sinking feeling when I think of trying to use a computer (reverse).	**0.678**	0.318	0.039
Q14 I think that it takes a long time to finish when I use a computer (reverse).	-0.203	0.362	**0.740**
Q15 Computers do not scare me at all.	**0.682**	-0.134	0.540
Q16 Working with a computer makes me nervous (reverse).	**0.695**	0.215	-0.015
Q17 Using a computer is very frustrating (reverse).	0.067	**0.765**	0.156
Q18 I will do as little work with computers as possible (reverse).	0.211	**0.664**	-0.065
Q19 Computers are difficult to use (reverse).	0.471	**0.594**	0.134

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Table H.15

Parent Computer Self-Efficacy Beginning Computer Self-Efficacy Subscale: Final Rotated Factor Loadings

	Factor 1
Q1 I feel confident working on a personal computer	0.840
Q2 I feel confident getting the software up and running	0.870
Q3 I feel confident using the users guide when help is needed.	0.765
Q4 I feel confident entering and saving data (numbers or words) into a file	0.885
Q5 I feel confident escaping/exiting from a program or software.	0.840
Q6 I feel confident choosing a data file to view on a monitor screen.	0.871
Q7 I feel confident understanding terms. words relating to computer hardware	0.864
Q8 I feel confident understanding terms/words relating to computer software.	0.890
Q9 I feel confident handling a floppy disk correctly.	0.850
Q10 I feel confident learning to use a variety of programs (software)	0.866
Q11 I feel confident learning advanced skills within a specific program (software).	0.853
Q12 I feel confident making selections from an onscreen menu.	0.882
Q13 I feel confident using the computer to analyze number data.	0.808
Q14 I feel confident using a printer to make a "hard copy" of my work.	0.817
Q15 I feel confident copying a disk.	0.907
Q16 I feel confident copying an individual file.	0.896

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Table H.16

Parent Computer Self-Efficacy Advanced Computer Self-Efficacy Subscale: Final Rotated Factor Loadings

	Factor	
	1	2
Q17 I feel confident adding and deleting information to and from a data file.	**0.806**	0.428
Q18 I feel confident moving the cursor around the monitor screen.	**0.875**	0.009
Q19 I feel confident writing simple programs for the computer.	0.049	**0.849**
Q20 I feel confident using the computer to write a letter or essay.	**0.825**	0.260
Q21 I feel confident describing the function of computer hardware (keyboard, monitor, disk drives, processing unit).	0.608	0.633
Q22 I feel confident understanding the three stages of data processing: input, processing, and output.	0.584	0.610
Q23 I feel confident getting help for problems in the computer system.	0.399	**0.672**
Q24 I feel confident storing software correctly.	0.637	0.655
Q25 I feel confident explaining why a program (software) will or will not run on.	0.277	**0.850**
Q26 I feel confident using the computer to organize information.	0.668	0.623
Q27 I feel confident getting rid of files when they are no longer needed.	**0.700**	0.482
Q28 I feel confident organizing and managing files.	**0.712**	0.590
Q29 I feel confident troubleshooting computer problems.	0.309	**0.754**

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Table H.17

Child Computer Self-Efficacy Beginning Computer Self-Efficacy Subscale: Final Rotated Factor Loadings

	Factor		
	1	2	3
Q1 I feel confident working on a personal computer	0.507	0.501	-0.237
Q2 I feel confident getting the software up and running	**0.629**	0.204	0.125
Q3 I feel confident using the users guide when help is needed.	0.110	-0.096	**0.638**
Q4 I feel confident entering and saving data (numbers or words) into a file	0.146	**0.677**	0.155
Q5 I feel confident escaping/exiting from a program or software.	0.403	0.346	0.005
Q6 I feel confident choosing a data file to view on a monitor screen.	**0.534**	0.361	0.277
Q7 I feel confident understanding terms, words relating to computer hardware	**0.809**	0.106	0.323
Q8 I feel confident understanding terms/words relating to computer software.	**0.856**	0.085	0.282
Q9 I feel confident handling a floppy disk correctly.	0.408	0.213	**0.576**
Q10 I feel confident learning to use a variety of programs (software)	**0.533**	0.477	0.158
Q11 I feel confident learning advanced skills within a specific program (software)	**0.563**	0.460	0.127
Q12 I feel confident making selections from an onscreen menu.	0.302	**0.631**	0.129
Q13 I feel confident using the computer to analyze number data.	0.410	0.462	0.291
Q14 I feel confident using a printer to make a "hard copy" of my work.	0.137	**0.801**	0.078
Q15 I feel confident copying a disk.	0.139	0.439	**0.654**
Q16 I feel confident copying an individual file.	0.199	0.536	0.588

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

Table H.18

Child Computer Self-Efficacy Advanced Computer Self-Efficacy Subscale: Final Rotated Factor Loadings

	Factor	
	1	2
Q17 I feel confident adding and deleting information to and from a data file.	**0.575**	0.478
Q18 I feel confident moving the cursor around the monitor screen.	-0.013	**0.823**
Q19 I feel confidnet writing simple programs for the computer.	**0.640**	0.278
Q20 I feel confident using the computer to write a letter or essay.	0.248	**0.813**
Q21 I feel confident describing the function of computer hardware (keyboard, monitor, disk drives, processing unit).	**0.532**	0.384
Q22 I feel confident understanding the three stages of data processing: input, processing, and output.	**0.771**	0.182
Q23 I feel confident getting help for problems in the computer system.	0.242	**0.533**
Q24 I feel confident storing software correctly.	**0.759**	0.297
Q25 I feel confident explaining why a program (software) will or will not run on.	**0.827**	0.034
Q26 I feel confident using the computer to organize information.	**0.724**	0.394
Q27 I feel confident getting rid of files when they are no longer needed.	**0.586**	0.471
Q28 I feel confident organizing and managing files.	**0.768**	0.249
Q29 I feel confident troubleshooting computer problems.	**0.867**	0.052

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Bold values indicate the highest loading.

APPENDIX I

PRELIMINARY ANALYSIS – PARENT DEMOGRAPHICS

PRELIMINARY ANALYSIS – PARENT DEMOGRAPHICS

A series of preliminary analyses were conducted in order to uncover potential relationships among the parent demographic variables. More specifically, crosstab analyses with Pearson's chi-square (χ^2) test and Cramer's *V* test were conducted on the categorical demographic variables. Crosstab analyses are used to examine the relationships between categorical variables measured on nominal or ordinal scales (e.g. parent gender, parent level of education). Pearson's chi-square (χ^2) tests are used to determine whether or not a significant relationship exists between the variables. Cramer's *V* tests are used to determine the strength of the relationship between the variables.

Independent samples *t* tests and Analysis of Variance (ANOVAs) were conducted to examine group differences between the categorical demographic variables on the continuous dependent variables. Independent samples *t* tests are used to determine if differences exist between two groups of an independent variable (e.g. parent gender) on a continuous dependent variables (e.g., parent computer usage in hours). Analyses of variance (ANOVAs) are used to determine the differences between groups of a categorical independent variable on a continuous (i.e., interval or ratio scaled) dependent variable. A significant main effect indicates that the independent variable has a direct effect on the dependent variable. ANOVAs use *F*-tests in order to determine if the groups are significantly different from each other. If the test reveals that the groups are significantly different from each other (i.e., a significant *F*-test), and the independent variable has more than two groups (e.g., parent level of education), a post hoc comparison test must be utilized in order to determine which values of the independent variable differ from each other. Multivariate analysis of variance (MANOVA) is utilized when there are multiple dependent variables (e.g., parent weekly computer usage, parent weekend computer usage).

Finally, Pearson's product moment correlations were conducted to examine the relationships between continuous demographic variables. Pearson's product moment correlations are used to examine the relationships between continuous variables measured on interval or ratio scales (e.g., parent age in years, parent computer usage in hours). Correlation coefficients can range between -1.00 and +1.00. A positive correlation indicates that increases in one variable are associated with increases in the other variable. A negative correlation, on the other hand, indicates that decreases in one variable are associated with increases in the other variable. Correlation coefficients close to 0 indicate a weak relationship or a lack of a relationship between variables.

Relationships Among Parent Demographic Variables

The relationships between parent gender, sociocultural factors, and use of computers at work are displayed in Table I.1. The relationship between parent gender and parent ethnicity was not significant, χ^2 (1) = .07, p = .83, Cramer's V = .02. The relationship between parent gender and parent marital status was also not significant, χ^2 (1) = 1.17, p = .37, Cramer's V = .09. The relationship between parent gender and parent student status was not significant, χ^2 (1) = .01, p = .94, Cramer's V = .01. The relationship between parent gender and parent education was also not significant, χ^2 (5) = 1.91, p = .86, Cramer's V = .11. The relationship between parent gender and parent work status, however, was significant, χ^2 (2) = 9.17, p < .01, Cramer's V = .24. More males were employed full time (88.5%) than females (56.9%). Also, more females were not working for pay (27.7%) than males (7.7%). The relationship between parent gender and parent use of computers at work was not significant, χ^2 (1) = 1.55, p = .21, Cramer's V = .10. Finally, the relationship between parent gender and income was also not significant, χ^2 (6) = 4.61, p = .60, Cramer's V = .17.

Table I.1

Frequencies and Percentages for Ethnicity, Marital, Student, Education, Work, Computers at Work, Income by Gender

	Male		Female			
	N	%	N	%	χ^2	*p*
Ethnicity					.07	.826
Caucasian	16	61.5	86	64.2		
Other	10	38.5	48	35.8		
Marital Status					1.17	.374
Married	19	73.1	83	61.9		
Not Married	7	26.9	51	38.1		

Note: percentages not adding to 100 reflect missing data

Table I.1, continued

Frequencies and Percentages for Ethnicity, Marital, Student, Education, Work, Computers at Work, Income by Gender

	Male		Female			
	N	%	N	%	χ^2	*p*
Education Status						
Less than high school	2	7.7	14	10.7	1.91	.861
HS diploma or GED	3	11.5	24	18.3		
Some college	8	30.8	36	27.5		
Associates degree/Technical school	4	15.4	22	16.8		
4-year college degree	4	15.4	20	15.3		
Graduate degree (MA, PhD)	5	19.2	15	11.5		
Parent Student Status					.01	.937
Yes	3	12.0	15	11.5		
No	22	88.0	116	88.5		
Work Status					9.17	.010
Full-Time	23	88.5	74	56.9		
Part-Time	1	3.8	20	15.4		
Not working for pay	2	7.7	36	27.7		
The extent job involves the use of computers:					1.55	.274
None, Little, Some	9	36.0	62	49.6		
Much, Very Much	16	64.0	63	50.4		
Income Level					4.61	.595
Less than $20,000	3	11.5	23	17.4		
$20,000-$29,999	1	3.8	15	11.4		
$30,000-$49,999	3	11.5	21	15.9		
$50,000-$74,999	6	23.1	20	15.2		
$75,000-$99,999	5	19.2	22	16.7		
$100,000-$149,999	3	11.5	18	13.6		
$150,000 or more	5	19.2	13	9.8		

Note: percentages not adding to 100 reflect missing data

The relationships between parent gender, child school type, parent's perception of child's computer usage, and parent's perception of who is better with computers are displayed in Table I.2. The relationship between parent gender and child school type was not significant, χ^2 (1) = .04, p = .84, Cramer's V = .02. The relationship between parent gender and parent's perception of child's computer usage was also not significant, χ^2 (2) = .35, p = .84, Cramer's V = .05. Finally, the relationship between parent gender and parent's perception of who is better with computers was not significant, χ^2 (3) = 1.45, p = .69, Cramer's V = .10.

The relationships between parent ethnicity, sociocultural factors, and use of computers at work are displayed in Table I.3. The relationship between parent ethnicity and parent marital status was not significant, χ^2 (1) = .53, p = .47, Cramer's V = .06. The relationship between parent ethnicity and parent student status was not also significant, χ^2 (1) = .55, p = .46, Cramer's V = .06. The relationship between parent ethnicity and parent education was not significant, χ^2 (5) = 7.29, p = .20, Cramer's V = .22. The relationship between parent ethnicity and parent work status was also not significant, χ^2 (2) = 1.65, p = .44, Cramer's V = .10. And the relationship between parent ethnicity and parent use of computers at work was not significant, χ^2 (1) = 1.01, p = .31, Cramer's V = .08. Finally, the relationship between parent ethnicity and income was significant, χ^2 (6) = 17.52, p < .01, Cramer's V = .33. Caucasians tended to earn more than other ethnicities. For example, 53.5% of Caucasians reported incomes of $75,000 or more compared to only

21.0% of other ethnicities. Similarly, 26.3% of other ethnicities reported incomes less than $20,000 compared to only 10.9% of Caucasians.

Table I.2

Frequencies and Percentages for Children School Type, Children Use of Computer, Gender of Who is Better at Computers by Gender

	Male		Female			
	N	%	N	%	χ^2	*p*
Type of school children attend					.04	.840
Public School	24	92.3	122	91.0		
Other School	2	7.7	12	9.0		
Children computer time					.35	.841
Educational Purposes	5	19.2	29	22.1		
Recreational	12	46.2	64	48.9		
Same Amount	9	34.6	38	29.0		
Who is better with computers?						
Girls	0	.0	4	3.0	1.45	.694
Boys	2	7.7	12	9.0		
Both Same	15	57.7	83	61.9		
Do Not Know	9	34.6	35	26.1		

Note: percentages not adding to 100 reflect missing data

Table I.3

Frequencies and Percentages for Marital, Student, Education, Work, Computers at Work, Income by Ethnicity

	Caucasian		Other			
	N	%	N	%	χ^2	*p*
Marital Status					.53	.468
Married	66	64.7	36	59.0		
Not Married	36	35.3	25	41.0		
Parent Student Status					.55	.459
Yes	10	10.1	8	14.0		
No	89	89.9	49	86.0		
Education Status					7.29	.200
Less than high school	6	5.9	10	17.9		
HS diploma or GED	17	16.8	10	17.9		
Some college	28	27.7	16	28.6		
Associates degree/Technical school	20	19.8	6	10.7		
4-year college degree	17	16.8	7	12.5		
Graduate degree (MA, PhD)	13	12.9	7	12.5		
Work Status					1.65	.438
Full-Time	65	65.7	32	56.1		
Part-Time	13	13.1	8	14.0		
Not working for pay	21	21.2	17	29.8		

Note: percentages not adding to 100 reflect missing data

Table I.3, continued

Frequencies and Percentages for Marital, Student, Education, Work, Computers at Work, Income by Ethnicity

	Caucasian		Other			
	N	%	N	%	χ^2	*p*
The extent job involves the use of computers:					1.01	.314
None, Little, Some	42	44.2	29	52.7		
Much, Very Much	53	55.8	26	47.3		
Income Level					17.52	.008
Less than $20,000	11	10.9	15	26.3		
$20,000-$29,999	8	7.9	8	14.0		
$30,000-$49,999	14	13.9	10	17.5		
$50,000-$74,999	14	13.9	12	21.1		
$75,000-$99,999	23	22.8	4	7.0		
$100,000-$149,999	17	16.8	4	7.0		
$150,000 or more	14	13.9	4	7.0		

Note: percentages not adding to 100 reflect missing data

The relationships between parent ethnicity, child school type, parent's perception of child's computer usage, and parent's perception of who is better with computers are displayed in Table I.4. The relationship between parent ethnicity and child school type was not significant, χ^2 (1) = .29, p = .59, Cramer's V = .04. The relationship between parent ethnicity and parent's perception of child's computer usage was significant, χ^2 (2)

= 7.46, $p < .05$, Cramer's $V = .22$. Caucasians tended to report their children used the computer more for recreational purposes (55.5%) than other ethnicities (35.7%). Also, Caucasians tended to report their children used the computer less for educational purposes (15.8%) than other ethnicities (32.1%).

Table I.4

Frequencies and Percentages for Children School Type, Children Use of Computer, Gender of Who is Better at Computers by Ethnicity

	Caucasian		Other			
	N	%	N	%	χ^2	*p*
Type of school children attend					.29	.590
Public School	94	92.2	52	89.7		
Other School	8	7.8	6	10.3		
Children computer time					7.46	.024
Educational Purposes	16	15.8	18	32.1		
Recreational	56	55.5	20	35.7		
Same Amount	29	28.7	18	32.1		
Who is better with computers?						
Girls	2	2.0	2	3.5	10.11	.018
Boys	5	4.9	9	15.5		
Both Same	60	58.8	38	65.5		
Do Not Know	35	34.3	9	15.5		

Note: percentages not adding to 100 reflect missing data

The relationship between parent ethnicity and parent's perception of who is better with computers was significant, χ^2 (3) = 10.11, $p < .05$, Cramer's $V = .25$. Other ethnicities tended to report that boys were better with computers (15.5%) more than Caucasians (4.9%). Also, Caucasians tended to report that they did not know who was better with computers (34.3%) more than other ethnicities (15.5%). Finally, other ethnicities tended to report that boys and girls are about the same with computers (65.5%) slightly more than Caucasians (58.8%).

The relationships between parent marital status, sociocultural factors, and use of computers at work are displayed in Table I.5. The relationship between parent marital status and parent student status was not significant, χ^2 (1) = .55, $p = .46$, Cramer's $V = .06$, $p = .46$. The relationship between parent marital status and parent education was significant, χ^2 (5) = 14.82, $p < .05$, Cramer's $V = .31$. Married respondents tended to have some college (33.0%) more than not married respondents (19.3%). Not married respondents tended to have an associates or technical degree (26.3%) more than married respondents (11.0%). Also, married respondents tended to have a graduate degree (16.0%) more than not married respondents (7.0%).

The relationship between the marital status of the parent and parent work status was not significant, χ^2 (2) = 3.63, $p = .16$, Cramer's $V = .15$. In addition, the relationship between parent marital status and parent use of computers at work was not significant, χ^2 (1) = .04, $p = .85$, Cramer's $V = .02$. The relationship between parent marital status and income was significant, χ^2 (6) = 26.06, $p < .001$, Cramer's $V = .41$. Married respondents tended to earn more than respondents who were not married. For example, 54.0% of married respondents reported incomes of $75,000 or more compared to only 20.6% of not married respondents. Similarly, 31.0% of not married respondents reported incomes less than $20,000 compared to only 8.0% of married respondents.

The relationships between parent marital status, child school type, parent's perception of child's computer usage, and parent's perception of who is better with computers are displayed in Table I.6. The relationship between parent marital status and child school type was not significant, χ^2 (1) = .00, p = .97, Cramer's V = .00. The relationship between parent marital status and parent's perception of child's computer usage was also not significant, χ^2 (2) = .81, p = .67, Cramer's V = .07. In addition, the relationship between parent marital status and parent's perception of who is better with computers was not significant, χ^2 (3) = 3.78, p = .29, Cramer's V = .15.

The relationships between parent student status, sociocultural factors, and use of computers at work are displayed in Table I.7. The relationship between parent student status and parent education level was significant, χ^2 (5) = 22.06, p < .001, Cramer's V = .38. Respondents who were students tended to have an associates or technical degree (38.9%) more than respondents who were not students (14.1%). Respondents who were students tended to have a graduate degree (33.3%) more than respondents who were not students (8.2%). Also, respondents who were not students tended to have a four year degree (17.0%) more than respondents who were students (5.6%).

Table I.5

Frequencies and Percentages for Student, Education, Work, Computers at Work, Income by Martial Status

	Married		Not Married			
	N	%	N	%	χ^2	*p*
Parent Student Status					.55	.459
Yes	10	10.1	8	14.0		
No	89	89.9	49	86.0		
Education Status					14.82	.011
Less than high school	6	6.0	10	17.5		
HS diploma or GED	18	18.0	9	15.8		
Some college	33	33.0	11	19.3		
Associates degree/Technical school	11	11.0	15	26.3		
4-year college degree	16	16.0	8	14.0		
Graduate degree (MA, PhD)	16	16.0	4	7.0		
Work Status					3.63	.163
Full-Time	58	58.6	39	68.4		
Part-Time	12	12.1	9	15.8		
Not working for pay	29	29.3	9	15.8		
The extent job involves the use of computers:					.04	.849
None, Little, Some	46	47.9	25	46.3		
Much, Very Much	50	52.1	29	53.7		
Income Level					26.06	.000
Less than $20,000	8	8.0	18	31.0		
$20,000-$29,999	7	7.0	9	15.5		
$30,000-$49,999	13	13.0	11	19.0		
$50,000-$74,999	18	18.0	8	13.8		
$75,000-$99,999	21	21.0	6	10.3		
$100,000-$149,999	17	17.0	4	6.9		
$150,000 or more	16	16.0	2	3.4		

Note: percentages not adding to 100 reflect missing data

Table I.6

Frequencies and Percentages for Children School Type, Children's Computer Usage, Gender of Who is Better at Computers by Marital Status

	Married		Not Married			
	N	%	N	%	χ^2	*p*
Type of school children attend					.00	.965
Public School	93	91.2	53	91.4		
Other School	9	8.8	5	8.6		
Children computer time					.81	.666
Educational Purposes	20	20.0	14	24.6		
Recreational	51	51.0	25	43.8		
Same Amount	29	29.0	18	31.6		
Who is better with computers?					3.78	.287
Girls	3	2.9	1	1.7		
Boys	8	7.8	6	10.3		
Both Same	58	56.9	40	69.0		
Do Not Know	33	32.4	11	19.0		

The relationship between parent student status and the work status of the parent was not significant, χ^2 (2) = 2.12, p = .35, Cramer's V = .12. The relationship between parent student status and parent use of computers at work was also not significant, χ^2 (1) = .24, p = .62, Cramer's V = .04. Finally, the relationship between parent student status and income was not significant, χ^2 (6) = 6.56, p = .36, Cramer's V = .21.

Table I.7

Frequencies and Percentages for Education, Work, Computers at Work, Income by Parent Student Status

	Student		Not Student			
	N	%	N	%	χ^2	*p*
Education Status					22.06	.001
Less than high school	0	.0	16	11.9		
HS diploma or GED	0	.0	26	19.3		
Some college	4	22.2	40	29.6		
Associates degree/Technical school	7	38.9	19	14.1		
4-year college degree	1	5.6	23	17.0		
Graduate degree (MA, PhD)	6	33.3	11	8.2		
Work Status					2.12	.346
Full-Time	13	72.2	81	60.5		
Part-Time	3	16.7	17	12.7		
Not working for pay	2	11.1	36	26.9		
The extent job involves the use of computers:					.24	.623
None, Little, Some	9	52.9	62	46.6		
Much, Very Much	8	47.1	71	53.4		
Income Level					6.56	.363
Less than $20,000	3	16.7	23	16.9		
$20,000-$29,999	1	5.6	15	11		
$30,000-$49,999	2	11.1	21	15.4		
$50,000-$74,999	4	22.2	22	16.2		
$75,000-$99,999	6	33.3	21	15.4		
$100,000-$149,999	0	.0	20	14.7		
$150,000 or more	2	11.1	14	10.3		

Note: percentages not adding to 100 reflect missing data

The relationships between parent student status, child school type, parent's perception of child's computer usage, and parent's perception of who is better with computers are displayed in Table I.8. The relationship between parent student status and child school type was not significant, χ^2 (1) = .11, p = .74, Cramer's V = .03. The relationship between parent student status and parent's perception of child's computer usage was also not significant, χ^2 (2) = 2.86, p = .24, Cramer's V = .14.

Table I.8

Frequencies and Percentages for Children School Type, Children's Computer Usage, Gender of who is Better at Computers by Parent Student Status

	Student		Not Student			
	N	%	N	%	χ^2	p
Type of school children attend					.11	.736
Public School	16	88.9	126	91.3		
Other School	2	11.1	12	8.7		
Children computer time					2.86	.239
Educational Purposes	2	11.1	31	23.0		
Recreational	12	66.7	62	45.9		
Same Amount	4	22.2	42	31.1		
Who is better with computers?					7.75	.051
Girls	2	11.1	2	1.4		
Boys	3	16.7	11	8.0		
Both Same	9	50.0	85	61.6		
Do Not Know	4	22.2	40	29.0		

The relationship between parent student status and parent's perception of who is better with computers was marginally significant, $\chi^2(3) = 7.75$, $p = .051$, Cramer's $V = .22$. Respondents who were students tended to report that girls were better with computers (11.1%) more than respondents who were not students (1.4%). Respondents who were students tended to report that boys were better with computers (16.7%) more than respondents who were not students (8.0%). Respondents who were not students tended to report that boy and girls were the same (61.6%) more than respondents who were students (50.0%) (see Table I.8).

The relationships between parent education, sociocultural factors, and use of computers at work are displayed in Table I.9. The relationship between parent education and parent work status was significant, $\chi^2(10) = 20.19$, $p < .05$, Cramer's $V = .26$. Respondents with less than a high school diploma were more likely to work not for pay (46.7%) than respondents with a high school diploma (24.0%), some college (31.8%), an associates or technical degree (3.8%), a four year degree (20.8%), or a graduate degree (15.0%). Respondents with an associate's degree were more likely to work full time (88.5%) than respondents with less than a high school diploma (33.3%), a high school diploma (64.0%), some college (47.7%), a four-year degree (70.8%), or a graduate degree (75.0%).

Table I.9

Frequencies and Percentages for Work, Computers at Work, Income by Parent Education

	Less than high school		High School Diploma		Some College		Associates degree		4-year degree		Graduate degree			
	N	%	N	%	N	%	N	%	N	%	N	%	χ^2	*p*
Work Status													20.19	.028
Full-Time	5	33.3	16	64.0	21	47.7	23	88.5	17	70.8	15	75.0		
Part-Time	3	20.0	3	12.0	9	20.5	2	7.7	2	8.2	2	10.0		
Not working for pay	7	46.7	6	24.0	14	31.8	1	3.8	5	20.8	3	15.0		
The extent job involves the use of computers:													17.61	.003
None, Little, Some	12	85.7	16	64.0	18	40.9	11	42.3	10	41.7	3	18.8		
Much, Very Much	2	14.3	9	36.0	26	59.1	15	57.7	14	58.3	13	81.3		
Income Level													96.30	<.001
Less than $20,000	9	56.3	9	33.3	3	6.8	3	11.5	1	4.2	0	.0		
$20,000-$29,999	1	6.2	4	14.8	6	13.6	5	19.2	0	.0	0	.0		
$30,000-$49,999	2	12.5	7	25.9	5	11.4	5	19.2	4	16.7	1	5.0		
$50,000-$74,999	4	25.0	0	.0	15	34.1	2	7.8	3	12.5	2	10.0		
$75,000-$99,999	0	.0	3	11.1	7	15.9	7	26.9	5	20.8	5	25.0		
$100,000-$149,999	0	.0	2	7.4	7	15.9	3	11.5	6	25.0	3	15.0		
$150,000 or more	0	.0	2	7.4	1	2.3	1	3.8	5	20.8	9	45.0		

The relationship between parent education and parent use of computers at work was significant, χ^2 (5) = 17.61, $p < .05$, Cramer's $V = .34$. Respondents with a high school diploma (64.0%) or less (85.7%) were more likely to report using a computer none, little, or some of the time at their work than respondents with some college (40.9%), an associates or technical degree (42.3%), a four year degree (41.7%), or a graduate degree (18.8%). Respondents with a graduate degree were more likely to report using a computer much or very much of the time at their work (81.3%) than respondents with less than a high school diploma (14.3%), a high school diploma (36.0%), some college (59.1%), an associates or technical degree (57.7%), or a four year degree (58.3%) (See Table I.9).

The relationship between parent education and income was significant, χ^2 (30) = 96.30, $p < .001$, Cramer's $V = .35$. Respondents with a high school diploma (33.3%) or less (56.3%) were more likely to report incomes of less than $20,000 than respondents with some college (6.8%), an associates or technical degree (11.5%), a four year degree (4.2%), or a graduate degree (0.0%). Respondents with a graduate degree were more likely to report incomes of more than $150,000 (45.0%) than respondents with less than a high school diploma (0.0%), a high school diploma (7.4%), some college (2.3%), an associates or technical degree (3.8%), or a four year degree (20.8%) (See Table I.9).

The relationships between parent education, child school type, parent's perception of child's computer usage, and parent's perception of who is better with computers are displayed in Table I.10. The relationship between parent education and child school type was significant, χ^2 (5) = 22.49, $p < .001$, Cramer's $V = .38$. Respondents with a high school diploma (100%) or less (100.0%) were more likely to have children in public schools than respondents with some college (93.2%), an associates or technical degree (92.3%), a four year degree (66.7%), or a graduate degree (95.0%). Respondents with a four year degree were more likely to have children attending private school or being home schooled (33.3%) than respondents with less than a high school diploma (.0%), a high school diploma (.0%), some college (6.8%), an associates or technical degree (7.7%), or a graduate degree (5.0%).

The relationship between parent education and parent's perception of child's computer usage was significant, χ^2 (10) = 21.90, $p < .05$, Cramer's $V = .27$. Respondents with less than a high school diploma were more likely to report that their children used the computer more for educational purposes (56.3%) than respondents with a high school diploma (30.8%), some college (14.0%), an associates or technical degree (23.1%), a four year degree (16.7%), or a graduate degree (5.0%). Respondents with a graduate degree were more likely to report that their children used the computer more for recreational purposes (70.0%) than respondents with less than a high school diploma (18.8%), a high school diploma (46.2%), some college (58.1%), an associates or technical degree (42.3%), or a four year degree (41.7%). The relationship between parent education and parent's perception of who is better is found in Table I.10.

Table I.10

Frequencies and Percentages for Children School Type, Children's Compute Usage, Gender of who is Better at Computers by Parent Gender

	Less than high school		High School Diploma		Some College		Associates degree		4-year degree		Graduate degree			
	N	%	N	%	N	%	N	%	N	%	N	%	χ^2	*p*
Type of school children attend													22.49	<.001
Public School	16	100	27	100	41	93.2	24	92.3	16	66.7	19	95.0		
Other School	0	.0	0	.0	3	6.8	2	7.7	8	33.3	1	5.0		
Children computer time													21.90	.016
Educational Purposes	9	56.3	8	30.8	6	14.0	6	23.1	4	16.7	1	5.0		
Recreational	3	18.8	12	46.2	25	58.1	11	42.3	10	41.7	14	70.0		
Same Amount	4	25.0	6	23.1	12	27.9	9	34.6	10	41.7	5	25.0		
Who is better with computers?													18.89	.219
Girls	0	.0	1	3.7	1	2.3	1	3.8	0	.0	1	5.0		
Boys	1	6.2	2	7.4	3	6.8	1	3.8	1	4.2	5	25.0		
Both Same	12	75.0	15	55.6	25	56.8	17	65.5	14	58.3	14	70.0		
Do Not Know	3	18.8	9	33.3	15	34.1	7	26.9	9	37.5	0	.0		

The relationships between parent work status, use of computers at work, and income are displayed in Table I.11. The relationship between parent work status and parent use of computers at work was significant, χ^2 (2) = 15.47, p < .001, Cramer's V = .32. Respondents who worked full time were more likely to use a computer much or very much of the time at work (64.9%) than respondents who worked part time (45.0%) or respondents with did not work for pay (26.5%). Respondents who did not work for pay were more likely to use a computer none, little, or some of the time at work (73.5%) than respondents who worked part time (55.0%) or full time (35.1%). The relationship between parent work status and income was significant, χ^2 (12) = 24.99, p < .05, Cramer's V = .28. Respondents who worked part time were more likely to have incomes of less than $20,000 (38.1%) than respondents who worked full time (8.2%) or respondents who did not work for pay (27.0%). Respondents who did not work for pay were more likely to have incomes of more than $150,000 (16.2%) than respondents who worked part time (9.5%) or full time (9.3%).

The relationships between parent work status, child school type, parent's perception of child's computer usage, and parent's perception of who is better with computers are displayed in Table I.12. The relationship between parent work status and child school type was not significant, χ^2 (2) = .07, p = .96, Cramer's V = .02. The relationship between parent work status and parent's perception of child's computer usage was not significant, χ^2 (4) = 7.11, p = .13, Cramer's V = .15. The relationship between parent work status and parent's perception of who is better with computers was not significant, χ^2 (6) = 6.11, p = .41, Cramer's V = .14.

Table I.11

Frequencies and Percentages for Computers at Work, Income by Parent Work Status

	Full-time		Part-time		Not for pay			
	N	%	N	%	N	%	χ^2	p
The extent job involves the use of computers:							15.47	<.001
None, Little, Some	33	35.1	11	55.0	25	73.5		
Much, Very Much	61	64.9	9	45.0	9	26.5		
Income Level							24.99	.015
Less than $20,000	8	8.2	8	38.1	10	27.0		
$20,000-$29,999	11	11.3	2	9.5	2	5.4		
$30,000-$49,999	19	19.6	1	4.8	4	10.8		
$50,000-$74,999	15	15.5	2	9.5	9	24.3		
$75,000-$99,999	22	22.7	2	9.5	3	8.1		
$100,000-$149,999	13	13.4	4	19.0	3	8.1		
$150,000 or more	9	9.3	2	9.5	6	16.2		

Note: percentages not adding to 100 reflect missing data

The relationship between parent use of computers at work and income is displayed in Table I.13. The relationship between parent use of computers at work and income was significant, χ^2 (6) = 25.65, p < .001, Cramer's V = .41. Respondents who used the computer none, little, or some of the time at work were more likely to report incomes of less than $30,000 (44.3%) than respondents who used the computer much or very much of the time at work (10.1%). Respondents who used the computer much or very much of the time at work were more likely to report incomes of more than $75,000 (51.9%) than respondents who used the computer none, little, or some of the time at work (28.6%).

Table I.12

Frequencies and Percentages for Children School Type, Children's Computer Usage, Gender of who is Better at Computers by Parent Work Status

	Full-time		Part-time		Not for pay			
	N	%	N	%	N	%	χ^2	*p*
Type of school children attend:							.07	.964
Public School	88	90.7	19	90.5	35	92.1		
Other School	9	9.3	2	9.5	3	7.9		
Children computer time							7.11	.130
Educational Purposes	16	16.5	7	35.0	10	27.8		
Recreational	52	53.6	5	25.0	16	44.4		
Same Amount	29	29.9	8	40.0	10	27.8		
Who is better with computers?							6.11	.412
Girls	3	3.1	0	.0	1	2.6		
Boys	10	10.3	0	.0	4	10.5		
Both Same	62	63.9	14	66.7	19	50.0		
Do Not Know	22	22.7	7	33.3	14	36.8		

Note: percentages not adding to 100 reflect missing data

Table I.13

Frequencies and Percentages for Income by Computer Usage at Work

	None, Little, Some		Much, Very Much			
	N	%	N	%	χ^2	p
Income Level					25.65	<.001
Less than $20,000	19	27.1	4	5.1		
$20,000-$29,999	12	17.2	4	5.0		
$30,000-$49,999	10	14.3	13	16.5		
$50,000-$74,999	9	12.9	17	21.5		
$75,000-$99,999	7	10.0	20	25.3		
$100,000-$149,999	6	8.6	14	17.7		
$150,000 or more	7	10.0	7	8.9		

Note: percentages not adding to 100 reflect missing data

The relationships between parent use of computers at work, child school type, parent's perception of child's computer usage, and parent's perception of who is better with computers are displayed in Table I.14. The relationship between parent use of computers at work and child school type was not significant, χ^2 (2) = 1.03, $p = .60$, Cramer's $V = .08$. The relationship between parent use of computers at work and parent's perception of child's computer usage was significant, χ^2 (3) = 12.84, $p < .01$, Cramer's $V = .29$. Respondents who used the computer none, little, or some of the time at work were more likely to report that their children used the computer more for educational purposes (32.4%) than respondents who used the computer much or very much of the time at work (12.7%). Respondents who used the computer much or very much of the time at work were more likely to report that their children used the computer more for recreational purposes (54.4%) than respondents who used the computer none, little, or some of the time at work (38.0%). The relationship between parent use of computers at work and parent's perception of who is better with computers was not significant, χ^2 (3) = 4.81, p = .19, Cramer's V = .18.

The relationships between income, child school type, parent's perception of child's computer usage, and parent's perception of who is better with computers are displayed in Table I.15. The relationship between income and child school type was not significant, χ^2 (16) = 10.10, p = .86, Cramer's V = .18, p = .86. The relationship between income and parent's perception of child's computer usage was significant, χ^2 (24) = 38.09, $p < .05$, Cramer's V = .28. Respondents who reported incomes of less than $20,000 were more likely to report that their children used the computer more for educational purposes (38.5%) than respondents who reported incomes between $20,000 and $29,999 (18.8%), $30,000 and $49,999 (29.2%), $50,000 and $74,999 (26.9%), $75,000 and $99,999 (7.4%), $100,000 and $149,999 (19.0%), or more than $150,000 (5.6%). Respondents who reported incomes between $75,000 and $99,999 (70.4%) and $100,000 and $150,000 (71.4%) were more likely to report that their children used the computer more for recreational purposes than respondents who reported incomes of less than $20,000 (23.1%), between $20,000 and $29,999 (37.5%), $30,000 and $49,999 (33.3%), $50,000 and $74,999 (50.0%), or more than $150,000 (44.4%). The relationship between income and parent's perception of who is better with computers was not significant, χ^2 (24) = 23.51, p = .49, Cramer's V = .22.

Table I.14

Frequencies and Percentages for Children School Type, Children Use of Computer, Gender of who is Better at Computers by Computer usage at Work

	None, Little, Some		Much, Very Much			
	N	%	N	%	χ^2	p
Type of school children attend					1.03	.598
Public School	66	93.0	70	88.6		
Private School	4	5.6	8	10.1		
Home School	1	1.4	1	1.3		
Children computer time					12.84	.005
Educational Purposes	23	32.4	10	12.7		
Recreational	27	38.0	43	54.4		
Same Amount	18	25.4	26	32.9		
Do not use	3	4.2	0	.0		
Who is better with computers?						
Girls	3	4.2	0	.0	4.81	.186
Boys	4	5.6	9	11.4		
Both Same	43	60.6	48	60.8		
Do Not Know	21	29.6	22	27.8		

Note: percentages not adding to 100 reflect missing data

Table I.15

Frequencies and Percentages for Children School Type, Children Use of Computer, Gender of Who is Better at Computers by Income

	Less than $20K		$20-$29K		$30-$49K		$50-$74K		$75-$99K		$100-$149K		$150K or more	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
School Type														
Public School	221	100	16	100	21	87.5	23	88.5	24	88.9	18	85.7	16	88.9
Private School	0	.0	0	.0	3	12.5	2	7.7	3	11.1	2	9.5	2	11.1
Home School	0	.0	0	.0	0	.0	1	3.8	0	.0	1	4.8	0	.0
Children computer time*														
Educational	10	38.5	3	18.8	7	29.2	7	26.9	2	7.4	4	19.0	1	5.6
Recreational	6	23.1	6	37.5	8	33.3	13	50.0	19	70.4	15	71.4	8	44.4
Same Amount	9	34.6	7	43.8	8	33.3	6	23.1	6	22.2	2	9.5	9	50.0
Do Not Know	1	3.8	0	.0	1	4.2	0	.0	0	.0	0	.0	0	.0
Who is better with computers?														
Girls	0	.0	2	12.5	0	.0	1	3.8	0	.0	0	.0	1	5.6
Boys	2	7.7	2	12.5	2	8.3	3	11.5	2	7.4	0	.0	3	16.7
Both Same	14	53.8	9	56.3	18	75.0	12	46.2	19	70.4	13	61.9	12	66.7
Do Not Know	10	38.5	3	18.8	4	16.7	10	38.5	6	22.2	8	38.1	2	11.1

Note: * significant χ^2 test of association, 38.09, $p = .034$.

Independent samples *t* tests were conducted to examine the relationship between parent gender, parent age, and the total hours parent spent on the computer (see Table I.16). Results revealed that males (*M* = 40.31, *SD* = 7.22) and females (*M* = 40.46, *SD* = 9.86) did not significantly differ in age, *t* (158) = -.07, *p* = .94. Results also showed that males (*M* = 20.35, *SD* = 12.33) and females (*M* = 25.22, *SD* = 29.47) did not significantly differ in the total number of hours spent on the computer, *t* (144) = -1.33, *p* = .19.

Table I.16

Means and Standard Deviations for Parent Age and Hours Spent Using the Computer by Gender

	N	*Mean*	*SD*	*t*	*p*
Parent Age				-.07	.942
Male	26	40.31	7.22		
Female	134	40.46	9.86		
Hours using computer				-1.33	.187
Male	24	20.35	12.23		
Female	122	25.22	29.47		

Independent samples *t* tests were conducted to examine the relationship between parent ethnicity, parent age, and the total hours parents spent on the computer (see Table I.17). Results revealed that Caucasians (*M* = 40.75, *SD* = 8.68) and other ethnicities (*M* =

39.86, *SD* = 10.76) did not significantly differ in age, *t* (158) = -.57, *p* = .57. Results also showed that Caucasians (*M* = 26.01, *SD* = 28.37) and other ethnicities (*M* = 21.27, *SD* = 25.39) did not significantly differ in total number of hours spent on the computer, *t* (144) = -.99, *p* = .33.

Table I.17

Means and Standard Deviations for Parent Age and Hours Spent Using the Computer by Ethnicity

	N	*Mean*	*SD*	t	*p*
Parent Age				-.57	.568
Caucasian	102	40.75	8.68		
Other	58	39.86	10.76		
Hours using computer				-.99	.326
Caucasian	97	26.01	28.37		
Other	49	21.27	25.39		

Independent samples *t* tests were conducted to examine the relationships between parent ethnicity and the number of hours parents spent on the computer during the week and during the weekend (see Table I.18). The one-way ANOVA for parent ethnicity on the number of hours parents spent using the computer during the week failed to reveal any significant differences, *t* (121) = .01, *p* = .93. Further, the Independent samples *t* tests for parent ethnicity on the number of hours parents spent using the computer during the weekend failed to reveal any significant differences, t (121) = .14, p = .71. These findings indicate that there were no differences between Caucasians respondents and those of other ethnicities for the number of hours spent using the computer on weekdays or during the weekend.

Table I.18

Means and Standard Deviations for Parent Weekly and Weekend Hours by Ethnicity

	N	*Mean*	*SD*	*t*	*p*
Parent weekly hours				.01	.929
Caucasian	87	19.77	22.94		
Other	36	20.18	23.67		
Parent weekend hours				.14	.707
Caucasian	87	7.14	9.68		
Other	36	6.49	5.84		

Independent samples t tests were conducted to examine the relationship between parent marital status, parent age, and the total hours the parent spent on the computer (see Table I.19). Results showed that married respondents (M = 40.35, SD = 8.73) and not married respondents (M = 40.57, SD = 10.70) did not significantly differ in age, t (158) = .14, p = .89. Results also showed that married respondents (M = 26.76, SD = 30.99) and not married respondents (M = 20.18, SD = 18.88) did not significantly differ in total number of hours spent on the computer, t (144) = -1.59, p = .11.

Table I.19

Means and Standard Deviations for Parent Age and Hours Spent Using the Computer by Marital Status

	N	*Mean*	*SD*	t	*p*
Parent Age				.14	.890
Married	102	40.35	8.73		
Not Married	58	40.57	10.70		
Hours using computer				-1.59	.113
Married	94	26.76	30.99		
Not Married	52	20.18	18.88		

Independent samples *t* tests were conducted to examine the relationships between parent marital status and the number of hours parents spent on the computer during the week and during the weekend (see Table I.20). The Independent samples *t* tests for parent marital status on the number of hours parents spent on the computer during the week failed to reveal any significant differences, t (121) = .63, p = .43. Further, Independent samples *t* tests for marital status on the number of hours parents spent on the computer during the weekend failed to reveal any significant differences, t (121) = .30, p = .59. These results suggest that married respondents did not differ from unmarried respondents based on the number of hours spent using the computer on weekdays on during the weekend.

Table I.20

Means and Standard Deviations for Parent Weekly and Weekend Hours by Marital Status

	N	*Mean*	*SD*	*t*	*p*
Parent weekly hours				.63	.430
Married	85	20.99	24.68		
Not Married	38	17.43	19.02		
Parent weekend hours				.30	.586
Married	85	7.24	10.14		
Not Married	38	6.31	4.00		

A series of one-way ANOVAs were conducted to examine the relationships between parent education level, parent age, and the total number of hours parents spent on the computer (see Table I.21). The results revealed significant effects for parent education level on parent age, F (5, 151) = 3.49, $p < .01$, but not for the total number of hours parents spent on the computer, F (5, 138) = 1.39, $p = .23$. Post hoc comparisons using Tukey's HSD test revealed that respondents who had completed an associates or technical degree were younger ($M = 35.50$, $SD = 6.34$) than those who had completed a four year degree ($M = 45.00$, $SD = 9.17$, $p < .01$).

Table I.21

Means and Standard Deviations for Parent Age and Hours Spent Using the Computer by Parent Education Status

	N	*Mean*	*SD*	*F*	*p*
Parent Age				3.49	.005
Less than high school	16	43.69	15.36		
HS diploma or GED	27	39.52	8.26		
Some college	44	39.57	8.84		
Associates degree/Technical school	26	35.50	6.34		
4-year college degree	24	45.00	9.17		
Graduate degree (MA, PhD)	20	42.60	7.04		
Hours using computer				1.39	.233
Less than high school	15	9.59	11.19		
HS diploma or GED	17	22.05	18.92		
Some college	44	30.38	35.04		
Associates degree/Technical school	26	23.98	20.90		
4-year college degree	23	26.93	34.82		
Graduate degree (MA, PhD)	19	22.54	17.08		

A series of one-way ANOVAs were conducted to examine the relationships between parent education level and the number of hours parents spent on the computer during the week and during the weekend (see Table I.22). The one-way ANOVA for parent education level on the number of hours parents spent on the computer during the week failed to reveal any significant differences, F (5, 116) = 1.47, p = .21. Further, the one-way ANOVA for parent education level on the number of hours parents spent on the computer during the weekend failed to reveal any significant differences, $F(5, 116) = 1.15, p = .34$. These results indicate that there were no differences for parent education level on the number of hours parents spent using the computer on weekdays or during the weekend.

Table I.22

Means and Standard Deviations for Parent Weekly and Weekend Hours by Parent Education Status

	N	*Mean*	*SD*	F	*p*
Parent weekly hours				1.47	.206
Less than high school	9	6.09	5.69		
HS diploma or GED	14	19.31	17.88		
Some college	38	23.86	28.90		
Associates degree/Technical school	25	15.60	13.32		
4-year college degree	19	26.82	31.67		
Graduate degree (MA, PhD)	17	16.80	14.36		
Parent weekend hours				1.15	.339
Less than high school	9	4.72	5.26		
HS diploma or GED	14	4.25	3.80		
Some college	38	9.18	11.69		
Associates degree/Technical school	25	7.94	9.68		
4-year college degree	19	5.22	6.86		
Graduate degree (MA, PhD)	17	5.86	4.04		

A series of one-way ANOVAs were conducted to examine the relationships between parent work status, parent age, and the total number of hours parents spent on the computer (see Table I.23). The results revealed a significant effect for parent work status on number of hours parents spent on the computer, F (2, 140) = 6.91, $p < .001$, but not for parent age, F (2, 153) = 1.04, $p = .35$. Post hoc comparisons for number of hours parents spent on the computer using Tukey's HSD test revealed that respondents who worked full time spent more time on the computer ($M = 28.66$, $SD = 29.36$) than those who did not work for pay ($M = 8.81$, $SD = 9.53$, $p < .001$). Furthermore, respondents who worked part time spent more time on the computer ($M = 28.49$, $SD = 31.26$) than those who did not work for pay ($M = 8.81$, $SD = 9.53$, $p < .05$).

Table I.23

Means and Standard Deviations for Parent Age and Hours Spent Using the Computer by Parent Work Status

	N	*Mean*	*SD*	*F*	*p*
Hours using the computer				6.91	.001
Full-Time	92	28.66	29.36		
Part-Time	19	28.49	31.26		
Not working for pay	32	8.81	9.53		
Parent Age				1.04	.355
Full-Time	97	40.49	7.95		
Part-Time	21	37.81	6.45		
Not working for pay	38	41.53	13.79		

A series of one-way ANOVAs were conducted to examine the relationships between parent work status and the number of hours parents spent on the computer during the week and during the weekend (see Table I.24). Results revealed significant effects for parent work status on number of hours parents spent on the computer during the week, F (2, 118) = 5.36, $p < .01$, but not for number of hours parents spent on the computer during the weekend, F (2, 118) = 1.49, $p = .23$. Post hoc comparisons for number of hours parents spent on the computer during the week revealed that respondents who worked full time spent more time on the computer ($M = 23.06$, $SD = 24.67$) than those did not work for pay ($M = 6.33$, $SD = 6.34$, $p < .01$). Further, respondents who worked part time spent more time using the computer on weekdays ($M = 22.99$, $SD = 25.37$) than those who did not work for pay ($M = 6.33$, $SD = 6.34$, $p < .05$).

Table I.24

Means and Standard Deviations for Parent Weekly and Weekend Hours by Parent Work Status

	N	*Mean*	*SD*	*F*	*p*
Parent weekly hours				5.36	.006
Full-Time	80	23.06	24.67		
Part-Time	17	22.99	25.37		
Not working for pay	24	6.33	6.34		
Parent weekend hours				1.49	.230
Full-Time	80	7.55	9.86		
Part-Time	17	8.15	7.52		
Not working for pay	24	4.25	4.36		

Independent samples *t* tests were conducted to examine the relationship between how often parents use computers at work, parent age, and the total hours the parent spent on the computer (see Table I.25). Results showed that parents who used the computer at work none, little, or some of the time ($M = 40.01$, $SD = 10.67$) and parents who used the computer at work much or very much of the time ($M = 40.27$, $SD = 8.36$) did not significantly differ in parent age, $t\ (148) = -.11, p = .91$. However, the results revealed significant differences between groups for how often parents used the computer at work and total hours parent spent on the computer, $t\ (135) = -2.99, p < .01$. Parents who used the computer at work none, little, or some of the time ($M = 17.29$, $SD = 20.82$) spent fewer total hours on the computer than parents who used the computer at work much or very much of the time ($M = 30.68$, $SD = 31.41$).

Table I.25

Means and Standard Deviations for Parent Age and Hours Spent Using the Computer by Parent Use of Computers at Work

	N	*Mean*	*SD*	*t*	*p*
Parent Age				-.11	.910
None, Little, Some	71	40.01	10.67		
Much, Very Much	79	40.27	8.36		
Parent Total Computer Hours				-2.99	.003
None, Little, Some	59	17.29	20.82		
Much, Very Much	78	30.68	31.41		

One-way ANOVAs were conducted to examine differences in the amount that parents use computers at work and the number of hours parents spent on the computer during the week and during the weekend (see Table I.26). The results revealed significant effects for how often parents use computer at work on number of hours parents spent using computers on weekdays, F (1, 114) = 9.72, $p < .01$, but not for number of hours parents spent on the computer during the weekend, F (1, 114) = .33, $p = .57$. Parents who used the computer at work none, little, or some of the time (M = 12.48, SD = 16.62) spent fewer hours using the computer on weekdays than parents who used the computer at work much or very much of the time (M = 25.81, SD = 26.34).

Table I.26

Parent Age and Hours Spent Using the Computer by Parent Use of Computers at Work

	N	*Mean*	*SD*	*F*	*p*
Parent Weekly Hours				9.72	.002
None, Little, Some	49	12.48	16.62		
Much, Very Much	67	25.81	26.34		
Parent Weekend Hours				.33	.570
None, Little, Some	49	6.45	6.28		
Much, Very Much	67	7.41	10.48		

A series of one-way ANOVAs were conducted to examine the data for potential differences between parent perception of child's use of computers on parent age and the total number of hours parents spent on the computer (see Table I.27). The results for parent perception of child's use of computers (educational vs. recreational vs. same amount of both) on parent age on failed to reveal any significant differences, $F(2, 142) = .16$, $p = .85$. The results for parent perception of child's use of computers (educational vs. recreational vs. same amount of both) on the total hours parent spent on the computer failed to reveal any significant differences, $F(2, 142) = 2.23$, $p = .11$.

Table I.27

Means and Standard Deviations for Parent Age and Hours Spent Using the Computer by The way Children Use the Computers

	N	*Mean*	*SD*	F	*p*
Parent Age				.16	.854
Educational Purposes	34	40.47	13.48		
Recreational	76	40.99	7.40		
Same Amount	47	40.00	9.21		
Hours Using Computer					
Educational Purposes	29	17.28	19.39	2.23	.111
Recreational	71	23.66	22.30		
Same Amount	45	30.71	36.88		

A series of one-way ANOVAs were conducted to examine the relationships between parent perception of child's use of computers and the number of hours parents spent using the computer during the week and during the weekend (see Table I.28). The one-way ANOVA for parent perception of child's use of computers (educational vs.

recreational vs. both) on the number of hours parents spent using the computer on weekdays failed to reveal any significant differences, F (2, 119) = 1.76, p = .18. Further, the one-way ANOVA for parent perception of child's use of computers (educational vs. recreational vs. both) on the number of hours parents spent on the computer during the weekend failed to reveal any significant differences, F (2, 119) = 2.20, p = .11. These findings indicate that there were no differences for parent perception of child's use of computers on the number of hours parents spent using the computer on weekdays or during the weekend.

Table I.28

Means and Standard Deviations for Parent Weekly and Weekend Hours by Children's Usage of Computers

	N	*Mean*	*SD*	F	*p*
Parent Weekly Hours				1.76	.177
Educational Purposes	20	15.21	18.16		
Recreational	64	18.24	19.97		
Same Amount	38	25.61	29.09		
Parent Weekend Hours				2.20	.115
Educational Purposes	20	5.09	4.52		
Recreational	64	6.20	5.56		
Same Amount	38	9.38	13.30		

A series of one-way ANOVAs were conducted to examine the relationships between parent's rating of who is better with computers, parent age, and the total number of hours parents spent on the computer (see Table I.29). The results revealed a significant effect for parent's rating of who is better with computers on parent age, F (2, 153) = 3.51, $p < .05$, but not for total number of hours parents spent on the computer, F (2, 139) = 2.71, $p = .07$. Post hoc comparisons for parent's rating of who is better with computers on parent age using the Tukey HSD failed to reveal any significant differences between the groups. The difference between respondents who reported that boys and girls were the same and those who indicated that they did not know who was better with computers approached significance ($p = .057$). Parents who reported that both boys and girls were the same with computers were older ($M = 41.98$, $SD = 10.68$) than those that reported they did not know ($M = 38.03$, $SD = 7.29$, $p = .057$).

A series of one-way ANOVAs were conducted to examine the relationships between parent rating of who is better with computers and the number of hours parents spent on the computer during the week and during the weekend (see Table I.30). The results revealed significant effects for parent rating of who is better with computers on number of hours parents spent on the computer during the week, F (2, 116) = 3.54, $p < .05$, but not for number of hours parents spent on the computer during the weekend, F (2, 116) = 2.34, $p = .10$. Post hoc comparisons for number of hours parents spent on the computer during the week using Tukey's HSD test revealed that respondents who reported that both boy and girls were the same with computers spent more time on the computer on weekdays ($M = 24.41$, $SD = 26.10$) than those who reported they did not know ($M = 12.14$, $SD = 15.15$, $p < .01$).

Table I.29

Means and Standard Deviations for Parent Age and Hours Spent Using the Computer by Gender of who is better at Computers

	N	*Mean*	*SD*	F	*p*
Parent Age				3.51	.032
Boys	14	37.36	4.22		
Both Same	98	41.98	10.68		
Do Not Know	44	38.03	7.29		
Hours Using Computer				2.71	.070
Boys	13	16.38	17.72		
Both Same	91	28.46	31.57		
Do Not Know	38	17.64	17.29		

Pearson's product moment correlations were conducted to examine the relationship among parent age, income, and hours spent using the computer (see Table I.31). The results revealed a significant positive correlations between parent age and income, $r\ (158) = .20$, $p < .05$, indicating that older respondents had higher incomes than younger respondents. Further, there was a significant positive correlation between parent income and number of hours spent on the computer during the week, $r\ (144) = .17$, $p <$

.05, indicating that parents who spent more hours on the computer on weekdays had higher incomes than parents who spent fewer hours on the computer on weekdays.

Table I.30

Means and Standard Deviations for Parent Weekly and Weekend Hours by Gender of who is better at Computers

	N	*Mean*	*SD*	*F*	*p*
Parent Weekly Hours				3.54	.032
Boys	9	17.00	17.46		
Both Same	75	24.41	26.10		
Do Not Know	35	12.14	15.15		
Parent Weekend Hours				2.34	.101
Boys	9	4.00	3.54		
Both Same	75	8.04	10.29		
Do Not Know	35	4.65	4.48		

There was a significant positive correlation between the total number of hours parents spent on the computer and the number of hours parents spent on the computer on weekdays, r (145) = .97, $p < .001$, and during the weekend, r (124) = .71, $p < .001$. Parents who spent more total hours on the computer spent more hours on the computer during the week and during the weekend. Results also revealed a significant positive correlation between number of hours parents spent on the computer on weekdays and the number of hours parents spent on the computer during the weekend, r (123) = .53, p <

.001, indicating that parents who spent more time on the computer on weekdays also spent more time on the computer during the weekend (see Table I.31).

Table I.31

Pearson's Product Moment Correlations for Parent Age, Income, and Hours Spent Using the Computer

	Parent Age	Parent Income	Parent Total Computer Hours	Parent Weekly Computer Hours
Parent Income	.196*			
Parent Total Computer Hours	-.140	.143		
Parent Weekly Computer Hours	-.113	.169*	.966**	
Parent Weekend Computer Hours	-.167	-.052	.709**	.531**

Note: * $p < .05$, ** $p < .001$.

APPENDIX J

PRELIMINARY ANALYSIS - CHILD DEMOGRAPHICS

PRELIMINARY ANALYSIS - CHILD DEMOGRAPHICS

A series of preliminary analyses were conducted in order to uncover potential relationships among the child demographic variables. More specifically, crosstab analyses with Pearson's chi-square (χ^2) test and Cramer's *V* test were conducted on the child categorical demographic variables. Crosstab analyses are used to examine the relationships between categorical variables measured on nominal or ordinal scales (e.g. child gender, where child uses the computer). Pearson's chi-square (χ^2) tests are used to determine whether or not a significant relationship exists between the variables. Cramer's *V* tests are used to determine the strength of the relationship between the variables.

Independent samples *t* tests and analysis of variance (ANOVAs) were conducted to examine group differences concerning the relationships among child categorical demographic variables on the continuous dependent variables. Independent samples *t* tests are used to determine if differences exist between two groups of an independent variable (e.g. child gender) on a continuous dependent variables (e.g., child age). Analyses of variance (ANOVAs) are used to determine the differences between groups of a categorical independent variable on a continuous (i.e., interval or ratio scaled) dependent variable. A significant main effect indicates that the independent variable has a direct effect on the dependent variable. ANOVAs use *F*-tests in order to determine if the groups are significantly different from each other. If the test reveals that the groups are significantly different from each other (i.e., a significant *F*-test), and the independent variable has more than two groups (e.g. parent education status), a post hoc comparison test must be utilized in order to determine which values of the independent variable differ from each other. Multivariate analysis of variance (MANOVA) is utilized when there are multiple dependent variables (e.g., child weekly computer usage, child weekend computer usage).

Finally, Pearson's product moment correlations were conducted to examine the relationships among continuous child demographic variables. Pearson's product moment correlations are used to examine the relationships between continuous variables measured on interval or ratio scales (e.g., child age in years, child computer usage in hours). Correlation coefficients can range between -1.00 and +1.00. A positive correlation indicates that increases in one variable are associated with increases in the other variable. A negative correlation, on the other hand, indicates that decreases in one variable are associated with increases in the other variable. Correlation coefficients close to 0 indicate a weak relationship or a lack of a relationship between variables.

Relationships Among Child Demographic Variables

The relationships between child gender and the other categorical independent variables are displayed in Table J.1. The relationship between gender and ethnicity was significant, χ^2 (1) = 4.42, $p < .05$, Cramer's $V = .16$, $p < .05$. A greater percentage of female child participants had an ethnicity classification of other (62.1%) compared to 37.9% who were Caucasian. The male child participants were more evenly split with 45.4% other ethnicity and 54.6% Caucasian. The relationship between gender and who the child lives with was not significant, χ^2 (2) = 2.86, p = .24, Cramer's V = .13. Similarly, the relationship between gender and where the child mostly uses the computer was not significant, χ^2 (1) = 1.82, p = .18, Cramer's V = .11. There was a significant relationship between gender and child rating of who is better with computers, χ^2 (3) = 13.75, p < .01, Cramer's V = .29. Although the relationship was significant, because two cells had counts less than 5, caution should be exercised when interpreting this result. A larger proportion of males believed that males were better with computers (24.2%) than females (3.2%). However, a larger proportion of females believed that females were better with computers (14.1%) than males (6.2%).

The relationships between child ethnicity and the other categorical independent variables are displayed in Table J.2. The relationship between ethnicity and who the child lives with was not significant, χ^2 (2) = 1.28, p = .53, Cramer's V = .09. The relationship between ethnicity and where the child mostly uses the computer was not significant, χ^2 (1) = .04, p = .84, Cramer's V = .02. Neither was the relationship between ethnicity and the child rating of who is better with computers significant, χ^2 (3) = 1.25, p = .74, Cramer's V = .09.

The relationships between who the child lives with and categorical independent variables are displayed in Table J.3. The relationship between who the child lives and where the child mostly uses the computer was not significant, χ^2 (2) = .59, p = .74, Cramer's V = .06. The relationship between who the child lives with and child rating of who is better with computers was not significant, χ^2 (6) = 5.96, p = .43, Cramer's V = .14.

The relationship between where the child mostly uses computer and the child rating of who is better with computers is displayed in Table J.4, and is not significant, χ^2 (3) = 5.60, p = .13, Cramer's V = .19.

Table J.1

Frequencies and Percentages for Ethnicity, Who Live With, Where Use Computer, Gender of who is Better at Computers by Gender

	Child Gender					
	Male		Female			
	n	%	n	%	χ^2	p
Ethnicity					4.42	.035
Caucasian	53	54.6	25	37.9		
Other	44	45.4	41	62.1		
Who Child Lives With					2.86	.240
Mom and Dad	48	49.5	26	39.4		
Mom	29	29.9	19	28.8		
Dad, Bio & Step Parent, Other	20	20.6	21	31.8		
Where Child Uses Computer					1.82	.178
Home	58	60.4	46	70.8		
Other Places	38	39.6	19	29.2		
Better with Computers					13.75	.003
Girls	3	3.2	9	14.1		
Boys	23	24.2	4	6.2		
Both Same	46	48.4	36	56.3		
Do Not Know	23	24.2	15	23.4		

Table J.2

Frequencies and Percentages for Who Live With, Where Computer is Used, Gender of Who is Better at Computers by Ethnicity

	Ethnicity					
	Caucasian		Other			
	n	%	n	%	χ^2	p
Who Child Lives With					1.28	.528
Mom and Dad	39	50.0	35	41.2		
Mom	21	26.9	27	31.8		
Dad, Bio & Step Parent, Other	18	23.1	23	27.0		
Where Child Uses Computer					.04	.839
Home	51	65.4	53	63.9		
Other Places	27	34.6	30	36.1		
Better with Computers					1.25	.742
Girls	6	7.9	6	7.2		
Boys	15	19.7	12	14.5		
Both Same	36	47.4	46	55.4		
Do Not Know	19	25.0	19	22.9		

Independent sample *t* tests were conducted to examine the relationships between child gender and the continuous independent variables for child age and computer usage (see Table J.5). The results failed to reveal significant differences between males (M = 11.66, SD = 1.40) and females (M = 11.68, SD = 1.49) on child age, t (161) = -.10, p = .92. Similarly, no significant differences were found between males (M = 8.65, SD = 7.90) and females (M = 10.86, SD = 10.31) on child total computer hours, t (148) = -1.49,

p = .14. Finally, the results failed to reveal significant differences between males (M = 4.25, SD = .86) and females (M = 4.29, SD = .86) on child difficulty using computer, t (160) = -.28, p = .78.

Table J.3

Frequencies and Percentages for Where Computer is Used, Gender of Who is Better at Computers by Who Children Live With

	Who Live With							
	Mom and Dad		Mom		Dad, Bio & Step Parent, Other			
	n	%	n	%	n	%	χ^2	p
Where Child Uses Computer							.59	.745
Home	50	67.6	28	60.9	26	63.4		
Other Places	24	32.4	18	39.1	15	36.6		
Better with Computers							5.96	.428
Girls	8	10.8	1	2.2	3	7.5		
Boys	10	13.5	8	17.8	9	22.5		
Both Same	35	47.3	26	57.8	21	52.5		
Do Not Know	21	28.4	10	22.2	7	17.5		

A one-way (child gender: male, female) MANOVA was conducted to examine group differences in child gender on the amount of time spent using the computer (child weekly computer hours and child weekend computer hours). Means and standard deviations are shown in Table J.6. The overall multivariate effect was not significant, F

(2, 130) = 2.20, p = .11. Similarly, the results failed to reveal a significant univariate effect for child gender on weekly computer hours, F (1, 131) = 1.08, p = .30. However, results revealed a significant univariate effect for child gender on weekend computer hours, F (1, 131) = 4.35, p = .04, indicating that on the weekends, girls (M = 7.61, SD = 7.07) used the computer more than boys (M = 5.35, SD = 5.37).

Table J.4

Frequencies and Percentages for Gender of Who is Better at Computers by Where Computer is Used

	Where Child Uses Computer					
	Home		Other Places			
	n	%	n	%	χ^2	p
Better with Computers					5.60	.133
Girls	11	10.9	1	1.8		
Boys	17	16.8	9	16.1		
Both Same	47	46.5	34	60.7		
Do Not Know	26	25.7	12	21.4		

Note: percentages not adding to 100 reflect missing data

Independent sample t tests were conducted to examine the relationships between child ethnicity (child ethnicity: Caucasian, other ethnicity) and the continuous independent variables child age and computer usage (see Table J.7). The results failed to reveal significant differences between Caucasian participants (M = 11.72, SD = 1.43) and those of other ethnicities (*M* = 11.62, *SD* = 1.44) on child age, *t* (161) = -.42, *p* = .68. Similarly, the results failed to reveal significant differences between Caucasians (*M* = 4.19, *SD* = .91) and those of other ethnicities (*M* = 4.33, *SD* = .80) on child difficulty using computer, *t* (160) = 1.05, *p* = .29. Finally, no significant differences were found between Caucasians (*M* = 9.69, *SD* = 8.90) and those of other ethnicities (*M* = 9.44, *SD* = 9.16) on child total computer hours, *t* (148) = -.17, *p* = .87.

Table J.5

Means and Standard Deviations for Child Age, Hours Spent Using the Computer, and Difficulty Using Computer by Child Gender

	N	*Mean*	*SD*	*t*	*p*
Child Age				-.10	.924
Male	97	11.66	1.40		
Female	66	11.68	1.49		
Child Total Computer Hours				-1.49	.139
Male	88	8.65	7.90		
Female	62	10.86	10.31		
Child Difficulty Using Computer				-.28	.783
Male	96	4.25	0.86		
Female	66	4.29	0.86		

A one-way (child ethnicity: Caucasian, other ethnicity) MANOVA was conducted to examine group differences in child ethnicity on the amount of time spent using the computer (child weekly computer hours and child weekend computer hours). Means and standard deviations are shown in Table J.8. The overall multivariate effect was not significant, $F\ (2, 130) = .38, p = .69$. Similarly, the results failed to reveal significant univariate effects for child ethnicity on weekly computer hours, $F\ (1, 131) = .76, p = .38$, and weekend computer hours, $F\ (1, 131) = .32, p = .57$.

Table J.6

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Child Gender

	N	*Mean*	*SD*	*F*	*p*
Child Weekly Computer Hours				1.08	.302
Male	82	3.76	3.67		
Female	51	4.51	4.66		
Child Weekend Computer Hours				4.35	.039
Male	82	5.35	5.37		
Female	51	7.61	7.07		

Three separate one-way ANOVAs were conducted to examine the relationships between who the child lives with (child living status: with mom and dad, with mom, other status) and the continuous independent variables of child age, child difficulty using computer, and child total computer hours (see Table J.9). The results of the first ANOVA revealed no significant effect for child living status on child age, $F\ (2, 160) =$

.42, p = .66. The results of the second ANOVA revealed no significant effects for child living status on child total computer hours, F (2, 147) = 1.11, p = .33. The results of the third ANOVA revealed no significant effect child living status on child difficulty using computer, F (2, 159) = .49, p = .61.

Table J.7

Means and Standard Deviations for Child Age, Hours Spent Using the Computer, and Difficulty Using Computer by Ethnicity

	N	*Mean*	*SD*	*t*	*p*
Child Age				-.42	.675
Caucasian	78	11.72	1.43		
Other	85	11.62	1.44		
Child Difficulty Using Computer				1.05	.295
Caucasian	78	4.19	0.91		
Other	84	4.33	0.80		
Child Total Computer Hours				-.17	.869
Caucasian	72	9.69	8.90		
Other	78	9.44	9.16		

Table J.8

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Ethnicity

	N	*Mean*	*SD*	*F*	*p*
Child Weekly Computer Hours				.76	.385
Caucasian	61	4.38	4.43		
Other	72	3.76	3.75		
Child Weekend Computer Hours				.32	.574
Caucasian	61	6.55	5.46		
Other	72	5.94	6.70		

A one-way (child living status: with mom and dad, with mom, other status) MANOVA was conducted to examine group differences in child living status on the amount of time spent using the computer (child weekly computer hours and child weekend computer hours). Means and standard deviations are shown in Table J.10. The overall multivariate effect was not significant, F (4, 258) = .87, p = .48. Similarly, the results failed to reveal significant univariate effects for child living status on weekly computer hours, F (2, 130) = 1.16, p = .31, and weekend computer hours, F (2, 130) = .80, p = .45.

Table J.9

Means and Standard Deviations for Child Age, Hours Spent Using the Computer, and Difficulty Using Computer by Who Child Lives With

	N	*Mean*	*SD*	*F*	*p*
Child Age				.42	.657
Mom and Dad	74	11.65	1.44		
Mom	48	11.81	1.42		
Dad, Bio & Step Parent, Other	41	11.54	1.45		
Child Total Computer Hours				1.11	.331
Mom and Dad	69	9.81	7.90		
Mom	42	7.94	8.94		
Dad, Bio & Step Parent, Other	39	10.87	10.74		
Child Difficulty Using Computer				.49	.613
Mom and Dad	74	4.34	.78		
Mom	47	4.21	.98		
Dad, Bio & Step Parent, Other	41	4.20	.84		

Independent sample *t* tests were conducted to examine the relationships between where child uses computer (where child uses computer: with other places vs. home) and the continuous independent variables of child age, total hours of computer usage and computer difficulty (see Table J.11). The effects of where child uses computer on age approached significance, $t\,(159) = -1.80, p = .07$, while the results revealed significant effects for child total computer hours, $t\,(146) = -3.57, p < .001$, and where child uses computer on child difficulty using computer, t (158) = -2.35, $p < .05$. Children who used the computer at other places besides home (M = 11.40, SD = 1.32) were slightly younger than those who used the computer at home (M = 11.83, SD = 1.48). Also, children who used the computer at other places besides home (M = 6.47, SD = .95) had fewer total computer hours than those who used the computer at home (M = 11.34, SD = .98). In addition, children who used the computer at other places besides home (M = 4.05, SD = .98) found it less difficult to use the computer than those who used the computer at home (M = 4.40, SD = .73).

Table J.10

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Who Child Lives With

	N	*Mean*	*SD*	*F*	*p*
Child Weekly Computer Hours				1.16	.315
Mom and Dad	65	4.24	3.88		
Mom	36	3.19	3.89		
Dad, Bio & Step Parent, Other	32	4.60	4.61		
Child Weekend Computer Hours				.80	.450
Mom and Dad	65	5.96	5.05		
Mom	36	5.63	6.28		
Dad, Bio & Step Parent, Other	32	7.39	7.86		

Table J.11

Means and Standard Deviations for Child Age, Hours Spent Using the Computer, and Difficulty Using Computer by Where Child Uses Computer

	N	*Mean*	*SD*	*t*	*p*
Child Age*				-1.80	.073
Home	104	11.83	1.48		
Other Places	57	11.40	1.32		
Child Total Computer Hours				-3.57	.000
Home	97	11.34	.98		
Other Places	51	6.47	.95		
Child Difficulty Using Computer				-2.35	.021
Home	104	4.40	.73		
Other Places	56	4.05	.98		

Note: * equal variances assumed

A one-way (where computer is used: other place, home) MANOVA was conducted to examine group differences in where the child uses the computer on the amount of time spent using the computer (child weekly computer hours and child weekend computer hours). Means and standard deviations are shown in Table J.12. The overall multivariate effect was significant, F (2, 129) = 6.20, $p < .01$. The results revealed a univariate effect that is approaching significance for where the child uses the computer on weekly computer hours, F (1,130) = 3.65, $p = .06$ and a significant univariate effect for where the child uses the computer on weekend computer hours, $F(1, 130) = 12.44$, $p < .01$. These finding indicate that children tend to use the computer more at home than at other places both during the week and on the weekends.

Table J.12

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Where Child Uses Computer

	N	*Mean*	*SD*	*F*	*p*
Child Weekly Computer Hours				3.65	.058
Home	86	4.56	4.49		
Other Places	46	3.16	3.00		
Child Weekend Computer Hours				12.44	.001
Home	86	7.59	6.51		
Other Places	46	3.79	4.51		

Three separate one-way ANOVAs were conducted to examine the relationships between children's ratings of who is better at using computers (better at computers: girls vs. boys, both same, do not know) and the continuous independent variables of child age, child difficulty using computer, and child total computer hours (see Table J.13). The results of the first ANOVA revealed no significant effect for child ratings of who is better at computers on child age, $F(3, 155) = .44$, $p = .72$. The results of the second ANOVA revealed no significant effect for child ratings of who is better at computers on child difficulty using computer, *F* (3, 154) = 2.09, *p* = .10. The results of the third ANOVA revealed no significant effect for child ratings of who is better at computers on child total computer hours, *F* (3, 142) = .79, *p* = .50.

Table J.13

Means and Standard Deviations for Child Age, Hours Spent Using the Computer, and Difficulty Using Computer by Gender of Who is better at Computers

	N	*Mean*	*SD*	*F*	*p*
Child Age				.44	.723
Girls	12	11.50	1.31		
Boys	27	11.52	1.19		
Both Same	82	11.80	1.52		
Do Not Know	38	11.58	1.46		
Child Difficulty Using Computer				2.09	.104
Girls	12	4.42	.79		
Boys	26	4.15	1.05		
Both Same	82	4.39	.80		
Do Not Know	38	4.00	.84		
Child Total Computer Hours				.79	.501
Girls	12	10.04	6.58		
Boys	27	7.84	6.53		
Both Same	73	9.37	9.33		
Do Not Know	34	11.37	10.89		

A one-way (better at computers: girls vs. boys, both same , do not know) MANOVA was conducted to examine group differences in child's rating of who is better at using computers on the amount of time spent using the computer (child weekly computer hours and child weekend computer hours). Means and standard deviations are shown in Table J.14. The overall multivariate effect was not significant, F (6, 252) = .72, p = .63. Similarly, the results failed to reveal significant univariate effects for child's rating of who is better at using computers on weekly computer hours, F (3, 127) = .76, p = .52 and weekend computer hours, F (3, 127) = .77, p = .51.

Table J.14

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Gender of Who is better at Computers

	N	*Mean*	*SD*	*F*	*p*
Child Weekly Computer Hours				.76	.519
Girls	11	3.59	2.11		
Boys	23	3.11	2.09		
Both Same	67	4.18	4.85		
Do Not Know	30	4.75	3.94		
Child Weekend Computer Hours				.77	.514
Girls	11	6.55	5.54		
Boys	23	5.52	4.96		
Both Same	67	5.73	5.88		
Do Not Know	30	7.64	7.78		

Pearson's product moment correlations were conducted to examine the relationship among the continuous independent variables for child age, difficulty and computer usage (see Table J.15). The results revealed a significant positive correlation between child age and child difficulty using the computer, $r\,(162) = .31, p < .01$, indicating that older ages were associated with more difficulty using the computer. In addition, child age was positively correlated with child total computer hours, $r\,(150) = .25, p < .001$, child weekly computer hours, $r\,(148) = .26, p < .001$, and child weekend computer hours, $r\,(135) = .188, p < .05$. These results suggest that older children tended to use the computer more overall, including weekdays and on weekends.

Table J.15

Pearson's Product Moment Correlations for Child Age, Hours Spent Using the Computer, and Child Difficulty Using Computers

	Child Age	Child Difficulty Using Computer	Child Total Computer Hours	Child Weekly Computer Hours
Child Difficulty Using Computer	.314 **			
Child Total Computer Hours	.254 **	.187 *		
Child Weekly Computer Hours	.256 **	.113	.840 **	
Child Weekend Computer Hours	.188 *	.145	.934 **	.616 **

Note: * $p < .05$, ** $p < .01$.

Child difficulty using computer was positively correlated with child total computer hours, r (149) = .19, $p < .05$, suggesting that the children who used the computer more also had more difficulty using the computer. Child total computer hours were positively correlated with child weekly computer hours, r (148) = .84, $p < .001$, and child weekend computer hours, r (135) = .93, $p < .001$. These results indicate that children who used the computer more overall also used the computer more during the week and on weekends. In addition child weekly computer hours were positively correlated with child weekend computer hours, r (133) = .62, $p < .001$, indicating that children who used the computer more during the week also used the computer more on weekends (see Table J.15).

Relationships among Parent and Child Demographic Variables

The frequencies and percentages for child gender, child ethnicity, who the child lives with, where the child uses the computer, and child perception of which gender is better with computers by parent gender are displayed in Table J.16. The relationship between parent gender and child gender was not significant, χ^2 (1) = .30, p = .59, Cramer's V = .04, p = .59. The relationship between parent gender and child ethnicity was also not significant, χ^2 (1) = .02, p = .88, Cramer's V = .01, p = .88. The relationship between parent gender and who the child lives with, however, was significant, χ^2 (2) = 7.74, $p < .05$, Cramer's V = .22. Children of male respondents tended to live with both parents (65.4%) more than children of female respondents (42.5%). Further, children of female respondents tended to live with their mother only (34.3%) more than children of male respondents (7.7%).

Table J.16

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Gender

	Male		Female			
	N	%	N	%	χ^2	*p*
Child Gender					.30	.587
Male	17	65.4	80	59.7		
Female	9	34.6	54	40.3		
Child Ethnicity					.02	.881
Caucasian	12	46.2	64	47.8		
Other	14	53.8	70	52.2		
Child Lives With.					7.74	.021
Mother and Father	17	65.4	57	42.5		
Mother	2	7.7	46	34.3		
Father, Bio, Step Parent, Other	7	26.9	31	23.1		
Child Mostly Uses Computer at:					1.13	.288
Home	19	73.1	82	62.1		
Other	7	26.9	50	37.9		
Who is better with computers?					8.12	.044
Girls	5	19.2	7	5.3		
Boys	2	7.7	25	19.1		
Both Same	11	42.3	69	52.7		
Do Not Know	8	30.8	30	22.9		

The relationship between parent gender and where the child uses the computer was not significant, χ^2 (1) = 1.13, p = .29, Cramer's V = .09. The relationship between parent gender and child perception of which gender is better with computers was significant, χ^2 (3) = 8.12, p < .05, Cramer's V = .23. Children of male respondents tended to report that girls were better with computers (19.2%) more than children of female respondents (5.3%). Further, children of female respondents tended to report that boys were better with computers (19.1%) more than children of male respondents (7.7%). Children of male respondents were slightly less likely to report that both boys and girls were the same with computers (42.3%) than children of female respondents (52.7%) (see Table J.16).

The frequencies and percentages for child gender, child ethnicity, who the child lives with, where the child uses the computer, child perception of which gender is better with computers by parent ethnicity are displayed in Table J17. The relationship between parent ethnicity and child gender was not significant, χ^2 (1) = 3.06, p = .08, Cramer's V = .14. The relationship between parent ethnicity and child ethnicity was significant, χ^2 (1) = 61.43, p < .001, Cramer's V = .61. Children of Caucasian respondents were more likely to be Caucasian (71.6%) than children of respondents of other ethnicities (8.2%). Moreover, children of respondents of other ethnicities tended to be of other ethnicities (91.8%) more than children of Caucasian respondents (28.4%). The relationship between parent ethnicity and who the child lives with was not significant, χ^2 (2) = .306, p = .86, Cramer's V = .04. The relationship between parent ethnicity and where the child uses the computer was not significant, χ^2 (1) = 2.09, p = .15, Cramer's V = .11. The relationship between parent ethnicity and child perception of which gender is better with computers was not significant, χ^2 (3) = 1.24, p = .74, Cramer's V = .09.

Table J17

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Ethnicity

	Caucasian		Other			
	N	%	N	%	χ^2	p
Child Gender					3.06	.081
Male	66	64.7	31	50.8		
Female	36	35.3	30	49.2		
Child Ethnicity					61.43	.000
Caucasian	73	71.6	5	8.2		
Other	29	28.4	56	91.8		
Child Lives With:					.31	.858
Mother and Father	48	47.1	26	42.6		
Mother	29	28.4	19	31.1		
Father, Bio, Step Parent, Other	25	24.5	16	26.2		
Child Mostly Uses Computer at:					2.09	.148
Home	61	60.4	43	71.7		
Other	40	39.6	17	28.3		
Who is better with computers?					1.24	.744
Girls	7	7.0	5	8.5		
Boys	19	19.0	8	13.6		
Both Same	49	49.0	33	55.9		
Do Not Know	25	25.0	13	22.0		

The frequencies and percentages for child gender, child ethnicity, who the child lives with, where the child uses the computer, child perception of which gender is better with computers by parent marital status are displayed in Table J18. The relationship between parent marital status and child gender was not significant, χ^2 (1) = .18, p = .67, Cramer's V = .03. The relationship between parent marital status and child ethnicity was not significant, χ^2 (1) = .00, p = .95, Cramer's V = .01. The relationship between parent marital status and who the child lives with was significant, χ^2 (2) = 86.05, p < .001, Cramer's V = .73. Children of respondents who were married tended to live with both parents (67.6%) more than children of respondents who were not married (8.2%). Further, parents of respondents who were not married tended to live with their mother only (70.5%) more than children of respondents who were married (4.9%). The relationship between parent marital status and where the child uses the computer was not significant, χ^2 (1) = .00, p = .97, Cramer's V = .00. The relationship between parent marital status and child perception of which gender is better with computers was not significant, χ^2 (3) = 2.93, p = .40, Cramer's V = .14.

The frequencies and percentages for child gender, child ethnicity, who the child lives with, where the child uses the computer, child perception of which gender is better with computers by parent student status are displayed in Table J19. The relationship between parent student status and child gender was not significant, χ^2 (1) = .00, p = .97, Cramer's V = .00. The relationship between parent student status and child ethnicity was not significant, χ^2 (1) = 1.48, p = .22, Cramer's V = .10. The relationship between parent student status and who the child lives with was not significant, χ^2 (2) = .36, p = .83, Cramer's V = .05. The relationship between parent student status and where the child uses the computer was not significant, χ^2 (1) = .12, p = .73, Cramer's V = .03. The relationship between parent student status and child perception of which gender is better with computers was not significant, χ^2 (3) = 1.81, p = .61, Cramer's V = .11.

The relationships between parent education level and child gender, child ethnicity, who the child lives with, where the child uses the computer, and child perception of which gender is better with computers are displayed in Table J.20. The relationships between parent education level and child gender, χ^2 (5) = 4.29, p = .51, Cramer's V = .17, and parent education level and child ethnicity, χ^2 (5) = 4.13, p = .53, Cramer's V = .16, parent education level and who the child lives with, χ^2 (10) = 12.34, p = .26, Cramer's V = .20, were not significant. The relationship between parent education level and where the child uses the computer was significant, χ^2 (5) = 21.56, p < .001, Cramer's V = .37. Children of parents with less than a high school diploma (68.8%), some college (72.7%), a four year degree (70.8%) or a graduate degree (95.0%) were more likely to use the computer at home than children of parents with a high school diploma (38.5%) or an associates/technical degree (46.2%). The relationship between parent education level and child perception of which gender is better with computers was not significant, χ^2 (15) = 7.72, p = .94, Cramer's V = .13.

Table J18

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Marital Status

	Married		Not Married			
	N	%	N	%	χ^2	*p*
Child Gender					.18	.668
Male	62	60.8	35	57.4		
Female	40	39.2	26	42.6		
Child Ethnicity					.00	.951
Caucasian	49	48.0	29	47.5		
Other	53	52.0	32	52.5		
Child Lives With:					86.05	.000
Mother and Father	69	67.6	5	8.2		
Mother	5	4.9	43	70.5		
Father, Bio, Step Parent, Other	28	27.5	13	21.3		
Child Mostly Uses Computer at:					.00	.969
Home	66	64.7	38	64.4		
Other	36	35.3	21	35.6		
Who is better with computers?					2.93	.403
Girls	10	9.8	2	3.5		
Boys	17	16.7	10	17.5		
Both Same	49	48.0	33	57.9		
Do Not Know	26	25.5	12	21.1		

Table J.19

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Student Status

	Student		Not Student			
	N	%	N	%	χ^2	*p*
Child Gender					.00	.968
Male	11	61.1	85	61.6		
Female	7	38.9	53	38.4		
Child Ethnicity					1.48	.224
Caucasian	6	33.3	67	48.6		
Other	12	66.7	71	51.4		
Child Lives With:					.36	.834
Mother and Father	7	38.9	64	46.4		
Mother	6	33.3	41	29.7		
Father, Bio, Step Parent, Other	5	27.8	33	23.9		
Child Mostly Uses Computer at:					.12	.731
Home	12	66.7	85	62.5		
Other	6	33.3	51	37.5		
Who is better with computers?					1.81	.613
Girls	2	11.1	9	6.6		
Boys	2	11.1	24	17.6		
Both Same	8	44.4	72	52.9		
Do Not Know	6	33.3	31	22.8		

Table J.20

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Education Status

	Less than high school		High School Diploma		Some College		Associates degree		4-year degree		Graduate degree			
	N	%	N	%	N	%	N	%	N	%	N	%	χ^2	*p*
Child Gender													4.29	.509
Male	9	56.3	16	59.3	25	56.8	20	76.9	15	62.5	10	50.0		
Female	7	43.8	11	40.7	19	43.2	6	23.1	9	37.5	10	50.0		
Child Ethnicity													4.13	.532
Caucasian	5	31.3	12	44.4	20	45.5	15	57.7	14	58.3	9	45.0		
Other	11	68.8	15	55.6	24	54.5	11	42.3	10	41.7	11	55.0		
Child Lives With:													12.34	.263
Mother and Father	5	31.3	12	44.4	19	43.2	9	34.6	14	58.3	13	65.0		
Mother	8	50.0	8	29.6	10	22.7	11	42.3	6	25.0	4	20.0		
Father, Bio, Step Parent, Other	3	18.8	7	25.9	15	34.1	6	23.1	4	16.7	3	15.0		

Table J.20, continued

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Education Status

	Less than high school		High School Diploma		Some College		Associates degree		4-year degree		Graduate degree			
	N	%	N	%	N	%	N	%	N	%	N	%	χ^2	*p*
Child Mostly Uses Computer at:													21.56	.001
Home	11	68.8	10	38.5	32	72.7	12	46.2	17	70.8	19	95.0		
Other	5	31.3	16	61.5	12	27.3	14	53.8	7	29.2	1	5.0		
Who is Better with Computers?													7.72	.935
Girls	1	6.3	2	8.0	2	4.5	2	7.7	1	4.2	4	21.1		
Boys	2	12.5	4	16.0	9	20.5	5	19.2	3	12.5	3	15.8		
Both Same	9	56.3	12	48.0	24	54.5	12	46.2	13	54.2	8	42.1		
Do Not Know	4	25.0	7	28.0	9	20.5	7	26.9	7	29.2	4	21.1		

The frequencies and percentages for child gender, child ethnicity, who the child lives with, where the child uses the computer, child perception of which gender is better with computers by parent work status are displayed in Table J.21. The relationship between parent work status and child gender was significant, χ^2 (2) = 6.04, $p < .05$, Cramer's $V = .20$. Parents with male children tended to work full time more (68.0%) more than parents with female children (32.0%). Parents with female children tended to work part time more (57.1%) more than parents with male children (42.9%).

The relationship between parent work status and child ethnicity was not significant, χ^2 (2) = 2.06, $p = .36$, Cramer's $V = .12$. The relationship between parent work status and who the child lives with was not significant, χ^2 (4) = 6.20, $p = .19$, Cramer's $V = .14$. The relationship between parent work status and where the child uses the computer was not significant, χ^2 (2) = .92, $p = .63$, Cramer's $V = .08$. The relationship between parent work status and child perception of which gender is better with computers was not significant, χ^2 (6) = 1.55, $p = .96$, Cramer's $V = .07$, (see Table J.21).

The frequencies and percentages for child gender, child ethnicity, who the child lives with, where the child uses the computer, and child perception of which gender is better with computers by parent use of computers at work are displayed in Table J.22. The relationship between parent use of computers at work and child gender was not significant, χ^2 (1) = .03, $p = .87$, Cramer's $V = .01$. The relationship between parent use of computers at work and child ethnicity was also not significant, χ^2 (1) = .76, $p = .38$, Cramer's $V = .07$.

Table J.21

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Work Status

	Full-time		Part-time		Not for pay			
	N	%	N	%	N	%	χ^2	*p*
Child Gender							6.04	.049
Male	66	68.0	9	42.9	20	52.6		
Female	31	32.0	12	57.1	18	47.4		
Child Ethnicity							2.06	.358
Caucasian	49	50.5	10	47.6	14	36.8		
Other	48	49.5	11	52.4	24	63.2		
Child Lives With:							6.20	.185
Mother and Father	49	50.5	5	23.8	17	44.7		
Mother	29	29.9	8	38.1	10	26.3		
Father, Bio, Step Parent, Other	19	19.6	8	38.1	11	28.9		
Child Mostly Uses Computer at:							.92	.631
Home	65	67.0	13	61.9	21	58.3		
Other	32	33.0	8	38.1	15	41.7		
Who is better with computers?							1.55	.956
Girls	8	8.4	1	5.0	3	7.9		
Boys	18	18.9	4	20.0	5	13.2		
Both Same	48	50.5	9	45.0	21	55.3		
Do Not Know	21	22.1	6	30.0	9	23.7		

Table J.22

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Use of Computers at Work

	None, Little, Some		Much, Very Much			
	N	%	N	%	χ^2	*p*
Child Gender					.03	.868
Male	44	62.0	50	63.3		
Female	27	38.0	29	36.7		
Child Ethnicity					.76	.383
Caucasian	30	42.3	39	49.4		
Other	41	57.7	40	50.6		
Child Lives With:					7.08	.029
Mother and Father	27	38.0	41	51.9		
Mother	19	26.8	25	31.6		
Father, Bio, Step Parent, Other	25	35.2	13	16.5		
Child Mostly Uses Computer at:					.83	.362
Home	41	58.6	52	65.8		
Other	29	41.4	27	34.2		
Who is better with computers?					2.00	.573
Girls	3	4.3	7	9.0		
Boys	11	15.7	14	17.9		
Both Same	37	52.9	41	52.6		
Do Not Know	19	27.1	16	20.5		

The relationship between parent use of computers at work and who the child lives with, however, was significant, χ^2 (2) = 7.08, p < .05, Cramer's V = .22. Children of parents who used the computer much or very much of the time at work were more likely to live with both parents (51.9%) than children of parents who used the computer none, little, or some of the time at work (38.0%). Further, children of parents who used the computer none, little, or some of the time at work were more likely to live with their father, a parent and a step parent or have a different living arrangement (35.2%) than children of parents who used the computer much or very much of the time at work (16.5%). The relationship between parent use of computers at work and where the child uses the computer was not significant, χ^2 (1) = .83, p = .36, Cramer's V = .08. The relationship between parent use of computers at work and child perception of which gender is better with computers was also not significant, χ^2 (3) = 2.00, p = .57, Cramer's V = .12 (see Table J.22).

The frequencies and percentages for child gender, ethnicity, who the child lives with, where the child uses the computer, and child perception of which gender is better with computers by income are displayed in Table J.23. The relationship between income and child gender was significant, χ^2 (6) = 12.98, p < .05, Cramer's V = .29. Parents who had incomes between $100,000 and $150,000 tended to have male children (90.5%) more than parents who had incomes of less than $20,000 (65.4%), between $20,000 and $30,000 (56.3%), between $30,000 and $50,000 (50.0%), between $50,000 and $75,000 (50.0%), between $75,000 and $100,000 (66.7%), or more than $150,000 (44.4%).

Table J.23

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Income

	Less than $20K		$20-$29K		$30- $49K		$50- $74K		$75- $99K		$100-$149K		$150K or more	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Child Gender[a]														
Male	17	65.4	9	56.3	12	50.0	13	50.0	18	66.7	19	90.5	8	44.4
Female	9	34.6	7	43.8	12	50.0	13	50.0	9	33.3	2	9.5	10	55.6
Child Ethnicity[b]														
Caucasian	5	19.2	6	37.5	10	41.7	9	34.6	18	66.7	15	71.4	12	66.7
Other	21	80.8	10	62.5	14	58.3	17	65.4	9	33.3	6	28.6	6	33.3
Child Lives With[c]														
Mother and Father	6	23.1	4	25.0	6	25.0	10	38.5	18	66.7	15	71.4	13	72.2
Mother	15	57.7	6	37.5	7	29.2	11	42.3	4	14.8	3	14.3	2	11.1
Father, Bio, Step Parent, Other	5	19.2	6	37.5	11	45.8	5	19.2	5	18.5	3	14.3	3	16.7

Note: significant χ^2 test of association, [a]12.98, $p = .043$, [b]22.48, $p = .001$, [c]37.46, $p = .000$.

Table J.23, continued

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Income

	Less than $20K		$20-$29K		$30-$49K		$50-$74K		$75-$99K		$100-$149K		$150K or more	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Child Mostly Uses Computer at:														
Home	10	41.7	10	62.5	14	58.3	19	73.1	17	63.0	16	76.2	15	83.3
Other	14	58.3	6	37.5	10	41.7	7	26.9	10	37.0	5	23.8	3	16.7
Who is better with computers?														
Girls	2	8.0	0	.0	1	4.5	3	11.5	3	11.1	0	.0	3	16.7
Boys	3	12.0	3	18.8	2	9.1	3	11.5	6	22.2	6	28.6	4	22.2
Both Same	14	56.0	10	62.5	17	77.3	10	38.5	12	44.4	9	42.9	6	33.3
Do Not Know	6	24.0	3	18.8	2	9.1	10	38.5	6	22.2	6	28.6	5	27.8

The relationship between income and child ethnicity was significant, χ^2 (6) = 22.48, $p < .001$, Cramer's $V = .38$. Parents with incomes of more than $75,000 tended to have Caucasian children more (68.18%) than children of other ethnicities (31.82%). Similarly, parents with incomes below $50,000 tended to have children of other ethnicities more (68.18%) than Caucasian children (31.82%). The relationship between income and who the child lives with was significant, χ^2 (12) = 37.46, $p < .001$, Cramer's $V = .34$. Children of parents who had incomes of more than $75,000 tended to live with both parents more (70.1%) than with their mother only (13.4%) or their father, parent and step parent, or have a different living arrangement (16.5%). Children of parents who had incomes of less than $20,000 tended to live with their mother only more (57.7%) than with both parents (23.1%) or their father, parent and step parent, or have a different living arrangement (19.2%). The relationship between income and where the child uses the computer was not significant, χ^2 (6) = 10.83, $p = .09$, Cramer's $V = .26$. The relationship between income and child perception of which gender is better with computers was also not significant, χ^2 (18) = 20.49, $p = .31$, Cramer's $V = .21$ (see Table J.23).

The frequencies and percentages for child gender, child ethnicity, who the child lives with, where the child uses the computer, child perception of which gender is better with computers by child school type are displayed in Table J.24. The relationship between child school type and child gender was not significant, χ^2 (1) = .08, $p = .78$, Cramer's $V = .02$. The relationship between child school type and child ethnicity was not significant, χ^2 (1) = .04, $p = .85$, Cramer's $V = .02$. The relationship between child school type and who the child lives with was not significant, χ^2 (2) = 4.89, p = .09, Cramer's V = .18. The relationship between child school type and where the child uses the computer was not significant, χ^2 (1) = 1.43, p = .23, Cramer's V = .10. The relationship between child school type and child perception of which gender is better with computers was not significant, χ^2 (3) = .21, p = .98, Cramer's V = .04.

The frequencies and percentages for child gender, child ethnicity, who the child lives with, where the child uses the computer, child perception of which gender is better with computers by parent's rating of child's computer usage are displayed in Table J.25. The relationship between parent's rating of child's computer usage and child gender was not significant, χ^2 (2) = 4.09, p = .13, Cramer's V = .16. The relationship between parent's rating of child's computer usage and child ethnicity was also not significant, χ^2 (2) = 2.87, p = .24, Cramer's V = .14. The relationship between parent's rating of child's computer usage and who the child lives with was not significant, χ^2 (4) = 9.22, p = .06, Cramer's V = .17. The relationship between parent's rating of child's computer usage and where the child uses the computer was also not significant, χ^2 (2) = 1.87, p = .39, Cramer's V = .11. Finally, the relationship between parent's rating of child's computer usage and child perception of which gender is better with computers was not significant, χ^2 (6) = 6.41, p = .38, Cramer's V = .14.

Table J.24

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Child School Type

	Public		Other			
	N	%	N	%	χ^2	*p*
Child Gender					.08	.780
Male	89	61.0	8	57.1		
Female	57	39.0	6	42.9		
Child Ethnicity					.04	.845
Caucasian	69	47.3	7	50.0		
Other	77	52.7	7	50.0		
Child Lives With:					4.89	.087
Mother and Father	65	44.5	9	64.3		
Mother	43	29.5	5	35.7		
Father, Bio, Step Parent, Other	38	26.0	0	.0		
Child Mostly Uses Computer at:					1.43	.232
Home	90	62.5	11	78.6		
Other	54	37.5	3	21.4		
Who is better with computers?					.21	.977
Girls	11	7.7	1	7.1		
Boys	25	17.5	2	14.3		
Both Same	73	51.0	7	50.0		
Do Not Know	34	23.8	4	28.6		

Table J.25

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Rating of Child Use of Computers

	Educational		Recreational		Same Amount			
	N	%	N	%	N	%	χ^2	*p*
Child Gender							4.09	.129
Male	17	50.0	52	68.4	26	55.3		
Female	17	50.0	24	31.6	21	44.7		
Child Ethnicity							2.87	.239
Caucasian	12	35.3	40	52.6	23	48.9		
Other	22	64.7	36	47.4	24	51.1		
Child Lives With:							9.22	.056
Mother and Father	15	44.1	43	56.6	15	31.9		
Mother	12	35.3	20	26.3	15	31.9		
Father, Bio, Step Parent, Other	7	20.6	13	17.1	17	36.2		
Child Mostly Uses Computer at:							1.87	.394
Home	19	55.9	52	69.3	30	65.2		
Other	15	44.1	23	30.7	16	34.8		
Who is better with computers?							6.41	.379
Girls	2	6.3	6	8.0	4	8.5		
Boys	1	3.1	16	21.3	9	19.1		
Both Same	21	65.6	35	46.7	23	48.9		
Do Not Know	8	25.0	18	24.0	11	23.4		

The frequencies and percentages for child gender, child ethnicity, who the child lives with, where the child uses the computer, child perception of which gender is better with computers by parent rating of which gender is better with computers are displayed in Table J.26. The relationship between parent rating of which gender is better with computers and child gender was not significant, χ^2 (3) = 6.08, p = .11, Cramer's V = .20. The relationship between parent rating of which gender is better with computers and child ethnicity was also not significant, χ^2 (3) = .91, p = .82, Cramer's V = .08. The relationship between parent ratings of which gender is better with computers and who the child lives with was not significant, χ^2 (6) = 10.62, p = .10, Cramer's V = .18. The relationship between parent rating of which gender is better with computers and where the child uses the computer, however, was significant, χ^2 (3) = 13.15, $p < .01$, Cramer's V = .29. Parents who reported that they did not know if boys or girls were better with computers tended to have children who used the computer somewhere other than at home more (56.8%) than parents who rated that girls were better with computers (50.0%), boys were better with computers (15.4%), or boys and girls were the same with computers (28.9%). Further, parents who reported that boys were better with computers tended to have children who used the computer at home more (84.6%) than parents who rated that girls were better with computers (50.0%), boys and girls were the same with computers (71.1%), or that they did not know who was better with computers (43.2%). The relationship between parent rating and child rating of which gender is better with computers was not significant, χ^2 (9) = 16.00, p = .07, Cramer's V = .18 (See Table J.26).

Table J.26

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Perception of Gender of Who is Better at Computers

	Girls		Boys		Both Same		Do Not Know			
	N	%	N	%	N	%	N	%	χ^2	*p*
Child Gender									6.08	.108
Male	10	71.4	3	75.0	52	53.1	32	72.7		
Female	4	28.6	1	25.0	46	46.9	12	27.3		
Child Ethnicit									.91	.823
Caucasian	5	35.7	2	50.0	47	48.0	22	50.0		
Other	9	64.3	2	50.0	51	52.0	22	50.0		
Who Child Lives With:									10.62	.101
Mother and Father	9	64.3	3	75.0	38	38.8	24	54.5		
Mother	5	35.7	0	.0	34	34.7	9	20.5		
Father, Bio, Step Parent, Other	0	0	1	25.0	26	26.5	11	25.0		

Table J.26, continued

Frequencies and Percentages for Child Gender, Child Ethnicity, Who Child Lives with, Where Child uses Computer, Child Perception of Gender of Who is Better at Computers by Parent Perception of Gender of Who is Better at Computers

	Boys		Girls		Both Same		Do Not Know			
	N	%	N	%	N	%	N	%	χ^2	*p*
Child Mostly Uses Computer at:									13.15	.004
Home	11	84.6	2	50.0	69	71.1	19	43.2		
Other	2	15.4	2	50.0	28	28.9	25	56.8		
Who is better with computers?									16.00	.067
Girls	0	0	1	25.0	9	9.5	2	4.5		
Boys	5	35.7	1	25.0	11	11.6	10	22.7		
Both Same	4	28.6	2	50.0	56	58.9	18	40.9		
Do Not Know	5	35.7	0	.0	19	20.0	14	31.8		

The frequencies and percentages for child's age category, parent's marital status, and parent's occupation category by child's gender are displayed in Table J.27. The relationship between child's gender and child's age category was not significant, χ^2 (1) = .07, p = .80, Cramer's V = .02. The relationship between child's gender and parent's marital status was not significant, χ^2 (1) = .00, p = .96, Cramer's V = .00. The relationship between child's gender and parent's occupation was not significant, χ^2 (3) = 1.63, p = .65, Cramer's V = .10.

Table J.27

Frequencies and Percentages for Child Age Category, Parent Marital Status, and Parent Occupation Category by Child Gender

	Male		Female			
	N	%	N	%	χ^2	p
Child Age					.07	.799
11 years or younger	48	49.5	34	51.5		
12 years or older	49	50.5	32	48.5		
Parent Marital Status						
Not Married	35	36.1	23	36.5	.00	.956
Married	62	63.9	40	63.5		
Parent Occupation					1.63	.653
Management, Business, Office Positions	31	34.1	15	24.6		
Other Professional Positions	21	23.1	17	27.8		
Sales, Maintenance, Service Positions	18	19.7	14	23.0		
Homemaker, Retired, Unemployed	21	23.1	15	24.6		

Frequencies and percentages for child's age category and parent's marital status by parent's occupation category are displayed in Table J.28. The relationship between parent's occupation category and child's age category was not significant, χ^2 (3) = .11, *p* = .99, Cramer's *V* = .03. The relationship between parent's occupation category and parent's marital status was also not significant, χ^2 (3) = 3.11, *p* = .38, Cramer's *V* = .14.

Table J.28

Frequencies and Percentages for Child Age Category and Parent Marital Status by Parent Occupation Category

	Management, Business, Office Positions		Other Professional Positions		Sales, Maintenance, Service Positions		Homemaker, Retired, Unemployed	
	N	%	N	%	N	%	N	%
Child Age Category[a]								
11 years or younger	23	50.0	18	47.4	15	46.9	17	47.2
12 years or older	23	50.0	20	52.6	17	53.1	19	52.8
Parent Marital Status[b]								
Not Married	19	41.3	13	34.2	15	46.9	10	27.8
Married	27	58.7	25	65.8	17	53.1	26	72.2

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (2) = .11, *p* = .991, [b] χ^2 (3) = 3.11, *p* = .375

The frequencies and percentages for parent's use of computers at work, place where the child uses the computer the most, and parent and child computer usage category (low, high) by parent's occupation category are displayed in Table J.29. As shown in Table J.29, the relationship between parent's occupation category and parent's use of computers at work was significant, χ^2 (3) = 33.83, $p < .001$, Cramer's $V = .49$. Parents who used the computer none, little, or some of the time at work tended to be a homemaker, retired, or unemployed (78.8%) more than in management, business, office positions (13.6%), other professional positions (54.3%), or in sales, maintenance, or service positions (46.9%). Parents who used the computer much or very much of the time at work tended to be in management, business, office positions (86.4%), more than other professional positions (45.7%), in sales, maintenance, or service positions (53.1%), or a homemaker, retired, or unemployed (21.2%).

As further shown in Table J.29, the relationship between parent's occupation category and the place where the child uses the computer the most was not significant, χ^2 (3) = 5.95, $p = .11$, Cramer's $V = .20$. As shown in Table J.29, the relationship between parent's occupation category and parent's computer usage was significant, χ^2 (3) = 19.28, $p < .01$, Cramer's $V = .37$. Parents who were categorized as having a low computer usage tended be a homemaker, retired, or unemployed (81.8%) more than in management, business, office positions (39.5%), other professional positions (33.3%), or in sales, maintenance, or service positions (48.3%). Parents who were categorized as having a high computer usage tended to be in management, business, office positions (60.5%) and other professional positions (66.7%), more than in sales, maintenance, or service positions (51.7%), or a homemaker, retired, or unemployed (18.2%). Finally, the relationship between parent's occupation category and child's computer usage was not significant, χ^2 (3) = 1.10, p = .78, Cramer's V = .09.

Table J.29

Frequencies and Percentages for Parent Work Computer Usage, Place Child Uses Computer, and Computer Usage by Parent Occupation Category

	Management, Business, Office Positions		Other Professional Positions		Sales, Maintenance, Service Positions		Homemaker, Retired, Unemployed	
	N	%	N	%	N	%	N	%
Parent Work Computer Usage[a]								
None, Little, Some	6	13.6	19	54.3	15	46.9	26	78.8
Much, Very Much	38	86.4	16	45.7	17	53.1	7	21.2
Place Child Uses Computer[b]								
Other Places	12	26.1	12	31.6	11	34.4	18	51.4
Home	34	73.9	26	68.4	21	65.6	17	48.6
Parent - Computer Usage[c]								
Low	17	39.5	12	33.3	14	48.3	27	81.8
High	26	60.5	24	66.7	15	51.7	6	18.2
Child - Computer Usage[d]								
Low	20	46.5	16	43.2	15	51.7	17	54.8
High	23	53.5	21	56.8	14	48.3	14	45.2

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (3) = 33.83, $p < .001$, [b] χ^2 (3) = 5.95, p =.114, [c] χ^2 (3) = 19.28, $p < .001$, [d] χ^2 (3) = 1.10, p = .778

Independent samples *t* tests were conducted to examine the relationship between child age, the total hours the child spent using computers, and child difficulty using computers by parent ethnicity (see Table J.30). Results showed that children of Caucasian respondents (M = 11.63, SD = 1.41) and children of respondents of other ethnicities (M = 11.74, SD = 1.48) did not significantly differ in age, t (161) = .48, p = .64. Results also showed that children of Caucasian respondents (M = 9.96, SD = 8.80) and children of respondents of other ethnicities (M = 8.91, SD = 9.38) did not significantly differ in the total number of hours the child spent using the computer, t (148) = -.69, p = .49. Results showed that children of Caucasian respondents (M = 4.21, SD = .87) and children of respondents of other ethnicities (M = 4.35, SD = .82) did not significantly differ in how difficult it was for the child to use the computer, t (160) = .97, p = .34.

Independent samples *t* tests were conducted to examine the data for differences between parent ethnicity on the number of hours the child spent using the computer during the week and during the weekend (see Table J.31). The Independent samples *t* tests for parent ethnicity on the number of hours children spent using the computer during the week failed to reveal any significant differences, t (132) = 2.16, p = .14. Further, the Independent samples *t* tests for parent ethnicity on the number of hours children spent using the computer during the weekend failed to reveal any significant differences, t (132) = .19, p = .66. There were no differences between Caucasian respondents and respondents of other ethnicities in the number of hours their children spent using the computer during the week or the weekend.

Table J.30

Means and Standard Deviations for Child Age, Child Hours Spent Using Computers, Child Difficulty Using Computers by Parent Ethnicity

	N	*Mean*	*SD*	*t*	*p*
Child Age				.48	.636
Caucasian	102	11.63	1.41		
Other	61	11.74	1.48		
Total Computer usage				-.69	.490
Caucasian	93	9.96	8.80		
Other	57	8.91	9.38		
Difficulty for the child to use the computer:				.97	.336
Caucasian	102	4.21	.87		
Other	60	4.35	.82		

Independent samples *t* tests were conducted to examine the relationship between child age, the total hours the child spent using computers, and child difficulty using computers by parent marital status (see Table J.32). Results showed that children of married respondents (M = 11.60, SD = 1.40) and children of not married respondents (M = 11.79, SD = 1.48) did not significantly differ in age, t (161) = .81, p = .42. Results also showed that children of married respondents (M = 10.61, SD = 9.14) and children of not married respondents (M = 7.84, SD = 8.59) did not significantly differ in the total number of hours the child spent using the computer, t (148) = -1.85, p = .07. Results showed that children of married respondents (M = 4.30, SD = .82) and children of not married respondents (M = 4.20, SD = .92) did not significantly differ in how difficult it was for the child to use the computer, t (160) = -.75, p = .46.

Table J.31

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Parent Ethnicity

	N	*Mean*	*SD*	*t*	*p*
Weekly Computer Hours				2.16	.144
Caucasian	83	4.45	4.17		
Other	50	3.38	3.86		
Weekend Computer Hours				.19	.663
Caucasian	83	6.40	5.63		
Other	50	5.92	6.98		

Independent samples t tests were conducted to examine potential differences between parent marital status on the number of hours the child spent using the computer during the week and during the weekend (see Table J.33). The Independent samples t tests for parent marital status on the number of hours children spent using the computer during the week failed to reveal any significant differences, t (132) = 1.11, p = .29.

Furthermore, the Independent samples *t* tests for parent marital status on the number of hours children spent using the computer during the weekend also failed to reveal any significant differences, $t\ (132) = 2.06, p = .15$. These results indicate that there were no differences between married and unmarried respondents on the number of hours their children spent using the computer during the week or the weekend.

Table J.32

Means and Standard Deviations for Child Age, Child Hours Spent Using Computers, and Child Difficulty Using Computers by Parent Marital Status

	N	*Mean*	*SD*	*t*	*P*
Child Age				.81	.417
Married	102	11.60	1.40		
Not Married	61	11.79	1.48		
Total Computer usage				-1.85	.067
Married	93	10.61	9.14		
Not Married	57	7.84	8.59		
Difficulty for the child to use the computer:				-.75	.457
Married	102	4.30	.82		
Not Married	60	4.20	.92		

A series of one-way ANOVAs were conducted to examine differences between child age, child total hours spent using computers, and child difficulty using computers by parent education level (see Table J.34). The one-way ANOVA for parent education level on child age failed to reveal any significant differences, F (5, 151) = 1.62, p = .16. The one-way ANOVA for parent education level on the total hours the child spent using the computer also failed to reveal any significant differences, F (5, 139) = 1.46, p = .21. These indicate that there were no differences for parent education level by child age, the total number of hours children spent using the computer, or child difficulty using computers. Finally, the one-way ANOVA for parent education level on child difficulty using computers also failed to reveal any significant differences, F (5, 150) = .95, p = .45.

Table J.33

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Parent Marital Status

	N	*Mean*	*SD*	*F*	*P*
Weekly Computer Hours				1.11	.294
Married	86	4.32	3.84		
Not Married	47	3.54	4.47		
Weekend Computer Hours				2.06	.154
Married	86	6.78	6.47		
Not Married	47	5.19	5.42		

Table J.34

Means and Standard Deviations for Child Age, Child Hours Spent Using Computers, and Child Difficulty Using Computers by Parent Education Status

	N	*Mean*	*SD*	*F*	*p*
Child Age				1.62	.157
Less than high school	16	12.00	1.46		
HS diploma or GED	27	11.56	1.53		
Some college	44	11.34	1.26		
Associates degree/Technical school	26	11.58	1.39		
4-year college degree	24	12.13	1.54		
Graduate degree (MA, PhD)	20	12.15	1.50		
Total Computer usage				1.46	.208
Less than high school	14	8.26	9.86		
HS diploma or GED	25	8.11	7.52		
Some college	38	10.91	8.88		
Associates degree/Technical school	25	7.87	8.58		
4-year college degree	24	8.44	6.72		
Graduate degree (MA, PhD)	19	13.85	12.91		
Difficulty for the child to use the computer:				.95	.449
Less than high school	16	4.38	.96		
HS diploma or GED	26	4.42	.76		
Some college	44	4.16	.81		
Associates degree/Technical school	26	4.08	.98		
4-year college degree	24	4.29	.81		
Graduate degree (MA, PhD)	20	4.50	.76		

One-way ANOVAs were conducted to examine the data for potential differences between parent education level on the number of hours the child spent using the computer during the week and during the weekend (see Table J.35). The one-way ANOVA for parent education level on the number of hours children spent using the computer during the week failed to reveal any significant differences, F (5, 126) = 1.47, p = .20. Further, the one-way ANOVA for parent education level on the number of hours children spent using the computer during the weekend also failed to reveal any significant differences, F (5, 126) = 1.55, p = .18. These findings indicate that there were no differences between parent education levels on the number of hours their children spent using the computer during the week or the weekend.

A series of one-way ANOVAs were conducted to examine differences between parent work status on child age, child total hours spent using computers, and child difficulty using computers (see Table J.36). The one-way ANOVA for parent work status on child age failed to reveal any significant differences, F (2, 153) = .92, p = .40. The one-way ANOVA for parent work status on the total hours the child spent using the computer failed to reveal any significant differences, F (2, 140) = 1.22, p = .30. In addition, the one-way ANOVA for parent work status on child difficulty using computers also failed to reveal any significant differences, F (2, 152) = .08, p = .92. These results indicate that there were no differences between parent work status on child age, the total number of hours children spent using the computer, or child difficulty using computers.

Table J.35

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Parent Education Status

	N	*Mean*	*SD*	*F*	*p*
Weekly Computer Hours				1.47	.204
Less than high school	11	3.76	4.12		
HS diploma or GED	23	3.40	3.60		
Some college	35	2.49	3.74		
Associates degree/Technical school	23	4.68	4.15		
4-year college degree	23	2.04	3.00		
Graduate degree (MA, PhD)	17	7.43	6.31		
Weekend Computer Hours				1.55	.178
Less than high school	11	7.13	5.53		
HS diploma or GED	23	5.03	5.02		
Some college	35	6.97	7.56		
Associates degree/Technical school	23	5.17	4.30		
4-year college degree	23	5.41	5.76		
Graduate degree (MA, PhD)	17	6.84	8.64		

One-way ANOVAs were conducted to examine the data for potential differences between parent work status and the number of hours the child spent using the computer during the week and during the weekend (see Table J.37). The one-way ANOVA for parent work status on the number of hours children spent using the computer during the week failed to reveal any significant differences, $F(2, 126) = .97, p = .38$. Further, the one-way ANOVA for parent work status on the number of hours children spent using the computer during the weekend also failed to reveal any significant differences, F (2, 126) = 2.34, p = .10. These findings indicate that there were no differences for parent work status by the number of hours their children spent using the computer during the week or the weekend.

Table J.36

Means and Standard Deviations for Child Age, Child Hours Spent Using Computers, and Child Difficulty Using Computers by Parent Work Status

	N	*Mean*	*SD*	*F*	*p*
Child Age				.92	.402
Full Time	97	11.78	1.44		
Part Time	21	11.76	1.37		
Not for pay	38	11.42	1.41		
Total Computer usage				1.22	.298
Full Time	90	10.09	8.79		
Part Time	20	10.92	12.17		
Not for pay	33	7.48	8.04		
Difficulty for the child to use the computer:				.08	.923
Full Time	96	4.25	.86		
Part Time	21	4.33	.86		
Not for pay	38	4.26	.89		

Table J.37

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Parent Work Status

	N	*Mean*	*SD*	*F*	*p*
Weekly Computer Hours				.97	.384
Full Time	83	4.24	4.37		
Part Time	17	4.48	4.43		
Not for pay	29	3.09	3.10		
Weekend Computer Hours				2.34	.101
Full Time	83	6.54	5.57		
Part Time	17	8.14	8.85		
Not for pay	29	4.30	5.95		

Independent samples *t* tests were conducted to examine the relationship between child age, the total hours the child spent using computers, and child difficulty using computers by parent use of computers at work (see Table J.38). Results showed that children of respondents who used the computer none, little, or some of the time at work (M = 11.83, SD = 1.39) and children of respondents who used the computer much or very much of the time at work (M = 11.53, SD = 1.41) did not significantly differ in age, t (148) = 1.30, p = .19. Results showed that children of respondents who used the computer none, little, or some of the time at work (M = 9.62, SD = 9.54) and children of respondents who used the computer much or very much of the time at work (M = 9.75, *SD* = 9.05) did not significantly differ in the total number of hours the child spent using the computer, *t* (136) = -.08, *p* = .94. In addition, results also showed that children of respondents who used the computer none, little, or some of the time at work (*M* = 4.31, *SD* = .80) and children of respondents who used the computer much or very much of the time at work (*M* = 4.22, *SD* = .89) did not significantly differ in how difficult it was for the child to use the computer, *t* (147) = .66, *p* = .51.

Table J.38

Means and Standard Deviations for Child Age, Child Hours Spent Using Computers, and Child Difficulty Using Computers by Parent Computers at Work

	N	*Mean*	*SD*	*t*	*p*
Child Age				1.30	.194
None, Little, Some	71	11.83	1.39		
Much, Very Much	79	11.53	1.41		
Total Computer usage				-.08	.937
None, Little, Some	65	9.62	9.54		
Much, Very Much	73	9.75	9.05		
Difficulty for the child to use the computer:				.66	.511
None, Little, Some	71	4.31	.80		
Much, Very Much	78	4.22	.89		

Independent samples *t* tests were conducted to examine differences between parent use of computers at work on the number of hours the child spent using the computer during the week and during the weekend (see Table J.39). The Independent samples *t* tests for parent use of computers at work on the number of hours children spent using the computer during the week failed to reveal any significant differences, $t\ (128) = .03$, $p = .85$. Further, the Independent samples *t* tests for parent use of computers at work on the number of hours children spent using the computer during the weekend failed to reveal any significant differences, $t\ (128) = .15$, $p = .70$. These results indicate that parents' use of computers at work did not have a significant effect on child's weekly and weekend computer usage.

Table J.39

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Parent Computers at Work

	N	*Mean*	*SD*	*F*	*p*
Weekly Computer Hours				.03	.853
None, Little, Some	63	3.95	3.80		
Much, Very Much	66	4.09	4.44		
Weekend Computer Hours				.15	.703
None, Little, Some	63	5.92	6.64		
Much, Very Much	66	6.34	5.78		

A series of one-way ANOVAs were conducted to examine potential differences between parent income levels on child age, child total hours spent using computers, and child difficulty using computers (see Table J.40). The one-way ANOVA for parent income on child age on income failed to reveal any significant differences, $F\ (6, 151) = .91, p = .49$. The one-way ANOVA for parent income on the total hours the child spent using the computer failed to reveal any significant differences, $F\ (6, 139) = 1.42, p = .21$. However, the one-way ANOVA for parent income on child difficulty using computers revealed significant effects, $F\ (6, 150) = 2.27, p < .05$. Post hoc comparisons for parent income on child difficulty using computers using the Tukey HSD test revealed that children of respondents who had incomes between $75,000 and $100,000 had more difficulty using computers ($M = 3.81$, $SD = 1.00$) than children of respondents who had incomes between $100,000 and $150,000 ($M = 4.55$, $SD = .69$, $p = .051$).

One-way ANOVAs were conducted to examine the relationships between parent income on the number of hours the child spent using the computer during the week and during the weekend (see Table J.41). The one-way ANOVA for parent income on the number of hours children spent using the computer during the week failed to reveal any significant differences, $F\ (6, 125) = .48, p = .82$. Similarly, the one-way ANOVA for parent income on the number of hours children spent using the computer during the weekend also failed to reveal any significant differences, $F\ (6, 125) = 1.92, p = .08$. These findings indicate that there were no differences between income levels on the number of hours children spent using the computer during the week or the weekend.

Table J.40

Means and Standard Deviations for Child Age, Child Hours Spent Using Computers, and Child Difficulty Using Computers by Parent Income

	N	*Mean*	*SD*	*F*	*p*
Child Age				.91	.490
Less than $20,000	26	11.73	1.40		
$20,000-$29,999	16	11.69	1.35		
$30,000-$49,999	24	12.21	1.59		
$50,000-$74,999	26	11.50	1.42		
$75,000-$99,999	27	11.33	1.21		
$100,000-$149,999	21	11.81	1.66		
$150,000 or more	18	11.78	1.40		
Total Computer usage				1.42	.210
Less than $20,000	23	5.88	5.37		
$20,000-$29,999	16	11.57	9.71		
$30,000-$49,999	24	9.10	8.96		
$50,000-$74,999	22	8.86	9.75		
$75,000-$99,999	23	13.06	11.03		
$100,000-$149,999	20	10.31	7.91		
$150,000 or more	18	8.83	9.46		
Difficulty for the child to use the computer:				2.27	.040
Less than $20,000	26	4.38	.85		
$20,000-$29,999	16	4.44	.63		
$30,000-$49,999	24	4.42	.78		
$50,000-$74,999	26	4.08	.89		
$75,000-$99,999	27	3.81	1.00		
$100,000-$149,999	20	4.55	.69		
$150,000 or more	18	4.33	.84		

Table J.41

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Parent Income

	N	*Mean*	*SD*	*F*	*p*
Weekly Computer Hours				.48	.820
Less than $20,000	20	2.82	2.49		
$20,000-$29,999	16	4.62	5.48		
$30,000-$49,999	22	4.07	3.07		
$50,000-$74,999	19	3.70	5.00		
$75,000-$99,999	21	4.62	3.20		
$100,000-$149,999	19	4.51	3.93		
$150,000 or more	15	3.88	5.57		
Weekend Computer Hours				1.92	.083
Less than $20,000	20	3.32	3.82		
$20,000-$29,999	16	6.95	5.35		
$30,000-$49,999	22	5.75	6.95		
$50,000-$74,999	19	5.83	5.67		
$75,000-$99,999	21	9.56	8.32		
$100,000-$149,999	19	6.03	4.80		
$150,000 or more	15	5.92	5.78		

Independent samples *t* tests were conducted to examine the relationship between child age, the total hours the child spent using computers, and child difficulty using computers by child school type (see Table J.42). Results showed that respondents whose children attended public school (M = 11.59, SD = 1.41) and respondents whose children attended private school or were home schooled (M = 12.79, SD = 1.19) significantly differ in age, t (158) = 3.07, $p < .01$. Results also showed that children of respondents whose children attended public school (M = 9.50, SD = 9.18) and respondents whose children attended private school or were home schooled (M = 10.82, SD = 8.17) did not significantly differ in the total number of hours the child spent using the computer, t (145) = .52, p = .61. Results showed that respondents whose children attended public school (M = 4.28, SD = .82) and respondents whose children attended private school or were home schooled (M = 4.14, SD = 1.17) did not significantly differ in how difficult it was for the child to use the computer, t (157) = -.58, p = .56.

Table J.42

Means and Standard Deviations for Child Age, Child Hours Spent Using Computers, and Child Difficulty Using Computers by Child School Type

	N	*Mean*	*SD*	*t*	*p*
Child Age				3.07	.003
Public School	146	11.59	1.41		
Other School	14	12.79	1.19		
Total Computer usage				.52	.605
Public School	133	9.50	9.18		
Other School	14	10.82	8.17		
Difficulty for the child to use the computer:				-.58	.560
Public School	145	4.28	.82		
Other School	14	4.14	1.17		

A series of one-way ANOVAs were conducted to examine the differences between parent's perceptions of child computer usage on child age, child total hours spent using computers, and child difficulty using computers (see Table J.43). The one-way ANOVA for parent perception of child computer usage on child age failed to reveal any significant differences, $F(2, 154) = .73, p = .48$. However, the one-way ANOVA for parent perception of child computer usage on the total hours the child spent using the computer revealed significant effects, $F(2, 142) = 8.17, p < .001$. Post hoc comparisons using the Tukey HSD test revealed that children of respondents who reported that their child used the computer more for recreational purposes than educational purposes used the computer more total hours ($M = 12.47$, $SD = 10.27$) than children of respondents who reported that their child used the computer more for educational purposes than recreational purposes ($M = 4.99$, $SD = 4.35$, $p < .001$). The one-way ANOVA for parent perception of child computer usage on child difficulty using computers failed to reveal a significant effect, $F(2, 153) = .30, p = .74$.

One-way ANOVAs were conducted to examine the differences between parent's perception of child's computer usage on the number of hours the child spent using the computer during the week and during the weekend (see Table J.44). The ANOVA for parent perception of child computer usage on the number of hours children spent using the computer during the week revealed a significant effect, $F(2, 128) = 4.08, p < .05$. Post hoc comparisons using the Tukey HSD test revealed that children of respondents who reported that their child used the computer more for recreational purposes than educational purposes used the computer more hours during the week ($M = 4.92$, $SD = 4.58$) than children of respondents who reported that their child used the computer more for educational purposes than recreational purposes ($M = 2.33$, $SD = 1.79$, $p < .01$).

Table J.43

Means and Standard Deviations for Child Age, Child Hours Spent Using Computers, and Child Difficulty Using Computers by Parent Rating of Child Use of Computers

	N	*Mean*	*SD*	*F*	*p*
Child Age				.73	.483
Educational Purposes	34	11.94	1.50		
Recreational Purposes	76	11.59	1.47		
Same Amount	47	11.77	1.32		
Total Computer usage				8.17	.000
Educational Purposes	30	4.99	4.35		
Recreational Purposes	68	12.47	10.27		
Same Amount	47	8.77	8.16		
Difficulty for the child to use the computer:				.30	.739
Educational Purposes	34	4.26	.75		
Recreational Purposes	75	4.24	.87		
Same Amount	47	4.36	.90		

Further, the one-way ANOVA for parent's perception of child's computer usage on the number of hours children spent using the computer during the weekend revealed significant differences between those who reported that their child used the computer more for recreational purposes, more for educational purposes or the same amount, *F* (2, 128) = 6.69, $p < .01$. Post hoc comparisons using the Tukey HSD test revealed that children of respondents who reported that their child used the computer more for recreational purposes than educational purposes used the computer more hours during the weekend (*M* = 7.95, *SD* = 6.99) than children of respondents who reported that their child used the computer more for educational purposes than recreational purposes (*M* = 3.08, *SD* = 2.97, $p < .001$) (see Table J.44).

Table J.44

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Parent Rating of Child Use of Computers

	N	*Mean*	*SD*	*F*	*p*
Weekly Computer Hours				4.08	.019
Educational Purposes	27	2.33	1.79		
Recreational Purposes	65	4.92	4.58		
Same Amount	39	3.90	4.04		
Weekend Computer Hours				6.69	.002
Educational Purposes	27	3.08	2.97		
Recreational Purposes	65	7.95	6.99		
Same Amount	39	5.77	5.40		

A series of one-way ANOVAs were conducted to examine the differences between parent rating of which gender is better with computers on child age, child total hours spent using computers, and child difficulty using computers by (see Table J.45). The one-way ANOVA for parent rating of which gender is better with computers on child age failed to reveal any significant differences, F (2, 153) = 2.21, p = .11. However, the ANOVA for parent rating of which gender is better with computers on the total hours the child spent using the computer revealed significant effects, F (2, 141) = 3.36, $p < .05$. Post hoc comparisons using the Tukey HSD test revealed that children of respondents who rated boys as being better with computers spent more total hours using the computer (M = 13.23, SD = 12.26) than children of respondents who reported they did not know which gender was better with computers (M = 6.69, SD = 5.63, $p < .05$). The ANOVA for parent rating of which gender is better with computers on child difficulty using computers failed to reveal significant differences, F (2, 152) = 1.09, p = .34.

One-way ANOVAs were conducted to examine the differences between parent ratings of which gender is better with computers on the number of hours the child spent using the computer during the week and during the weekend (see Table J.46). The ANOVA for parent rating of which gender is better with computers on the number of hours children spent using the computer during the week failed to reveal any significant differences, F (2, 128) = 2.80, p = .07. However, the ANOVA for parent rating of which gender is better with computers on the number of hours children spent using the computer during the weekend o revealed a significant effect, F (2, 128) = 3.86, $p < .05$. Post hoc comparisons using the Tukey HSD test revealed that children of respondents who rated boys as being better with computers spent more total hours using the computer (M = 9.08,

$SD = 6.98$) than children of respondents who reported they did not know which gender was better with computers ($M = 4.07$, $SD = 4.02$, $p < .05$). Further, post hoc comparisons using the Tukey HSD test revealed that children of respondents who rated boys and girls as being the same with computers spent more total hours using the computer ($M = 6.69$, $SD = 6.63$) than children of respondents who reported they did not know which gender was better with computers ($M = 4.07$, $SD = 4.02$, $p < .05$).

Table J.45

Means and Standard Deviations for Child Age, Child Hours Spent Using Computers, and Child Difficulty Using Computers by Parent Perception of Gender of Who is Better at Computers

	N	*Mean*	*SD*	*F*	p
Child Age				2.21	.113
Boys	14	11.86	1.66		
Both Same	98	11.83	1.42		
Do Not Know	44	11.30	1.37		
Total Computer usage				3.36	.037
Boys	14	13.23	12.26		
Both Same	92	10.27	9.56		
Do Not Know	38	6.69	5.63		
Difficulty for the child to use the computer:				1.09	.339
Boys	14	4.29	.91		
Both Same	97	4.32	.84		
Do Not Know	44	4.09	.88		

Table J.46

Means and Standard Deviations for Child Weekly Computer Hours and Child Weekend Computer Hours by Parent Perception of Gender of who is better at Computers

	N	*Mean*	*SD*	*F*	*p*
Weekly Computer Hours				2.80	.065
Boys	12	5.94	6.08		
Both Same	83	4.28	4.33		
Do Not Know	36	2.94	2.07		
Weekend Computer Hours				3.86	.024
Boys	12	9.08	6.98		
Both Same	83	6.69	6.63		
Do Not Know	36	4.07	4.02		

Pearson's product moment correlations were conducted to examine the relationships among parent age, income, parent computer hours, child age, child computer hours, and child difficulty using computers (see Table J.47). Results revealed significant positive correlations between child age and parent age, r (160) = .24, $p < .01$, indicating that older children had older parents than younger children. Results also revealed a significant positive correlation between parent age and child difficulty using computers, r (159) = .18, $p < .05$, indicating that children of older parents had more difficulty using the computer than children of younger parents.

Table J.47

Pearson's Product Moment Correlations for Parent Age, Income, Parent Computer Hours, Child Age, Child Computer Hours, and Child Difficulty Using Computers

	Parent Age	Parent Income	Parent Total Computer Hours	Parent Weekly Computer Hours	Parent Weekend Computer Hours
Child Age	.243 **	-.028	-.182	-.181 *	-.096
Child Difficulty Using Computer	.178 *	-.064	-.046	-.033	-.046
Child Total Computer Hours	-.006	.125	.066	.085	-.042
Child Weekly Computer Hours	-.038	.081	.039	.043	-.010
Child Weekend Computer Hours	-.006	.152	.101	.114	.002

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

Further, there was a significant negative correlation between child age and the total number of hours parents spent using the computer, $r\ (146) = -.18, p < .05$, indicating that parents who spent more total hours using the computer had younger children than parents who spent fewer total hours using the computer. Finally, there was a significant negative correlation between child age and the number of hours parents spent using the computer during the week, $r\ (145) = -.18, p < .05$, indicating that parents who spent more hours using the computer during the week had younger children than parents who spent fewer hours using the computer during the week (see Table J.47).

APPENDIX K

ADDITIONAL PRIMARY ANALYSES

ADDITIONAL PRIMARY ANALYSES

A series of analyses were conducted in order to uncover potential relationships between the parent and child variables for the computer related variables: attitudes, self-efficacy and usage. More specifically, crosstab analyses with Pearson's chi-square (χ^2) test and Cramer's *V* test were conducted on the categorical computer related variables (ex: computer usage: low, high). Crosstab analyses are used to examine the relationships between categorical variables measured on nominal or ordinal scales. Pearson's chi-square (χ^2) tests are used to determine whether or not a significant relationship exists between the variables. Cramer's *V* tests are used to determine the strength of the relationship between the variables.

Independent samples *t* tests and analysis of variance (ANOVAs) were conducted to examine group differences between the categorical variables (e.g. computer attitude: low, high) on the continuous dependent variables (e.g. total computer usage in hours). Independent samples *t* tests are used to determine if differences exist between two groups of an independent variable on a continuous dependent variable. Analyses of variance (ANOVAs) are used to determine the differences between groups of a categorical independent variable on a continuous (i.e., interval or ratio scaled) dependent variable. A significant main effect indicates that the independent variable has a direct effect on the dependent variable. ANOVAs use *F*-tests in order to determine if the groups are significantly different from each other. If the test reveals that the groups are significantly different from each other (i.e., a significant *F*-test), and the independent variable has more than two groups, a post hoc comparison test must be utilized in order to determine which values of the independent variable differ from each other.

Computers: Attitudes, Self-Efficacy, and Usage

The frequencies and percentages for parent's and child's attitudes toward computer category (low, high), and computer self-efficacy category (low, high) by child's gender are displayed in Table K.1. The relationship between child's gender and child's computer attitude category was not significant, χ^2 (1) = 2.16, p = .14, Cramer's V = .12. The relationship between child's gender and parent's computer attitude category was not significant, χ^2 (1) = .91, p = .34, Cramer's V = .08. The relationship between child's gender and child's computer self-efficacy category was not significant, χ^2 (1) = .26, p = .61, Cramer's V = .04. Finally, the relationship between child's gender and parent's computer self-efficacy category was not significant, χ^2 (1) = .02, p = .90, Cramer's V = .01.

The frequencies and percentages for parent and child's attitude toward computer category (low, high) and computer self-efficacy category (low, high) by child's favorite subject are displayed in Table K.2. The relationship between child's favorite subject and child's computer attitude category was not significant, χ^2 (2) = 3.21, p = .20, Cramer's V = .14. The relationship between child's favorite subject and parent's computer attitude category was not significant, χ^2 (2) = 1.87, p = .39, Cramer's V = .11. The relationship between child's favorite subject and child's computer self-efficacy category was not significant, χ^2 (2) = .53, p = .77, Cramer's V = .06. Finally, the relationship between child's favorite subject and parent's computer self-efficacy category was not significant, χ^2 (2) = 2.17, p = .34, Cramer's V = .12.

Table K.1

Frequencies and Percentages for Parent and Child Computer Attitude Category and Computer Self-Efficacy Category by Child Gender

	Male		Female			
	N	%	N	%	χ^2	p
Child - Total Computer Attitude Category					2.16	.141
Low	54	55.7	29	43.9		
High	43	44.3	37	56.1		
Parent - Total Computer Attitude Category					.91	.340
Low	47	48.5	37	56.1		
High	50	51.5	29	43.9		
Child - Total Computer Self-Efficacy Category					.26	.608
Low	51	52.6	32	48.5		
High	46	47.4	34	51.5		
Parent - Total Computer Self-Efficacy Category					.02	.900
Low	49	50.5	34	51.5		
High	48	49.5	32	48.5		

The frequencies and percentages for parent and child's attitude toward computer category (low, high) and computer self-efficacy category (low, high) by parent's rating of child's favorite subject are displayed in Table K.3. The relationship between parent's ratings of child's favorite subject and child's computer attitude category was not significant, χ^2 (2) = 2.82, p = .25, Cramer's V = .13. The relationship between parent's rating of child's favorite subject and parent's computer attitude category was also not significant, χ^2 (2) = 4.28, p = .12, Cramer's V = .17. In addition, the relationship between parent's rating of child's favorite subject and child's computer self-efficacy category was not significant, χ^2 (2) = 5.29, p = .07, Cramer's V = .18. Finally, the relationship between parent's rating of child's favorite subject and parent's computer self-efficacy category was not significant, χ^2 (2) = 1.26, p = .53, Cramer's V = .09.

Table K.2

Frequencies and Percentages for Parent and Child Computer Attitude Category and Computer Self-Efficacy Category by Child Favorite Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Child Computer Attitude Category[a]						
Low	29	43.9	27	61.4	26	51.0
High	37	56.1	17	38.6	25	49.0
Parent Computer Attitude Category[b]						
Low	31	47.0	21	47.7	30	58.8
High	35	53.0	23	52.3	21	41.2
Child Computer Self-Efficacy Category[c]						
Low	33	50.0	21	47.7	28	54.9
High	33	50.0	23	52.3	23	45.1
Parent Computer Self-Efficacy Category[d]						
Low	36	54.5	18	40.9	27	52.9
High	30	45.5	26	59.1	24	47.1

Note: [a] χ^2 (2) = 3.21, p = .201, [b] χ^2 (2) = 1.87, p =.393, [c] χ^2 (2) = .53, p = .769, [d] χ^2 (2) = 2.17, p = .338

Table K.3

Frequencies and Percentages for Parent and Child Computer Attitude Category and Computer Self-Efficacy Category by Parent Rating of Child Favorite Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Child Computer Attitude Category[a]						
Low	24	45.3	25	62.5	32	50.0
High	29	54.7	15	37.5	32	50.0
Parent Computer Attitude Category[b]						
Low	23	43.4	21	52.5	40	62.5
High	30	56.6	19	47.5	24	37.5
Child Computer Self-Efficacy Category[c]						
Low	21	39.6	21	52.5	39	60.9
High	32	60.4	19	47.5	25	39.1
Parent Computer Self-Efficacy Category[d]						
Low	27	50.9	18	45.0	36	56.3
High	26	49.1	22	55.0	28	43.8

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (2) = 2.82, p = .245, [b] χ^2 (2) = 4.28, p = .118, [c] χ^2 (2) = 5.29, p = .071, [d] χ^2 (2) = 1.26, p = .532

The frequencies and percentages for parent and child's attitude toward computer category and computer self-efficacy category by child's worst subject are displayed in Table K.4. As shown in Table K.4, the relationship between child's worst subject and child's computer attitude category was not significant, χ^2 (2) = 5.16, p = .08, Cramer's V = .18. As further shown in the Table K.4, the relationship between child's worst subject and parent's computer attitude category was significant, χ^2 (2) = 10.72, p < .01, Cramer's V = .26. Children whose parents were categorized with a low computer attitude tended to report their worst subject was math (67.9%) or science/computer (60.0%) more than other subjects (40.2%). Children whose parents were categorized with a high computer attitude tended to report their worst subject was something other than math or science computers (59.8%) more than math (32.1%) or science/computer (40.0%).

As shown in Table K.4, the relationship between child's worst subject and child's computer self-efficacy category was significant, χ^2 (2) = 6.72, p < .05, Cramer's V = .21. Children who were categorized with a low computer self- efficacy tended to report their worst subject was math (62.3%) or science/computer (65.0%) more than other subjects (42.5%). Children who were categorized with a high computer self-efficacy tended to report their worst subject was something other than math or science computers (57.5%) more than math (37.7%) or science/computer (35.0%). Finally, as shown in Table K.4, the relationship between child's worst subject and parent's computer self-efficacy category was not significant, χ^2 (2) = 1.00, p = .61, Cramer's V = .08.

The frequencies and percentages for parent and child's attitude toward computer category and computer self-efficacy category by parent's rating of child's worst subject are displayed in Table K.5. As shown in Table K.5, the relationship between parent's rating of child's worst subject and child's computer attitude category was not significant, χ^2 (2) = 5.34, p = .07, Cramer's V = .19. As shown in Table K.5, the relationship between parent's rating of child's worst subject and parent's computer attitude category was significant, χ^2 (2) = 10.45, $p < .01$, Cramer's $V = .27$. Parents who were categorized with a low computer attitude tended to report their child's worst subject was math (70.4%) more than science/computer (47.1%) or other subjects (41.9%). Parents categorized with a high computer attitude tended to report their child's worst subject was science/computers (52.9%) or subjects other than science/computers or math (58.1%) more than math (29.6%).

Table K.4

Frequencies and Percentages for Parent and Child Computer Attitude Category and Computer Self-Efficacy Category by Child Worst Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Child Computer Attitude Category[a]						
Low	33	62.3	12	60.0	38	43.7
High	20	37.7	8	40.0	49	56.3
Parent Computer Attitude Category[b]						
Low	36	67.9	12	60.0	35	40.2
High	17	32.1	8	40.0	52	59.8
Child Computer Self-Efficacy Category[c]						
Low	33	62.3	13	65.0	37	42.5
High	20	37.7	7	35.0	50	57.5
Parent Computer Self-Efficacy Category[d]						
Low	30	56.6	11	55.0	42	48.3
High	23	43.4	9	45.0	45	51.7

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (2) = 5.16, $p = .076$, [b] χ^2 (2) = 10.72, $p < .01$, [c] χ^2 (2) = 6.72, $p < .05$, [d] χ^2 (2) = 1.00, $p = .605$

Table K.5

Frequencies and Percentages for Parent and Child Computer Attitude Category and Computer Self-Efficacy Category by Parent Rating of Child Worst Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Child Computer Attitude Category[a]						
Low	35	64.8	8	47.1	33	44.6
High	19	35.2	9	52.9	41	55.4
Parent Computer Attitude Category[b]						
Low	38	70.4	8	47.1	31	41.9
High	16	29.6	9	52.9	43	58.1
Child Computer Self-Efficacy Category[c]						
Low	35	64.8	7	41.2	30	40.5
High	24	44.4	8	47.1	38	51.3
Parent Computer Self-Efficacy Category[d]						
Low	30	55.6	9	52.9	36	48.7
High	19	35.2	10	58.8	44	59.5

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (2) = 5.34, p = .069, [b] χ^2 (2) = 10.45, p < .01, [c] χ^2 (2) = 7.91, p < .05, [d] χ^2 (2) = .61, p = .738

As shown in Table K.5, the relationship between parent's rating of child's worst subject and child's computer self-efficacy category was significant, χ^2 (2) = 7.91, p < .05, Cramer's V = .23. Parents of children who were categorized with a low computer self-efficacy tended to report their child's worst subject was math (64.8%) more than science/computer (41.2%) or other subjects (40.5%). Parents of children who were categorized with a high computer self-efficacy tended to report their child's worst subject was something other than math or science/computers (51.3%) more than math (44.4%) or science/computer (47.1%). Finally, as shown Table K.5, the relationship between parent's rating of child's worst subject and parent's computer self-efficacy category was not significant, $\chi^2(2) = .61$, $p = .74$, Cramer's $V = .07$.

The frequencies and percentages for parent and child's attitude toward computer category and computer self-efficacy category by parent's occupation category are displayed in Table K.6. As Table K.6 shows, the relationship between parent's occupation category and child's computer attitude category was not significant, $\chi^2(3) = 1.40$, $p = .71$, Cramer's $V = .10$. As Table K.6 shows, the relationship between parent's occupation category and parent's computer attitude category was significant, $\chi^2(3) = 8.19$, $p < .05$, Cramer's $V = .23$. Parents who were categorized with a low computer attitude tended to be a homemaker, retired, or unemployed (69.4%) more than in management, business, office positions (47.8%), other professional positions (36.8%), or in sales, maintenance, or service positions (53.1%). Parents who were categorized with a high computer attitude tended to be in management, business, office positions (52.2%) and other professional positions (63.2%), more than in sales, maintenance, or service positions (46.9%), or a homemaker, retired, or unemployed (30.6%). The relationship between parent's occupation category and child's computer self-efficacy category was not significant, $\chi^2(3) = 1.85$, $p = .60$, Cramer's $V = .11$.

Table K.6

Frequencies and Percentages for Parent and Child Computer Attitude Category and Computer Self-Efficacy Category by Parent Occupation Category

	Management, Business, Office Positions		Other Professional Positions		Sales, Maintenance, Service Positions		Homemaker, Retired, Unemployed	
	N	%	N	%	N	%	N	%
Child Computer Attitude[a]								
Low	24	52.2	17	44.7	17	53.1	21	58.3
High	22	47.8	21	55.3	15	46.9	15	41.7
Parent Computer Attitude[b]								
Low	22	47.8	14	36.8	17	53.1	25	69.4
High	24	52.2	24	63.2	15	46.9	11	30.6
Child Computer Self-Efficacy[c]								
Low	25	54.4	18	47.4	14	43.8	21	58.3
High	21	45.6	20	52.6	18	56.2	15	41.7
Parent Computer Self-Efficacy[d]								
Low	19	41.3	14	36.8	18	56.2	28	77.8
High	27	58.7	24	63.2	14	43.8	8	22.2

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (3) = 1.40, p = .706, [b] χ^2 (3) = 8.19, p < .05, [c] χ^2 (3) = 1.85, p = .604, [d] χ^2 (3) = 15.42, p < .001

Finally, as Table K.6 shows, the relationship between parent's occupation category and parent's computer self-efficacy category was significant, χ^2 (3) = 15.42, p < .01, Cramer's V = .32. Parents who were categorized with a low computer self-efficacy tended to be a homemaker, retired, or unemployed (77.8%) more than in management, business, office positions (41.3%), other professional positions (36.8%), or in sales, maintenance, or service positions (56.2%). Parents who were categorized with a high computer self-efficacy tended to be in management, business, office positions (58.7%) and other professional positions (63.2%), more than in sales, maintenance, or service positions (43.8%), or a homemaker, retired, or unemployed (22.2%).

Independent samples *t* tests were conducted to examine the relationships between child total computer self-efficacy and total computer usage by child total computer attitude category (low, high) (see Table K.7). Results showed that children with low computer attitude were significantly lower in total computer self-efficacy (M = 93.96, SD = 25.44) than children high in computer attitude (M = 108.36, SD = 22.42), t (148) = -3.83, $p < .001$. The results failed to reveal a significant difference for child attitude category on the total hours of computer usage, t (148) = .19, p = .85.

Independent samples *t* tests were conducted to examine the relationships between child computer self-efficacy by child total computer attitude (see Table K.8). The results for the child's beginning computer self-efficacy by child's total computer attitude category revealed a significant effect, t (160) = 12.20, $p < .001$. On average, children with high beginning computer self-efficacy (M = 60.15, SD = 11.72) had higher total computer attitudes than children with low beginning computer self-efficacy (M = 53.30, SD = 13.16). Further, the results for the child's advanced computer self-efficacy by child's total computer attitude category revealed a significant effect, t (160) = 11.90, p <

.001. On average, children with high advanced computer self-efficacy ($M = 48.21$, $SD = 12.11$) had higher total computer attitudes than children with low advanced computer self-efficacy ($M = 41.45$, $SD = 12.82$).

Table K.7

Means and Standard Deviations for Child Total Computer Self-Efficacy and Computer Usage by Child Total Computer Attitude Category

	N	Mean	*SD*	*t*	*p*
Total Computer Self-Efficacy				-3.84	.000
Low – Computer Attitude	83	93.96	25.44		
High – Computer Attitude	80	108.36	22.42		
Total Computer Usage				.19	.851
Low – Computer Attitude	73	9.70	8.98		
High – Computer Attitude	77	9.42	9.09		

A series of one-way ANOVAs were conducted to examine the relationships between child computer usage items by child total computer attitude (see Table K.9). The results for the child's use of computers for schoolwork by child's total computer attitude category failed to reveal any significant differences, $F(1, 117) = 2.04$, $p = .16$. The results for the child's use of computers for recreation by child's total computer attitude category failed to reveal any significant differences, $F(1, 117) = .29$, $p = .59$. Further, results for child's use of computers for communication by child's total computer attitude category failed to reveal any significant differences, $F(1, 117) = .34$, $p = .56$.

Table K.8

Means and Standard Deviations for Child Computer Self-Efficacy by Child Total Computer Attitude Category

	N	Mean	SD	*t*	*p*
Beginning Computer Self-Efficacy				12.20	.001
Low - Computer Attitude	82	53.30	13.16		
High – Computer Attitude	80	60.15	11.72		
Advanced Computer Self-Efficacy				11.90	.001
Low – Computer Attitude	82	41.45	12.82		
High – Computer Attitude	80	48.21	12.11		

Table K.9

Means and Standard Deviations for Child Computer Usage Items by Child Total Computer Attitude Category

	N	Mean	*SD*	*t*	*p*
Schoolwork Computer Hours				2.04	.156
Low - Computer Attitude	55	3.36	5.33		
High - Computer Attitude	64	2.29	2.47		
Recreation Computer Hours				.29	.589
Low - Computer Attitude	55	4.08	4.65		
High - Computer Attitude	64	4.57	5.24		
Communication Computer Hours				.34	.563
Low - Computer Attitude	55	2.19	4.21		
High - Computer Attitude	64	2.59	3.42		

Independent samples t tests were conducted to examine the relationships between child total computer attitude, computer self-efficacy, and total computer usage by parent total computer attitude (see Table K.10). The results showed that children with low total computer attitude (M = 3.59, SD = .43) did not significantly differ from children with high total computer attitude (M = 3.70, SD = .49) in parent's total computer attitude category, t (161) = -1.50, p = .14. The results also showed that children with low total computer self-efficacy (M = 100.46, SD = 23.53) did not significantly differ from children with high total computer self-efficacy (M = 101.62, SD = 26.61) in parent's total computer attitude category, t (161) = -.30, p = .77. Furthermore, the results showed that children with low total computer usage (M = 9.43, SD = 9.13) did not significantly differ from children with high total computer usage (M = 9.69, SD = 8.94) in parent's total computer attitude category, t (148) = -.18, p = .86.

A series of one-way ANOVAs were conducted to uncover potential differences between parent attitude categories (low vs. high) on child computer self-efficacy (see Table K.11). The results failed to reveal a significant effect for parent attitude on child beginning computer self-efficacy, F (1, 160) = .19, p = .67. Similarly, the results failed to reveal a significant effect for parent attitude on child advanced computer self-efficacy, F (1, 160) = .36, p = .55.

A series of one-way ANOVAs were conducted to examine the relationships between parent attitude categories (low vs. high) on child computer usage items (see Table K.12). The results failed to reveal a significant effect for parent attitude on child use of computers for schoolwork, F (1, 117) = 2.29, p = .13. Similarly, the results failed to reveal a significant effect for parent attitude on child use of computers for recreation, F (1, 117) = 1.57, p = .21. Finally, the results failed to reveal a significant effect for parent attitude on child use of computers for communication, F (1, 117) = 1.72, p = .19.

Table K.10

Means and Standard Deviations for Child Total Computer Attitude, Total Computer Self-Efficacy, and Total Computer Usage by Parent Total Computer Attitude Category

	N	Mean	*SD*	*t*	*p*
Child Total Computer Attitude				-1.50	.135
Low – Parent Computer Attitude	84	3.59	.43		
High – Parent Computer Attitude	79	3.70	.49		
Child Total Computer Self-Efficacy				-.30	.767
Low – Parent Computer Attitude	84	100.46	23.53		
High – Parent Computer Attitude	79	101.62	26.61		
Child Total Computer Usage				-.18	.859
Low – Parent Computer Attitude	77	9.43	9.13		
High – Parent Computer Attitude	73	9.69	8.94		

Table K.11

Means and Standard Deviations for Child Computer Self-Efficacy by Parent Total Computer Attitude Category

	N	Mean	*SD*	*t*	*p*
Beginning Computer Self-Efficacy				.19	.666
Low – Parent Computer Attitude	84	56.26	12.31		
High – Parent Computer Attitude	78	57.14	13.57		
Advanced Computer Self-Efficacy				.36	.549
Low – Parent Computer Attitude	84	44.20	13.06		
High – Parent Computer Attitude	78	45.42	12.76		

Table K.12

Means and Standard Deviations for Child Computer Usage Items by Parent Total Computer Attitude Category

	N	Mean	*SD*	*t*	*p*
Schoolwork Computer Hours				2.29	.133
Low – Parent Computer Attitude	57	3.37	5.51		
High – Parent Computer Attitude	62	2.25	1.86		
Recreation Computer Hours				1.57	.212
Low – Parent Computer Attitude	57	3.75	4.25		
High – Parent Computer Attitude	62	4.89	5.52		
Communication Computer Hours				1.72	.192
Low – Parent Computer Attitude	57	1.93	3.02		
High – Parent Computer Attitude	62	2.84	4.37		

Independent samples *t* tests were conducted to examine the relationships between child total computer attitude and total computer usage by child computer self-efficacy category (see Table K.13). The results showed that children with low self-efficacy (*M* = 3.48, *SD* = .44) scored significantly lower on total computer attitude than children with high self-efficacy (*M* = 3.82, *SD* = .42, *t* (161) = -5.12, *p* < .001. The results failed to reveal a significant difference between child self-efficacy categories on total computer usage, *t* (148) = -.75, *p* = .46.

Table K.13

Means and Standard Deviations for Child Total Computer Attitude and Total Computer Use by Child Computer Self-Efficacy Category

	N	Mean	*SD*	*t*	*p*
Child - Total Computer Attitude				-5.12	.000
Low – Child Self-Efficacy	83	3.48	.44		
High – Child Self-Efficacy	80	3.82	.42		
Total Computer usage				-.75	.457
Low – Child Self-Efficacy	73	9.00	9.21		
High – Child Self-Efficacy	77	10.09	8.84		

Independent samples *t* tests were conducted to examine the relationships between child computer self-efficacy category (low vs. high) on child computer usage items (see Table K.14). The results for the child's use of computers for schoolwork by parent's total computer attitude category failed to reveal any significant differences, t (117) = .00, p = .96. The results for the child's use of computers for recreation by parent's total computer attitude category also failed to reveal any significant differences, t (117) = .73, p = .40. Furthermore, the results for the child's use of computers for communication by parent's total computer attitude category failed to reveal any significant differences, t (117) = 1.67, p = .20.

Table K.14

Means and Standard Deviations for Child Computer Usage Items by Child Computer Self-Efficacy Category

	N	Mean	*SD*	*t*	*p*
Schoolwork Computer Hours				.00	.958
Low – Child Self-Efficacy	57	2.80	2.88		
High – Child Self-Efficacy	62	2.77	4.94		
Recreation Computer Hours				.73	.396
Low – Child Self-Efficacy	57	4.75	5.15		
High – Child Self-Efficacy	62	3.97	4.80		
Communication Computer Hours				1.67	.199
Low – Child Self-Efficacy	57	1.94	3.82		
High – Child Self-Efficacy	62	2.83	3.75		

Independent samples t tests were conducted to examine the relationships between child total computer attitude and total computer usage by parent computer self-efficacy category (see Table K.15). The results showed that children with low total computer attitude (M = 3.60, SD = .46) did not significantly differ from children with high total computer attitude (M = 3.69, SD = .47) in parent's total computer attitude category, t (161) = -1.26, p = .21. The results showed that children with low total computer self-efficacy (M = 99.66, SD = 25.49) did not significantly differ from children with high total computer self-efficacy (M = 102.45, SD = 24.56) in parent's total computer attitude category, t (161) = -.71, p = .48. Further, results showed that children with low total computer usage (M = 10.07, SD = 9.49) did not significantly differ from children with high total computer usage (M = 9.05, SD = 8.52) in parent's total computer attitude category, t (148) = .69, p = .49.

Table K.15

Means and Standard Deviations for Child Total Computer Attitude, Total Computer Self-Efficacy, and Total Computer Usage by Parent Computer Self-Efficacy Category

	N	Mean	*SD*	*t*	*p*
Total Computer Attitude				-1.26	.208
Low – Parent Self-Efficacy	83	3.60	.46		
High – Parent Self-Efficacy	80	3.69	.47		
Total Computer Self-Efficacy				-.71	.478
Low – Parent Self-Efficacy	83	99.66	25.49		
High– Parent Self-Efficacy	80	102.45	24.56		
Total Computer Usage				.69	.492
Low – Parent Self-Efficacy	75	10.07	9.49		
High – Parent Self-Efficacy	75	9.05	8.52		

Independent samples *t* tests were conducted to examine the relationships between parent computer self-efficacy categories (low vs. high) on child computer self-efficacy scores (see Table K.16). The results failed to reveal a significant effect for parent self-efficacy category on child beginning computer self-efficacy, $t(160) = .85, p = .36$. Similarly, the results failed to reveal a significant effect for parent self-efficacy category on child advanced computer self-efficacy, $t(160) = .83, p = .37$.

Table K.16

Means and Standard Deviations for Child Computer Self-Efficacy by Parent Computer Self-Efficacy Category

	N	Mean	*SD*	*F*	*p*
Beginning Computer Self-Efficacy				.85	.357
Low – Parent Self-Efficacy	83	55.77	13.50		
High – Parent Self-Efficacy	79	57.65	12.24		
Advanced Computer Self-Efficacy				.83	.365
Low – Parent Self-Efficacy	83	43.89	13.22		
High – Parent Self-Efficacy	79	45.73	12.55		

Independent samples *t* tests were conducted to examine differences between parent self-efficacy categories (low vs. high) on child computer usage items (see Table K.17). Children of parents categorized with high computer self-efficacy spent less time using the computer for schoolwork ($M = 1.98, SD = 1.74$) than children of parents categorized with low computer self-efficacy ($M = 3.72, SD = 5.56$), $t(117) = 5.67, p <$

.05. Results failed to reveal a significant effect for parent self-efficacy on child recreational computer usage, t (117) = .23, p = .63, or on child communication computer usage, t (117) = .09, p = .76.

Table K.17

Means and Standard Deviations for Child Computer Usage Items by Parent Computer Self-Efficacy Category

	N	Mean	*SD*	*F*	*p*
Schoolwork Computer Hours				5.67	.019
Low – Parent Self-Efficacy	55	3.72	5.56		
High – Parent Self-Efficacy	64	1.98	1.74		
Recreation Computer Hours				.23	.632
Low – Parent Self-Efficacy	55	4.11	4.42		
High – Parent Self-Efficacy	64	4.55	5.41		
Communication Computer Hours				.09	.764
Low – Parent Self-Efficacy	55	2.52	3.54		
High – Parent Self-Efficacy	64	2.31	4.02		

Independent samples t tests were conducted to examine the relationships between child total computer attitude and total computer self-efficacy by child computer hours category (see Table K.18). The results showed that children with low total computer attitude (M = 3.66, SD = .42) did not significantly differ from children with high total computer attitude (M = 3.69, SD = .45) in child computer hours category, t (148) = -.48, p

= .63. The results also showed that children with low total computer hours (*M* = 98.69, *SD* = 23.98) scored significantly lower on computer self-efficacy than children with high total computer hours (*M* = 107.53, *SD* = 21.72) in child computer hours category, *t* (148) = -2.36, *p* < .05.

Table K.18

Means and Standard Deviations for Child Total Computer Attitude, Total Computer Self-Efficacy, and Total Computer Usage by Child Computer Hours Category

	N	Mean	*SD*	*t*	*p*
Total Computer Attitude				-.48	.632
Low – Child Computer Hours	74	3.66	.42		
High – Child Computer Hours	76	3.69	.45		
Total Computer Self-Efficacy				-2.36	.019
Low – Child Computer Hours	74	98.69	23.98		
High– Child Computer Hours	76	107.53	21.72		

A series of one-way ANOVAs were conducted to examine the relationships between child computer usage categories (low vs. high) on child computer self-efficacy scores (see Table K.19). The results revealed a significant effect for computer usage category on child beginning computer self-efficacy, *F* (1, 147) = 4.89, *p* < .05. Children categorized as having high computer hours had higher beginning computer self-efficacy scores (*M* = 59.93, *SD* = 11.72) than children categorized as having low computer hours

(M = 55.63, SD = 12.02). The results failed to reveal a significant effect for computer usage category on child advanced computer self-efficacy, F (1, 147) = 3.41, p = .07.

Table K.19

Means and Standard Deviations for Child Computer Self-Efficacy by Child Computer Hours Category

	N	Mean	SD	F	p
Beginning Computer Self-Efficacy				4.89	.028
Low – Child Computer Hours	73	55.63	12.02		
High – Child Computer Hours	76	59.93	11.72		
Advanced Computer Self-Efficacy				3.41	.067
Low – Child Computer Hours	73	44.01	12.14		
High – Child Computer Hours	76	47.59	11.53		

Predictive Models: Children Beginning and Advanced Computer Self-Efficacy

Multiple regression was used to predict child beginning and advanced computer self-efficacy. Multiple regression analysis is used with continuous dependent variables and categorical or continuous independent variables. Because categorical predictor variables cannot be entered directly into a regression model and be meaningfully interpreted, dummy variables are a way of adding the values of a nominal or ordinal variable to a regression equation. The process of creating dichotomous variables from categorical variables is called dummy coding (Cohen & Cohen, 1983). The standard approach to modeling categorical variables is to include the categorical variables in the regression equation by converting each level of each categorical variable into a variable of its own, usually coded 0 or 1. In general, a categorical variable with k levels was transformed into k-1 variables each with two levels. For example, if a categorical variable had six levels, then five dichotomous variables could be constructed that would contain the same information as the single categorical variable. One of the levels has to be left out of the regression model to avoid perfect multicollinearity (singularity; redundancy), which will prevent a solution (for example, leave out "Male" to avoid singularity). The omitted category is the reference category because b coefficients must be interpreted with reference to it. A positive beta coefficient for any included group means it scored higher on the response variable than did the reference group, or if negative, then lower. A significant beta coefficient for any included group means that group is significantly different on the response variable from the reference group (Cohen & Cohen, 1983).

Beginning Computer Self-Efficacy. A multiple regression analysis was conducted to predict child beginning computer self-efficacy (see Table K.20). Each category of predictors was entered as a separate block into the model, in the following order: 1) sociocultural factors, including parent's gender, child's gender, parent's ethnicity, and parent's education, 2) parent's work status, income, and total hours parent spent on the computer and 3) parent's attitudes toward computers and computer self-efficacy. The results revealed that the three blocks were all non-significant. The first block was non-significant, F (5, 136) = 1.29, p = .27, and accounted for only 4.5% of the variance. The second block was also non-significant, F (8, 133) = 1.32, p = .24, and accounted for only 7.4% of the variance. Finally, the third block was non-significant, F (10, 131) = 1.27, p = .26, and accounted for only 8.8% of the variance. As shown in Table K.20, the results failed to reveal any significant predictors of child beginning computer self-efficacy.

Table K.20

Summary of Multiple Regression Analysis for Variables Predicting Child Beginning Level Scores (Computer Self-Efficacy) (N = 142)

	Unstandardized *B*	SE	*Beta*	*t*	*p*
Female Parent	3.763	3.05	.108	1.23	.219
Female Child	-.183	2.34	-.007	-.08	.938
Parent Caucasian	1.084	2.42	.039	.45	.656
College or More	4.552	3.69	.159	1.23	.220
Some College or Assoc. Degree	-1.666	3.13	-.064	-.53	.595
Parent - Full Time Work Status	-3.114	2.60	-.114	-1.20	.232
High Income	-3.939	2.59	-.146	-1.52	.131
Parent - Computer Hours	2.681	2.48	.102	1.08	.281
Parent - Total CSE	.076	.06	.146	1.32	.190
Parent - Total Computer Attitude	-3.218	2.65	-.134	-1.21	.228

Note: CSE = Computer Self-Efficacy

Advanced Computer Self-Efficacy. A multiple regression analysis was conducted on variables predicting child advanced computer self-efficacy (see Table K.21). Each category of predictors was entered as a separate block into the model, in the following order: 1) sociocultural factors, including parent's gender, child's gender, parent's ethnicity, and parent's education, 2) parent's work status, income, and total hours parent spent on the computer and 3) parent's attitudes toward computers and computer self-efficacy. The results revealed that the three blocks were all non-significant. The first block was non-significant, F (5, 135) = .71, p = .62, and accounted for only 2.6% of the variance. The second block was also non-significant, F (8, 132) = .89, p = .53, and accounted for only 5.1% of the variance. Finally, the third block was non-significant, F (10, 130) = .78, p = .65, and accounted for only 5.7% of the variance. As shown in Table K.21, the results failed to reveal any significant predictors of child advanced computer self-efficacy.

Predictive Models: Children Computer Usage

Three separate multiple regression analyses were also conducted on the child computer usage items as continuous variables and using the child variables as predictors. The predictors were entered as four separate blocks: 1) child gender, age when first used computer; 2) child's favorite subject, child's worst subject, parent rating of child favorite subject, parent rating of child worst subject; 3) the eight child attitude subscales; 4) the two child computer self-efficacy subscales.

Table K.21

Summary of Multiple Regression Analysis for Variables Predicting Child Advanced *Level Scores (Computer Self-Efficacy) (N = 141)*

	Unstandardized *B*	SE	*Beta*	*t*	*p*
Female Parent	3.223	3.04	.094	1.06	.291
Female Child	-.411	2.33	-.016	-.18	.861
Parent Caucasian	1.250	2.42	.046	.52	.606
College or More	2.908	3.69	.104	.79	.432
Some College or Assoc. Degree	-1.276	3.12	-.050	-.41	.683
Parent - Full Time Work Status	-2.820	2.59	-.105	-1.09	.278
High Income	-3.287	2.59	-.125	-1.27	.206
Parent - Computer Hours	2.610	2.47	.102	1.06	.293
Parent - Total CSE	.051	.06	.100	.88	.380
Parent - Total Computer Attitude	-1.572	2.64	-.067	-.59	.553

Note: CSE = Computer Self-Efficacy

Communication Use. The results for the model predicting use of the computer for communication revealed that Block 1 was marginally significant, F (2,118) = 2.91, p = .059, and accounted for 4.7% of the total variance. Block 2 was non-significant, F (6,

114) = 1.66, $p = .137$, and accounted for 8.0% of the total variance. Block 3, however, was non-significant, $F(7, 113) = 1.41$, $p = .208$, and accounted for 8.0% of the total variance. The final block, Block 4, was non-significant, $F(9, 111) = 1.45$, $p = .174$, and accounted for 10.5% of the total variance. As shown in Table K.22, the results for the full model revealed two marginally significant predictors. Children who reported that math was their favorite subject had lower communication computer hours (*Beta* = -.251, $p = .050$). In addition, greater scores on child advanced computer self-efficacy was a marginally significant predictor of more communication computer hours (*Beta* = .236, $p = .087$).

Table K.22

Summary of Multiple Regression Analysis for Variables Predicting Child's Computer Usage for Communication (N = 141)

	Unstandardized B	SE	Beta	t	p
Child Gender	1.168	.72	.155	1.62	.107
Age when first used computer	-.186	.16	-.109	-1.14	.256
Child Favorite Subject - Math	-1.889	.95	-.251	-1.98	.050
Child Favorite Subject - Science	-.967	.99	-.117	-.98	.330
Parent Rating Child Favorite - Math	.810	.94	.103	.86	.390
Parent Rating Child Favorite - Science	.429	1.00	.051	.43	.670
Child – Total Computer Attitude	-.408	.85	-.048	-.48	.631
Child - Beginning CSE	-.039	.04	-.121	-.89	.375
Child - Advanced CSE	.075	.04	.236	1.72	.087

Note: CSE = Computer Self-Efficacy

Recreational Use. The model predicting recreational computer usage revealed that Block 1 was significant, $F(2, 127) = 4.22, p < .05$, and accounted for 6.2% of the total variance. Block 2 was non-significant, $F(6, 123) = 1.62, p = .146$, and accounted for 7.3% of the total variance. Block 3 was also non-significant, $F(7, 122) = 1.40, p = .212$, and accounted for 7.4% of the total variance. The final block, Block 4 was also non-significant, $F(9, 120) = 1.09, p = .374$, and accounted for 7.6% of the total variance. As shown in Table K.23, the results for the full model revealed that younger ages at first computer usage predicted more use of the computer for recreation (*Beta* = -.239, $p < .05$).

Table K.23

Summary of Multiple Regression Analysis for Variables Predicting Child's Computer Usage for Recreation (N = 141)

	Unstandardized B	*SE*	*Beta*	*t*	*p*
Child Gender	-.487	.90	-.051	-.54	.589
Age when first used computer	-.528	.20	-.239	-2.64	.010
Child Favorite Subject - Math	-.720	1.19	-.075	-.61	.545
Child Favorite Subject – Science	.497	1.23	.047	.40	.688
Parent Rating Child Favorite – Math	.904	1.16	.090	.78	.439
Parent Rating Child Favorite – Science	-.555	1.23	-.050	-.45	.653
Child - Total Computer Attitude	-.156	1.06	-.014	-.15	.883
Child - Beginning CSE	-.014	.05	-.034	-.25	.801
Child - Advanced CSE	-.003	.05	-.009	-.06	.949

Note: CSE = Computer Self-Efficacy

School Use. The results for the model predicting recreational computer usage revealed that Block 1 was significant, *F* (2, 136) = 2.00, *p* = .139, and accounted for 2.9% of the total variance. Block 2 was non-significant, *F* (6, 132) = 1.17, *p* = .328, and accounted for 5.0% of the total variance. Block 3 was also non-significant, *F* (7, 131) = 1.00, *p* = .432, and accounted for 5.1% of the total variance. The final block, Block 4 was also non-significant, *F* (9, 129) = 1.11, *p* = .361, and accounted for 7.2% of the total variance. As displayed in Table K.24, the results for the full model revealed that greater ages at first computer usage marginally predicted greater use of the computer for school work and/or learning (*Beta* = .159, *p* = .069).

Table K.24

Summary of Multiple Regression Analysis for Variables Predicting Child's Computer Usage for School (N = 141)

	Unstandardized B	SE	Beta	t	p
Child Gender	.223	.69	.029	.32	.746
Age when first used computer	.264	.14	.159	1.83	.069
Child Favorite Subject - Math	-.079	.90	-.010	-.09	.930
Child Favorite Subject - Science	-.507	.97	-.060	-.52	.601
Parent Rating Child Favorite – Math	-1.087	.89	-.133	-1.23	.222
Parent Rating Child Favorite – Science	-1.034	.98	-.117	-1.05	.295
Child - Total Computer Attitude	-.792	.84	-.090	-.94	.347
Child - Beginning CSE	.032	.04	.096	.74	.460
Child - Advanced CSE	.025	.04	.076	.58	.561

Note: CSE = Computer Self-Efficacy

Predictive Models: Low versus High Children Computer Usage

The computer usage variables were grouped into dichotomous variables based on their distributions. Child total computer usage for communication (summed across weekday, Saturday, Sunday) less than one hour were coded as 0 and total communication hours of one hour or more were coded as 1. Similarly, child total computer usage for recreation (summed across weekday, Saturday, Sunday) less than three hours were coded as 0 and three hours or more were coded as 1. Child total computer usage for school work (summed across weekday, Saturday, Sunday) less than two hours were coded as 0 and two hours or more were coded as 1.

The dichotomous variables were then used as dependent variables in logistic regression analysis. Logistic regression is a form of regression that is used with dichotomous dependent variables and continuous and/or categorical independent variables. The technique is based on transforming data by taking the natural logarithms and estimating parameters using maximum likelihood estimation. Logistic regression, therefore, estimates the odds of an event occurring by calculating changes in the log odds of the dependent variable. Logistic regression techniques do not assume linear relationships between the independent and dependent variables, does not require normally distributed variables, and does not assume homoscedasticity. However, the observations must be independent and the independent variables must be linearly related to the logit of the dependent variable.

Communication Use. A multiple logistic regression analysis was conducted to predict child's computer usage for communication using the sociocultural factors, parent's total hours spent on the computer, and parent's attitudes toward computers and computer self-efficacy as predictors (see Table K.25). The predictors included parent's gender, child's gender, parent's ethnicity (Caucasian vs. others), college graduate, some college, work status (full time vs. not full time), income, total hours parents spent on the computer, parent's total computer self-efficacy, and parent's total attitude toward computers. As shown in Table K.25, the results failed to reveal any significant predictors.

Recreation Use. A multiple logistic regression analysis was conducted to predict child's computer usage for recreation using the sociocultural factors, total hours spent on the computer by parents, and parents' attitudes toward computers and parents' computer self-efficacy as predictors (see Table K.26). The predictors included parent's gender, child's gender, parent's ethnicity (Caucasian vs. others), college graduate, some college, work status (full time vs. not full time), income, total hours parents spent on the computer, parent's total computer self-efficacy, and parent's total attitude toward computers. As Table K.26 shows, the results revealed that the more time that parents spent on the computer predicted greater odds of children using the computer for recreation (*Odds Ratio* = 2.349, $p < .05$). In addition, results revealed that greater computer self-efficacy of the parent marginally predicted greater odds of children using the computer for recreation (*Odds Ratio* = .981, $p = .06$).

Table K.25

Summary of Multiple Logistic Regression Analysis for Variables Predicting Child's Computer Usage for Communication (Computer Usage)

	β	SE	Wald	df	*p*	*Odds Ratio*
Female Parent	.849	.53	2.60	1	.107	2.338
Female Child	.578	.40	2.08	1	.149	1.782
Parent Caucasian	.553	.41	1.84	1	.175	1.739
College	.712	.62	1.33	1	.249	2.037
Some College	.268	.53	.26	1	.613	1.307
Work Fulltime	-.029	.43	.00	1	.946	.971
High Income	-.107	.43	.06	1	.801	.898
Parent – Computer Hours	.519	.41	1.58	1	.209	1.681
Parent – CSE	.001	.01	.01	1	.916	1.001
Parent – Computer Attitude	-.508	.45	1.25	1	.264	.601

Note: CSE = Computer Self-Efficacy

School Use. A multiple logistic regression analysis was conducted to predict child's computer usage for schoolwork/learning using the sociocultural factors, parent's total hours spent on the computer, and parent's attitudes toward computers and computer self-efficacy as predictors (see Table K.27). The predictors included the gender of the parents, the gender of the children, the ethnicity of the parents (Caucasian vs. others), the education level of the parents (college graduate, some college), parents' work status (full time vs. not full time), income, total hours parents spent on the computer, parent's total computer self-efficacy, and parent's total attitude toward computers. As shown in Table K.27, none of the independent variables were significant in predicting odds of children's schoolwork/learning computer usage.

Table K.26

Summary of Multiple Logistic Regression Analysis for Variables Predicting Child Computer Usage for Recreation (Computer Usage)

	β	SE	Wald	df	*p*	*Odds Ratio*
Female Parent	.376	.53	.51	1	.476	1.457
Female Child	-.139	.40	.12	1	.728	.870
Parent Caucasian	-.477	.42	1.30	1	.255	.621
College	.599	.65	.84	1	.358	1.821
Some College	.155	.55	.08	1	.778	1.168
Work Fulltime	.189	.43	.19	1	.660	1.208
High Income	-.116	.44	.07	1	.791	.890
Parent – Computer Hours	.854	.43	3.97	1	.046	2.349
Parent – CSE	-.019	.01	3.46	1	.063	.981
Parent – Computer Attitude	-.250	.46	.30	1	.583	.779

Note: CSE = Computer Self-Efficacy

Table K.27

Summary of Multiple Logistic Regression Analysis for Variables Predicting Child Computer Usage for Schoolwork/Learning (Computer Usage)

	β	SE	Wald	df	*p*	*Odds Ratio*
Female Parent	-.317	.56	.32	1	.572	.729
Female Child	-.108	.40	.07	1	.790	.898
Parent Caucasian	.106	.42	.06	1	.799	1.112
College	.351	.62	.32	1	.575	1.420
Some College	.646	.54	1.42	1	.233	1.908
Work Fulltime	-.103	.45	.05	1	.818	.902
High Income	.402	.44	.84	1	.359	1.494
Parent – Computer Hours	-.337	.43	.61	1	.433	.714
Parent – CSE	.006	.01	.27	1	.605	1.006
Parent – Computer Attitude	-.133	.48	.08	1	.782	.875

Note: CSE = Computer Self-Efficacy

APPENDIX L

ADDITIONAL ANALYSES

ADDITIONAL ANALYSES

A series of additional analyses were conducted in order to uncover potential relationships between the parent and child variables concerning child's favorite and/or worst subject (e.g. math, science or computers, other) and demographic variables (e.g. gender). More specifically, crosstab analyses with Pearson's chi-square (χ^2) test and Cramer's *V* test were conducted on these parent and child categorical variables. Crosstab analyses were used to examine the relationships between categorical variables measured on nominal or ordinal scales. Pearson's chi-square (χ^2) tests were used to determine whether or not a significant relationship exists between the variables. Cramer's *V* tests were used to determine the strength of the relationship between the variables.

The frequencies and percentages for parent's use of computers at work, place where the child uses the computer the most, and parent and child computer usage category by child's gender are displayed in Table L.1. The relationship between child's gender and parent's use of computers at work was not significant, χ^2 (1) = .03, p = .87, Cramer's V = .01. The relationship between child's gender and the place where the child uses the computer the most was also not significant, χ^2 (1) = 1.82, p = .18, Cramer's V = .11. In addition, the relationship between child's gender and parent's computer usage was not significant, χ^2 (1) = .46, p = .50, Cramer's V = .06. Finally, the relationship between child's gender and child's computer usage was also not significant, χ^2 (1) = 1.42, p = .23, Cramer's V = .10.

Table L.1

Frequencies and Percentages for Parent Work Computer Usage, Place Child Uses Computer, and Computer Usage by Child Gender

	Male		Female			
	N	%	N	%	χ^2	*p*
Parent Work Computer Usage					.03	.868
None, Little, Some	44	46.8	27	48.2		
Much, Very Much	50	53.2	29	51.8		
Place Child Most Uses Computer					1.82	.178
Other Places	38	39.6	19	29.2		
Home	58	60.4	46	70.8		
Parent – Total Computer Usage					.46	.496
Low	43	47.8	30	53.6		
High	47	52.2	26	46.4		
Child –Total Computer Usage					1.42	.234
Low	47	53.4	27	43.5		
High	41	46.6	35	56.5		

Note: percentages not adding to 100 reflect missing data

The frequencies and percentages for child's age category, parent's marital status, and parent's occupation category by child's favorite subject are displayed in Table L.2. As Table L.2 shows, the relationship between child's favorite subject and child's age category was significant, χ^2 (2) = 9.86, $p < .01$, Cramer's $V = .25$. Children 11 years old or younger tended to report that their favorite subject was math (62.1%) more than science/computers (54.6%) or another subject (33.3%). Further, children 12 years old or older tended to report that their favorite subject was something other than math or science/computers (66.7%) more than math (37.9%) or science/computers (45.4%). As Table L.2 further shows, the relationship between child's favorite subject and parent's marital status was not significant, χ^2 (2) = 4.71, $p = .10$, Cramer's $V = .17$. Finally, as Table L.2 shows, the relationship between child's favorite subject and parent's occupation was not significant, χ^2 (6) = 4.66, $p = .59$, Cramer's $V = .13$.

The frequencies and percentages for parent's use of computers at work, place where the child uses the computer the most, and parent and child computer usage category by child's favorite subject are displayed in Table L.3. The relationship between child's favorite subject and parent's use of computers at work was not significant, χ^2 (2) = 3.76, $p = .15$, Cramer's $V = .16$. The relationship between child's favorite subject and the place where the child uses the computer the most was not significant, χ^2 (2) = 1.59, $p = .45$, Cramer's $V = .10$. The relationship between child's favorite subject and parent's computer usage was not significant, χ^2 (2) = 5.57, $p = .06$, Cramer's $V = .20$ $p = .06$. Finally, the relationship between child's favorite subject and child's computer usage was not significant, χ^2 (2) = .93, $p = .63$, Cramer's $V = .08$.

Table L.2

Frequencies and Percentages for Child Age Category, Parent Marital Status, and Parent Occupation Category by Child Favorite Subject

	Math		Science or Computers		Other	
	N	%	N	%	N	%
Child Age Category[a]						
11 years or younger	41	62.1	24	54.6	17	33.3
12 years or older	25	37.9	20	45.5	34	66.7
Parent Marital Status[b]						
Not Married	26	41.3	10	22.7	21	41.2
Married	37	58.7	34	77.3	30	58.8
Parent Occupation[c]						
Management, Business, Office Positions	18	31.6	15	34.9	13	26.0
Other Professional Positions	15	26.3	12	27.9	10	20.0
Sales, Maintenance, Service Positions	13	22.8	8	18.6	10	20.0
Homemaker, Retired, Unemployed	11	19.3	8	18.6	17	34.0

Note: Percentages not adding to 100 reflect missing data, [a] χ^2 (2) = 9.86, $p < .01$, [b] χ^2 (2) = 4.71, $p = .095$, [c] χ^2 (6) = 4.66, $p = .588$

The frequencies and percentages for child's age category, parent's marital status, and parent's occupation category by parent's rating of child's favorite subject are displayed in Table L.4. As Table L.4 shows, the relationship between parent's rating of child's favorite subject and child's age category was significant, χ^2 (2) = 6.52, $p < .05$, Cramer's $V = .20$. Parents of children 11 years old or younger tended to report that their child's favorite subject was math (56.6%) or science/computers (60.0%) more than another subject (37.5%). Further, parents of children 12 years old or older tended to report that their child's favorite subject was something other than math or science/computers (62.5%) more than math (43.4%) or science/computers (40.0%). As Table L.4 further shows, the relationship between parent's ratings of child's favorite subject and parent's marital status was not significant, $\chi^2(2) = 4.17$, $p = .13$, Cramer's $V = .16$. Finally, as Table L.4 shows, the relationship between parent's rating of child's favorite subject and parent's occupation was not significant, $\chi^2(6) = 6.34$, $p = .39$, Cramer's $V = .15$.

The frequencies and percentages for parent's use of computers at work, place where the child uses the computer the most, and parent and child computer usage category by parent's rating of child's favorite subject are displayed in Table L.5. The relationship between parent's rating of child's favorite subject and parent's use of computers at work was not significant, $\chi^2(2) = 4.75$, $p = .09$, Cramer's $V = .18$. The relationship between parent's rating of child's favorite subject and the place where the child uses the computer the most was also not significant, $\chi^2(2) = .34$, $p = .85$, Cramer's $V = .05$. In addition, the relationship between parent's rating of child's favorite subject and parent's computer usage was not significant, $\chi^2(2) = 3.30$, $p = .19$, Cramer's $V = .15$. Finally, the relationship between parent's rating of child's favorite subject and child's computer usage was not significant, $\chi^2(2) = 2.01$, $p = .37$, Cramer's $V = .12$.

Table L.3

Frequencies and Percentages for Parent Work Computer Usage, Place Child Uses Computer, and Computer Usage by Child Favorite Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Parent Work Computer Usage[a]						
None, Little, Some	25	41.7	18	43.9	28	59.6
Much, Very Much	35	58.3	23	56.1	19	40.4
Place Child Most Uses Computer[b]						
Other Places	23	35.4	13	29.5	21	42.0
Home	42	64.6	31	70.5	29	58.0
Parent - Computer Usage[c]						
Low	29	51.8	15	36.6	29	61.7
High	27	48.2	26	63.4	18	38.3
Child - Computer Usage[d]						
Low	32	54.2	20	50.0	22	44.9
High	27	45.8	20	50.0	27	55.1

Note: Percentages not adding to 100 reflect missing data, [a] χ^2 (2) = 3.76, p = .152, [b] χ^2 (2) = 1.59, p =.452, [c] χ^2 (2) = 5.57, p = .062, [d] χ^2 (2) = .93, p = .627

The frequencies and percentages for child's age category, parent's marital status, and parent's occupation category by child's worst subject are displayed in Table L.6. The relationship between child's worst subject and child's age category was not significant, χ^2 (2) = 1.88, p = .39, Cramer's V = .11. The relationship between child's worst subject and parent's marital status was also not significant, χ^2 (2) = .38, p = .83, Cramer's V = .05. Finally, the relationship between child's worst subject and parent's occupation was not significant, χ^2 (6) = 10.53, p = .10, Cramer's V = .19.

Table L.4

Frequencies and Percentages for Child Age Category, Parent Marital Status, and Parent Occupation Category by Parent Rating of Child Favorite Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Child Age Category[a]						
11 years or younger	30	56.6	24	60.0	24	37.5
12 years or older	23	43.4	16	40.0	40	62.5
Parent Marital Status[b]						
Not Married	24	45.3	10	25.0	22	34.4
Married	29	54.7	30	75.0	42	65.6
Parent Occupation[c]						
Management, Business, Office Positions	18	37.5	14	35.9	13	21.0
Other/Professional Positions	14	29.2	8	20.5	16	25.8
Sales, Maintenance, Service Positions	8	16.7	8	20.5	14	22.6
Homemaker, Retired, Unemployed	8	16.7	9	23.1	19	30.7

Note: Percentages not adding to 100 reflect missing data, [a] χ^2 (2) = 6.52, $p < .05$, [b] χ^2 (2) = 4.17, p =.125, [c] χ^2 (6) = 6.34, p = .386

Table L.5

Frequencies and Percentages for Parent Work Computer Usage, Place Child Uses Computer, and Computer Usage by Parent Rating of Child Favorite Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Parent Work Computer Usage[a]						
None, Little, Some	24	47.1	13	34.2	33	56.9
Much, Very Much	27	52.9	25	65.8	25	43.1
Place Child Uses Computer[b]						
Other Places	19	36.5	13	32.5	24	38.1
Home	33	63.5	27	67.5	39	61.9
Parent - Computer Usage[c]						
Low	18	40.9	17	45.9	36	58.1
High	26	59.1	20	54.1	26	41.9
Child - Computer Usage[d]						
Low	25	51.0	21	56.8	25	42.4
High	24	49.0	16	43.2	34	57.6

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (2) = 4.75, p = .093, [b] χ^2 (2) = .338, p = .845, [c] χ^2 (2) = 3.30, p = .192, [d] χ^2 (2) = 2.01, p = .366

The frequencies and percentages for parent's use of computers at work, place where the child uses the computer the most, and parent and child computer usage category (low, high) by child's worst subject are displayed in Table L.7. As shown in the first section of Table L.7, the relationship between child's worst subject and parent's use of computers at work was significant, χ^2 (2) = 6.62, $p < .05$, Cramer's $V = .21$. Children of parents who used the computer none, little, or some of the time at work tended to rate their worst subject was science/computers (73.7%) more than math (39.6%) or another subject (45.0%). Children of parents who used the computer much or very much of the time at work tended to rate their worst subject was science/computers (26.3%) less than math (60.4%) or another subject (55.0%). The relationship between child's worst subject and the place where the child uses the computer the most was not significant, χ^2 (2) = 5.71, $p = .06$, Cramer's $V = .19$. The relationship between child's worst subject and parent's computer usage was not significant, χ^2 (2) = .28, $p = .87$, Cramer's $V = .04$. Finally, the relationship between child's worst subject and child's computer usage was not significant, χ^2 (2) = .35, $p = .84$, Cramer's $V = .05$.

The frequencies and percentages for child's age category, parent's marital status, and parent's occupation category by parent's rating of child's worst subject are displayed in Table L.8. As Table L.8 shows, the relationship between parent's rating of child's worst subject and child's age category was significant, χ^2 (2) = 6.61, $p < .05$, Cramer's $V = .21$. Parents of children 11 years old and younger tended to rate math (59.3%) and subjects other than math and science/computers (50.0%) as their child's worst subject more than science/computers (25.5%). Parents of children 12 years old and older tended to rate science/computers (74.5%) as their child's worst subject more than math (40.7%) and subjects other than math or science/computers (50.0%). As Table L.8 further shows, the relationship between parent's rating of child's worst subject and parent's marital status was not significant, χ^2 (2) = 2.27, p = .32, Cramer's V = .13. Finally, as Table L.8 shows, the relationship between parent's rating of child's worst subject and parent's occupation was not significant, χ^2 (6) = 6.70, p = .35, Cramer's V = .16.

Table L.6

Frequencies and Percentages for Child Age Category, Parent Marital Status, and Parent Occupation Category by Child Worst Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Child Age Category[a]						
11 years or younger	25	47.2	8	40.0	48	55.2
12 years or older	28	52.8	12	60.0	39	44.8
Parent Marital Status[b]						
Not Married	20	37.7	6	30.0	30	35.7
Married	33	62.3	14	70.0	54	64.3
Parent Occupation[c]						
Management, Business, Office Positions	17	32.1	1	5.3	28	36.4
Other Professional Positions	13	24.5	5	26.3	17	22.1
Sales, Maintenance, Service Positions	8	15.1	8	42.1	16	20.8
Homemaker, Retired, Unemployed	15	28.3	5	26.3	16	20.8

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (2) = 1.88, p = .391, [b] χ^2 (2) = .38, p = .827, [c] χ^2 (6) = 10.53, p = .104

Table L.7

Frequencies and Percentages for Parent Work Computer Usage, Place Child Uses Computer, and Computer Usage by Child Worst Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Parent Work Computer Usage[a]						
None, Little, Some	19	39.6	14	73.7	36	45.0
Much, Very Much	29	60.4	5	26.3	44	55.0
Place Child Most Uses Computer[b]						
Other Places	12	22.6	8	42.1	36	41.9
Home	41	77.4	11	57.9	50	58.1
Parent - Computer Usage[c]						
Low	27	52.9	9	47.4	36	48.7
High	24	47.1	10	52.6	38	51.3
Child - Computer Usage[d]						
Low	22	46.8	9	47.4	42	51.9
High	25	53.2	10	52.6	39	48.1

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (2) = 6.62, $p < .05$, [b] χ^2 (2) = 5.71, $p = .057$, [c] χ^2 (2) = .28, $p = .868$, [d] χ^2 (2) = .348, $p = .840$

The frequencies and percentages for the parent's use of computers at work, the place where the child uses the computer the most, and the parent and child computer usage category (low, high) by the parent's rating of the child's worst subject are displayed in Table L.9. As Table L.9 shows, the relationship between the parent's rating of the child's worst subject and parent's use of computers at work was not significant, χ^2 (2) = .20, p = .90, Cramer's V = .04. As Table L.9 further shows, the relationship between parent's rating of the child's worst subject and the place where the child uses the computer the most was also not significant, χ^2 (2) = 2.51, p = .29, Cramer's V = .13. As Table L.9 shows, the relationship between parent's rating of child's worst subject and parent's computer usage was not significant, χ^2 (2) = 2.41, p = .30, Cramer's V = .14.

Table L.8

Frequencies and Percentages for Child Age Category, Parent Marital Status, and Parent Occupation Category by Parent Rating of Child Worst Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Child Age Category[a]						
11 years or younger	32	59.3	4	25.5	37	50.0
12 years or older	22	40.7	13	74.5	37	50.0
Parent Marital Status[b]						
Not Married	17	31.5	4	23.5	30	40.5
Married	37	68.5	13	76.5	44	59.5
Parent Occupation[c]						
Management, Business, Office Positions	16	29.6	5	33.3	21	30.0
Other Professional Positions	13	24.1	4	26.7	17	24.3
Sales, Maintenance, Service Positions	7	13.0	4	26.7	19	27.1
Homemaker, Retired, Unemployed	18	33.3	2	13.3	13	18.6

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (2) = 6.61, $p < .05$, [b] χ^2 (2) = 2.27, p = .322, [c] χ^2 (6) = 6.70, p = .350

Table L.9

Frequencies and Percentages for Parent Work Computer Usage, Place Child Uses Computer, and Computer Usage by Parent Rating of Child Worst Subject

	Math		Science Computers		Other	
	N	%	N	%	N	%
Parent Work Computer Usage[a]						
None, Little, Some	22	44.9	7	50.0	35	48.6
Much, Very Much	27	55.1	7	50.0	37	51.4
Place Child Uses Computer[b]						
Other Places	20	37.0	3	18.7	29	39.7
Home	34	63.0	13	81.3	44	60.3
Parent - Computer Usage[c]						
Low	29	56.9	6	40.0	29	43.9
High	22	43.1	9	60.0	37	56.1
Child - Computer Usage[d]						
Low	26	54.2	3	18.8	36	51.4
High	22	45.8	13	81.2	34	48.6

Note: percentages not adding to 100 reflect missing data, [a] χ^2 (2) = .20, p = .903, [b] χ^2 (2) = 2.51, p = .285, [c] χ^2 (2) = 2.41, p = .299, [d] χ^2 (2) = 6.53, p < .05

Finally, as Table L.9 shows, the relationship between parent's rating of child's worst subject and child's computer usage was significant, χ^2 (2) = 6.53, p < .05, Cramer's V = .22, p < .05. Children of parents who reported their child's worst subject was science/computers tended to have lower computers use (18.8%) than children of parents who reported their child's worst subject was math (54.2%) or a subject other than math or science/computers (51.4%). Children of parents who reported their child's worst subject was math (45.8%) or a subject other than math or science/computers (48.6%) tended to have lower computers use than children of parents who reported their child's worst subject was science/computers (81.2%).

The frequencies and percentages for parent's occupation category by child's worst subject are displayed in Table L.10. The relationship between parent's occupation category and child's worst subject was not significant, $\chi^2(6) = 10.53$, $p = .10$, Cramer's $V = .19$. The relationship between parent's occupation category and child's favorite subject was also not significant, $\chi^2(6) = 4.66$, $p = .59$, Cramer's $V = .13$. Finally, the relationship between parent's occupation category and parent's rating of child's favorite subject was not significant, $\chi^2(6) = 6.34$, $p = .39$, Cramer's $V = .15$.

Table L.10

Frequencies and Percentages for Child and Parent Ratings of Child Favorite and Worst Subjects by Parent Rating of Parent Occupation Category

	Management, Business, Office Positions		Other Professional Positions		Sales, Maintenance, Service Positions		Homemaker, Retired, Unemployed	
	N	%	N	%	N	%	N	%
Child Worst Subject[a]								
Math	17	37.0	13	37.1	8	25.0	15	41.7
Science or Computers	1	2.2	5	14.3	8	25.0	5	13.9
Other	28	60.9	17	48.6	16	50.0	16	44.4
Child Favorite Subject[b]								
Math	18	39.1	15	40.5	13	41.9	11	30.6
Science or Computers	15	32.6	12	32.4	8	25.8	8	22.2
Other	13	28.3	10	27.0	10	32.3	17	47.2
Parent Rating of Child Favorite Subject[c]								
Math	18	40.0	14	36.8	8	26.7	8	22.2
Science or Computers	14	31.1	8	21.1	8	26.7	9	25.0
Other	13	28.9	16	42.1	14	46.7	19	52.8

Note: Percentages not adding to 100 reflect missing data, [a] χ^2 (6) = 10.53, p = .104, [b] χ^2 (6) = 4.66, p = .588, [c] χ^2 (6) = 6.34, p = .39