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The Perceptions of Elementary School Aged Children, Grades Four through Six, on Traditional Masculine and Feminine School Subjects

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The Perceptions of Elementary School Aged Children, Grades Four through Six, on Traditional Masculine and Feminine School Subjects

Karen A. Macomber

A Thesis submitted to the Department of Education and Human Development in partial fulfillment of the requirements for the degree of Master of Science in Education

Degree Awarded Spring 2003
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Abstract

The purpose of this study was to determine what school subjects elementary school aged children perceived as more masculine and feminine.

A researcher-developed survey was used to obtain students' perceptions and attitudes regarding a variety of school subjects and areas. The subjects for this study were 300 elementary school boys and girls, grades four through six from both urban and suburban school districts. The surveys were given to various elementary school teachers to administer to their students, which the students were required to complete and return to the teacher. Once these surveys were completed and returned to the researcher, the results were tallied and analyzed using both quantitative and qualitative methods.

For the purpose of this study, the perceptions of what school subjects boys and girls grade four through six deemed as more masculine and feminine were indicated in terms of perceived ability levels.

The results of this study indicated that, in terms of perceived ability levels, by grade six, students believed that boys and girls were predominantly equal at mathematics and social studies. Results indicated that boys were believed to more capable in science and physical
education and girls were believed to be more capable in the areas of reading, writing, and music. It seemed that each gender believed themselves to be best in art; in the area of library, attitudes varied between girls being more adept and neither boys nor girls being more adept. The area of computers also had differing views, but by sixth grade, it was essentially believed that neither gender was more capable then the other.

However, when ranking the importance of school subjects, it seemed that boys, grades four through six, tended to place mathematics, science, and physical education as the most important school subjects. Girls, grades four through six typically placed reading, writing, art, and music as the most important school subjects. The areas of social studies and computers were of little interest to students at these grade levels, as these two areas were placed very low in the ranking.
# Table of Contents

## Chapter 1: Statement of the Problem

- Purpose .................................................................................................................. 1
- Research Question .................................................................................................... 1
- Background .............................................................................................................. 1
- Need for the Study ................................................................................................. 2

## Chapter II: Review of the Literature

- Purpose .................................................................................................................... 4
- Gender Beliefs and Standpoints Through the Ages .................................................. 4
- Zeno's Paradox ......................................................................................................... 7
- Prevailing Attitudes in Education ............................................................................. 8

### Reasons for Low Participation of Girls

*In "Masculine" Subject Areas*

- Gender Stereotyping .................................................................................................. 13
- Lack of Historic Women Role Models ....................................................................... 14
- Gender Bias in Storybooks ......................................................................................... 15
- Peer Pressure ............................................................................................................ 17
- Teacher Perceptions of Students .............................................................................. 19
Chapter III: Design of the Study

Purpose .................................................. 25

Methodology

Subjects .................................................. 25
Materials .................................................. 25
Procedures .................................................. 25
Analysis of the Data ........................................ 26

Chapter IV: Analysis of the Data

Purpose .................................................. 27
Research Question ...................................... 27
Description of Survey Questions ...................... 27
Results for Importance of Core Subjects ............. 29
Results for Importance of “Specials” .................. 33
Results for Career Choices ............................ 36
Results for Ability Level in Core Subjects ............ 38
Results for Ability Level in “Specials” ............... 42
Chapter V: Conclusions and Implications

Purpose ................................................................. 47
Conclusions ......................................................... 47
Implications for the Classroom ....................... 50
Recommendations for Future Research .......... 51

References ............................................................ 53

Appendices

Appendix A: Survey ............................................. 58
Appendix B: Results in Graph Format .......... 59
CHAPTER I
STATEMENT OF THE PROBLEM

Purpose
The purpose of this study was to determine what school subjects elementary school aged children perceived as more masculine and feminine.

Research Question
What school subjects do elementary school aged boys and girls perceive as more masculine and or feminine?

Background
Although education has evolved dramatically over the years, the prevailing attitudes in school have not. Erwin and Maurutto (1998) stated that women were still significantly underrepresented in science and technology on a global scale. By the time females become young adults they are already at a disadvantage as compared to males in academic options and aspirations. Career expectations and subject choices for women were and currently still are structured towards more traditional gender stereotypes (Warrington & Younger, 2000). Early research from
Miller and Budd (1999) determined that beliefs regarding jobs as being predominantly masculine or feminine, and evidence of sex-role stereotyping, were found across all ages groups of children, even as young as 6-years old. These beliefs and concepts of what men and women excel at are constantly reinforced by the educational curriculum as well as by society. Rothenberg (1995) suggests that the achievement levels women in areas such as mathematics, science, and technology are still not where they should be. Even though there have been significant improvements in these areas, unbiased gender education and employment still remain an elusive dream. Until these barriers are eradicated, the current gender problems and the ensuing ramifications will not disappear

Need for the study

Traditionally, society viewed certain areas, particularly math and science, as masculine. Throughout history, positions of power, esteem, recognition and prestige in these areas have been held largely by men. Traditional societal beliefs of what occupations and/or fields of study are "proper" for men and for women have been upheld for many decades. The problem for women now is how to enter into these more masculine areas
without giving up their femininity or being harshly judged. To accomplish this goal, girls must actively participate in these subjects as early as elementary school. The question, therefore, is why girls do not participate more in these areas.

There is still a belief that men, not women, naturally excel in areas such as math, science, and technology. Lightbody and Siann (1996) determined that this was due to the overwhelming tendency to encourage boys to succeed in those "masculine" areas and not girls. But do boys naturally excel in those areas, or do girls? If traditional views are not altered the gender gap will not diminish but will be prolonged and amplified.

In order to influence the educational pathways of girls and boys, it is crucial to monitor their perceptions of the curriculum early on. Yet to do this, researchers and teachers need to be aware of what perceptions girls and boys have towards all areas of school. By allowing the students to give their opinions towards scholastic areas, paying special attention to the areas of mathematics, science and technology, teachers will be able to more fully encourage girls and boys to participate and engage in the areas where the students' perceptions are negative. If educators can change students' perceptions and make their attitudes more positive in certain areas, maybe the gender gap will finally be eliminated.
CHAPTER II
REVIEW OF THE LITERATURE

Purpose

The purpose of this study was to determine what school subjects elementary school aged children perceived as more masculine and feminine.

Gender Beliefs and Standpoints Through the Ages

Science...derives from, and is closely aligned with, the meaning of rationality, culture, mind and masculinity. Woman, femininity, nature, irrationality and the emotions function as the 'not A' terms (a term meaning what is not), on which science becomes possible. The result...women and scientist are mutually exclusive categories. The implication of this for actual women is that, while there are not formal procedures excluding them from participating in science, there are considerable conceptual and psychological barriers to being a woman and a scientist simultaneously. (Gilbert, 2001, p.294)

Traditionally, it has never been believed that women could be a part of the scientific world. They were never mixed, never allowed to even confront one another. The exclusion of women from mathematics and science can be traced back to around 600 B.C according to Wertheim (cited in Simon, 2000). It was during the time of Pythagoras of Samos and such scholars when mathematics was established primarily as a religious
activity. Pythagoras believed that the "...superior qualities of males gave them the ability to study mathematics" (Simon, 2000, p.782).

Pythagoras argued that numbers belonged to the psychic realm, which was masculine, and that studying it required one to leave one's body, the body, which at that time, was considered a female aspect. Aristotle, Pythagoras, and their followers believed that men should aspire to transcend to this psychic realm and into the world of mathematics, which supported the ideas of logic and reason. Women were unable to even aspire to this for their defective souls forever trapped them in the "...material prisons of their bodies" (Simon, 2000, p.782).

During the Renaissance and throughout the nineteenth century, the justification for excluding women from these areas was that woman's brains were too cold and soft to sustain such rigorous theories. It was also believed at this time, that by exercising a woman's brain, it would inevitably shrink her ovaries. People in this era further believed that even through contact with women, men would undoubtedly lose their ability and power to perform mental activities.

As the sciences became increasingly based upon mathematics, these areas also became increasingly cloistered in surroundings not permitted to women. Simon (2000) states, "Although women may now find that entering the fields of mathematics and science is considerably easier,
they still carry a residual handicap—professional success requires that they conform to norms that were established in the formative stages of a discipline" (p.782).

Even though centuries have since passed, there is still a widespread belief that women's brains are not able to allow women to visualize spatial relationships. This concept reinforces the traditional stereotypic concept that mathematics, and science for that matter, are indeed subjects for men. It is due to these beliefs, as well as the knowledge that women have been excluded from proper training, access to libraries, networks of communications, and most other aspects of the classical curriculum offered to men that there are so few women, historically, who have entered into the field of mathematics and science (Jaffe, 1995). Even in the 1950's, women were not allowed to enter the science buildings at Harvard or Princeton Universities. This covert, and sometimes overt, discrimination has not disappeared and is ever present even in the twenty-first century.
Zeno's Paradox:
Moving Forward in Time yet Never Reaching the Final Destination

The theory of Zeno's paradox comes from a great Greek philosopher named Zeno of Elea. Zeno's paradoxes focused on the relation of the discrete to the continuous, an issue at the very heart of mathematics. One of his most famous theories went like this: Since space is infinitely divisible, a person can repeat these 'requirements' forever. Thus the for a person to reach his/her final destination, that person has to first reach an infinite number of 'midpoints' in a finite time. This is impossible, so the person can never reach his/her goal. In general, anyone who wants to move from one point to another must meet these requirements, and so motion is impossible, and what we perceive as motion is merely an illusion. Therefore you can move forward in time and still never reach the ultimate destination. In terms of women in science, this paradox also holds true, for even though women have come a long way, they still have not reached their ultimate goal. When they do reach that goal, will it have moved so they must now reach a new goal? That could continue forever, and if that were to happen, women will have continued to make great strides in the world of mathematics and science, but will never have reached that one ultimate goal, their final destination.
Prevailing Attitudes in Education

Education has changed dramatically in the last few decades, yet the prevailing attitudes in school have not. Miller and Budd (1999) found that even though "...the forces involved in the socialization of sex-role stereotypes are changing quite rapidly, the pressure on young females to choose careers traditionally deemed appropriate for women are still significant" (p.19). There are still misconceptions about what occupations women should go into, or what field of study is particularly alluring to women. Researchers such as Miller and Budd (1999), as well as society, in general, still typically assume that women will enter into fields of humanities, the languages, teaching, nursing, and social work. For men however, it is almost natural to choose a field of study or occupation that had something to do with mathematics, science, technology, or physical education. Farmer (1995) stated that, "...girls have been found to typically explore careers from a narrower set of career options than do boys...and women are still seriously underrepresented in the higher paid, higher prestige...occupations" (p.4). According to DeLaat (1999), who carried out a multitude of case studies, it was found that in 1990,

The ten most common occupations for women were: secretary; elementary school teacher; cashier; registered nurse; bookkeeper; nurse's aide; salaried manager; administrator; sale representative; waitress; and salaried sales supervisor. (p.47)
Past research indicated that career expectations and subject choices were structured towards more traditional gender stereotypes, which were to the disadvantage of females (Warrington & Younger, 2000). Shamai (1996) found that schools, teachers, and the curriculum encouraged girls to display more passive and submissive behaviors and males more aggressive and independent behaviors. Society's views of what is male and what is female, as well as the educational curriculum, has helped reinforce the concept that areas such as science and mathematics are more masculine.

This form of educational sex stereotyping of subjects is continually strengthened when teachers marginalize girls in the classroom and respond more readily to boys than girls (Warrington & Younger, 2000). Gallagher (1996) found that boys are not only given more of the teachers' attention, but are also asked more higher-level questions. Teachers also initiate more higher-level interactions with boys than with girls. In fact, Gallagher (1996) also found that the discrepancies in the amount of time teachers spent discussing higher-level ideas with boys and girls increased from 10% in elementary school to 30% in secondary school classrooms. Hatchell (1998) determined that in the area of science, girls' attitudes become less positive than boys' attitudes. She also found that
encouragement plays a critical role in the greater participation of females in these “masculine” subject areas.

Woodward and Woodward (1998) further suggest that women are one of the country’s largest under-valued and under-used resources. These researchers believe that women do themselves a great injustice by opting out of science and other “masculine” courses. In the long run, they become ineligible to pursue those jobs and professions. Gail and Borchers (1994) agreed with this and further suggested, “This inadequate preparation effectively prohibits women from entering and remaining in...programs in these areas, and consequently, women are underrepresented in science, mathematics, and engineering professions” (p.66). This, in turn, allows men to continue dominating these fields.

Rothenberg (1995) agrees that the achievement for girls in science is not where it should be. Age 12 is considered to be pre-adolescence, a stage in which gender stereotypes have typically been shaped (Shamai, 1996). Yet, research from Miller and Budd (1999) determined that beliefs regarding jobs as being predominantly “masculine” or “feminine”, and evidence of sex-role stereotyping, were found across all ages groups of children, even as young as 6-years old. According to DeLaat (1999), even though there is an increase in the number of women applying to and being accepted into medical school, younger females are still not being
"... encouraged to excel in mathematics and science, especially between the ages of 11 and 15" (p.15). And yet, even as the times do change, girls' attitudes of science and mathematics remain the same. There is such a negative attitude towards these subjects among girls that it is no wonder that they are not involved in mathematics and the sciences.

Pre-1988, before the introduction of the National Curriculum by the Education Act in England, it was not mandated that girls and boys take the same courses. Therefore girls elected to avoid the more masculine subjects, and in turn, boys participated less in languages and humanities. However, since the National Curriculum by the Education Act of 1988, girls and boys were required to follow the same curriculum and consequently, there has been much less divergence in subject choice (Francis, 2000). However, it is still seen that "Far fewer females go on to take... degree courses in the sciences than do males, and far fewer males go on to take art subjects" (Francis, 2000 p.36).

According to Erwin and Maurutto (1998), women now account for approximately half of the baccalaureate degrees awarded in most industrialized countries, yet are still significantly underrepresented in science and technology on a global scale. According to Arambula-Greenfield and Feldman (1997), women accounted for only 30 percent of baccalaureate degrees in the sciences, and represented only 16 percent
of all employed scientists and engineers. (Helwig, Anderson, & Tindal, 2001). These figures were drastically different for men. Eight-five percent of all architects, 87 percent of all physicists and astronomers, 92 percent of all aerospace engineers, and 94 percent of all nuclear engineers were men. In terms of faculty positions at universities, nationwide, women held only 31 percent of the mathematics faculty positions, and represented 22 percent of scientists and engineers in 1993. According to Lichtenstein (1996), women still trail men in educational areas associated with higher skills and higher wages. In fact, women earn only 66 percent of the wages of similarly educated men. The same study found that by the time females become young adults, they are already at a disadvantage as compared with males, in basic skills, academic options and aspirations, vocational and career opportunities, and in anticipated economic security.
Reasons for Low Participation of Girls in Traditionally “Masculine” Subject Areas

Gender Stereotyping

Gender stereotyping is a monumental reason why girls participate less in mathematics and science than boys do. According to Hatchell (1998), from an early age, girls learn the appropriate toys to play with, and the correct way to act, and to a point, so do boys. Boys are given gifts such as chemistry sets to experiment with when they are little, trucks and other mechanical gadgets to play with that girls are not readily exposed to. Hendley and Parkinson (1995) found that, in the area of technology, those that had a hobby that pertained to technology in some way were more likely to participate in it in school than those who did not. Siaan and Callaghan (2001) support this view and further state that it is then not surprising that "...for the young person who does not have a particular intrinsic interest in the subject matter...entering such a course higher in education is not particularly appealing” (p.93). By the time these females enter into school, they have a much smaller range of experiences to relate to than do boys. Nash, Allsop, and Woolnough (cited in McCarthy & Moss, 1994) believed that girls were simply ignorant in subject areas like technology and consequently were unlikely to choose those subjects in
high school. Whatever the case may be, the end result is still the same:
Females are not equipped with the appropriate foundations for

The education system is supposed to provide the young people
with opportunities to encourage their intellectual growth and prepare them
for the outside world. Yet the majority of these research studies have
indicated that the gender gap has not been eliminated in the schools.
There is still the male image that surrounds areas such as mathematics,
science, and technology. Meanwhile, girls still show a lower interest in
these areas as they advance through school (Orenstein, 1994). The
actions that schools need to take now are to reduce these gender gaps
and encourage females in all academic areas. Once this occurs, maybe
the world of science and mathematics will not be considered solely
masculine.

Lack of Historic Women Role Models

Lack of historic women role models is another reason for lower
rates of female involvement in "masculine" subject areas as suggested by
Gail and Borchers (1994). Historically speaking, for women to even have
their work recognized at all, it had to have such an impact on the scientific
world that to exclude it would be inconceivable. Whereas for a male, it
was generally sufficient that he and his work were thought of as interesting (Hatchell, 1998). According to Boaler (1997), less than 30 years ago, in the UK, women were invisible in the history of mathematics. She describes this invisibility as "womanless mathematics" (p.288). She also found that mathematics textbooks dealt only with male experiences.

Siann and Callaghan (2001) believe that one way of encouraging females into these areas of study is by drawing the attention of female students to eminent women scientists as direct role models and also by bringing these women scientists into the schools for the females to meet and talk to. Kennedy and Parks (2000) believe that female students should have access to role-playing games and experiences specifically designed to increase their self-esteem and confidence, as well as enhance their independence. They also suggest that women need to be provided with role models in the classroom, as well as in textbooks for continued success in these areas.

**Gender Bias in Storybooks**

Historical based books and even fiction-based storybooks that children read in school generally portray "... one sided images of dependency, domesticity, and passivity- negative stereotypes rather than balanced and realistic portrayals of changing roles in modern society"
According to Paterson and Lach (1990) and Lueptow, Garovich-Szabo, and Lueptow (2001), numerous studies have shown that females, always outnumbered by males by a significant proportion in storybooks, were typically portrayed as dependent, talkative, submissive, sympathetic, gentle, emotional, and generally incapable. Males however, were seen as active, independent, dominant, aggressive, ambitious, adventurous, decisive, and generally competent.

Gender development is a critical part of even the earliest learning experiences. Caregivers, parents, and teachers formulate the social structures that initiate the young into their gender specific roles. Major influences on gender role development and socialization occur through picture books. Paterson and Lach (1990) suggest that these illustrations and implications embedded into the story are significant because they are the primary vehicles for the presentation of societal values to young children.

Children's books have, for a very long time, defined society's prevailing standards of masculine and feminine role development... Storybooks help young children learn about what other boys and girls do and say and feel... Readers learn from a ...story what is expected of children and come to realize the accepted standards of right and wrong within the complexity of their gender... Picture books provide children with role models and clear images that prescribe for the children what they can and should be like when they grow up. (Patterson & Lach, 1990, p.188)
As seen from Paterson and Lach's (1990) research and data, the messages contained in these books about appropriate behavior and about life possibilities are very different for boys and girls. Today, this prevailing attitude of females and males in books are even more influential since more and more children are entering into day-care, pre-school, and nursery settings. More books are being read to children and being read by children. The longer children are exposed to materials containing sex-bias and stereotypes, the more sex-stereotyped their attitudes will become, and the longer those attitudes will be retained.

**Peer Pressure**

Letts (2001) suggests that schools are places where children actively take up gendered identities while learning to be members of the social world. Peer pressure is an important factor in regards to the social world. In fact no discussion of gender differences is complete without this factor. The importance of fitting in grows more critical with every passing year and participating in these "masculine" subjects and succeeding in them might give some students, particularly girls, a negative stigma (Gallagher, 1996). Kennedy and Parks (2000) also determined that females generally tend to ask fewer questions and withhold information for fear of putdowns by both male dominated faculty and fellow male
students. Ungar (2000) suggests that in the quest for acceptance, some students may share their power with others through conformity. It is this conformity that brings a measure of acceptance to the group and allows the student to use this group identity or power to feel better about him/herself. Through long-term participant observation in adolescent groups, Berdnt (1999) found that the psychological rewards of belonging to a group and being admired by group members was enough to assure conformity to the group norms.

Ryan (2002) further suggests that the peer group was influential regarding students’ motivation for school as well as achievement levels of peers. He found that “Students with high-achieving friends showed greater increases in achievement over time compared to students with lower-achieving friends” (p.107). Berndt (1999) further determined that it was not just everyday peers that most influenced the group; rather it was close friends, who were most influential.

These theories largely endorse the common sense hypothesis that people are influenced by the attitudes, behaviors, and other characteristics of their friends, as suggested by Berndt (1999). Negative as well as positive effects of peer pressure can be demonstrated. In one study by Epstein (cited in Berndt, 1999), it was found “...that the influences of friends with positive characteristics is as great as the influence of friends
with negative characteristics" (p.20). Eccles (cited in Gallagher, 1996) determined that a casual relationship could be drawn from parental pressure, peer disapproval, social culture, and poor counseling to girls' choices to drop out of areas such as math and science.

**Teacher Perceptions of Students**

One area that is often over looked is how teachers perceive their students and their abilities. Helwig, Anderson, and Tindal (2001) suggest that "Teachers' evaluations of students' skill levels influence their choice of content and pace of study... It follows then, that learning is directly affected by teacher perceptions of their students' subject matter proficiencies" (p.93). The magnitude of the gender differences has been exaggerated through the use of conclusions reported out of context as well as the selective release of information, as suggested by Helwig, Anderson and Tindal (2001). According to their research, it has been documented that "In at least three studies... teachers attribute success of boys in mathematics to ability and the success of girls to effort" (p.96). Helwig, Anderson and Tindal (2001) state though, that some portion of teachers' perceptions may in part be due to student behavior in the classroom.

Warrington, Younger, and Williams (2000) agree with this and further suggest that in some instances, the reactions of teachers actually
served to reinforce the stereotypic behavior. Yet Helwig, Anderson and Tindal (2001) slightly contradict that notion of reinforcing stereotypic behaviors by stating that in some cases, the gender bias against the females is actually masked by the behavior bias against the males. However, in a study conducted by Gallagher (1996), it was found that “When comparing best boys and best girls in their classes, the teachers reported that boys were more competitive, logical, adventurous, engaged, and independent in mathematics. Conversely, girls were perceived as more dependent and as volunteering less often” (p.465). The message teachers were sending was very clear; Teachers perceive girls as needing more help to succeed, but boys can make it on their own.

Encouragement

Encouragement, or lack thereof, also plays a role in female participation. If girls could be encouraged, instead of discouraged, to take “masculine” subjects, such as mathematics, Eccles (cited in Gallagher, 1996) suggested, then girls would make better choices in these areas. Oftentimes, the perceptions females get from their teachers play a crucial role in their academic development. Girls are highly responsive to adult encouragement, and Wilson and Milson (1993) found that girls practically require this adult encouragement in order to continue exploring these
scientific fields. Wilson and Milson (1993) further suggest that when encouraged by adults, girls are more willing to take risks and their attitudes regarding these subjects will typically improve.

Without the proper guidance, motivation, and encouragement, a female's success in these areas may take a backseat to that of the male achievement levels. In the studies where female achievement outranked that of the males, the teacher not only encouraged the females to succeed, but the males and females were treated equally. But Taylor and Sweetnam (1999) still determined that science as well as other "masculine" classes sent clear messages that discouraged female students who may then stop taking these courses. It was also found that females are dissuaded away from areas such as technology, mathematics, and science during their elementary school years, which is partially why they typically do not enroll in these areas in high school.

Expectations

Expectations for students also play a monumental role in female participation, or lack thereof. One reason for the lack of female participation in these areas may be do to the expectations of teachers, parents, and/or societies. It is frequently proven that if the teacher has
high expectations, the students will perform accordingly, as suggested by the Pygmalion effect (Wilson & Milson, 1993).

In one study conducted by Hatchell (1998), a middle school science teacher appeared to be influential in the attempts to breakdown this sex stereotyping issue. The male science teacher stated that he treated both girls and boys equally in his classroom because he believed girls could be “very high achievers” academically. In this study, female students actually outperformed the male students. According to Roger and Duffield (2000), this suggests that teachers’ expectations as well as their attitudes are typically influential in shaping the “local gender culture” of schools and thereby counteracting the stereotypical gender identity formation of young children.

Yet Correll (2001) found that “Male and female teachers at all grade levels routinely have lower expectation in math for females than for males... Research also suggests that parents convey different expectations of mathematical success to their male and female children” (p.1695). According to Gail and Borchers (1994), “Teachers unintentionally reflect traditional roles for their students through their expectations for behavior in the classroom, selections of topics for instruction, and the de-emphasis at the elementary level of science and
other subjects that require critical thinking skills" (p.73). As Gallagher (1996) states,

Even in classrooms where there were no differences in achievement... teachers were more likely to report that (a) males' successes were attributed to ability, but females' successes to effort; (b) males failures were attributed, in part, to a lack of effective instruction; and (c) females' successes were attributed to teacher assistance, not to ability. (p.466)

Lueptow, Garovich-Szabo, and Luwptow (2001) suggest that in spite of the widespread expectations and desires, the various aspects of gender differentiation are not disappearing. Thus, as a society, different beliefs are associated with males and females regarding these academic areas. Attitudes and expectations, therefore, play a major role in shaping both male and female attitudes in this area.

Summary

Women continue to be one of the most overlooked groups across America. Those women who attempt to become part of the science, engineering, mathematical, or technological field are continuously confronted with barriers and biases. Though early exposure to significant scientific, technological, and mathematical education is essential, there needs to be more than academics these women come in contact with.
What is needed is more exposure to female role models, historical or present day, such as female mathematics teachers and professors.

Significant improvements have been made in these areas, however gender-equitable education and gender-equitable employment still remain an illusive dream. Reay (2001) suggests that while girls seem to be more successful than boys, academically, it is apparent that in most primary classrooms, girls and boys still learn many of the old lessons of gender relations, which work against the idea of gender equity. Until these barriers are eradicated, the current gender problems will not disappear. It is only through supportive and encouraging families, non-sex-biased classrooms, adult encouragement, high expectations, and risk-taking that women will finally break away from traditional societal views and into professions in which men still dominate.
CHAPTER III

Purpose

The purpose of this study was to determine what school subjects elementary school aged children perceived as more masculine and feminine.

Research Question

What school subjects do elementary school aged boys and girls perceive as more masculine and or feminine?

Methodology

Subjects:

The subjects for this study were 300 elementary school boys and girls, grades four though six from both urban and suburban school districts.

Materials:

A researcher-developed survey was used to obtain students' perceptions and attitudes regarding a variety of school subjects and areas.
Procedure:

Three hundred researcher-developed surveys were given to various elementary school teachers to administer to their students. The students were required to complete all questions presented on the survey and return them to the teacher. Once these surveys were completed and returned to the researcher, the results were tallied and analyzed.

Analysis:

This research study was analyzed using both quantitative and qualitative methods. Once analyzed, the data were then compared to past and present research. The conclusions that were determined were based upon all research and data presented.
CHAPTER IV

Purpose

The purpose of this study was to determine what school subjects elementary school aged children perceived as more masculine and feminine.

Research Question

What school subjects do elementary school aged boys and girls perceive as more masculine and or feminine?

Out of the 300 students asked to complete the researcher-designed survey, 300 surveys were completed and returned. The total number of students who completed the survey can be seen in Table 1. The results are separated by grade and gender.

<table>
<thead>
<tr>
<th>(Table 1)</th>
<th>Grade Four</th>
<th>Grade Five</th>
<th>Grade Six</th>
</tr>
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<tbody>
<tr>
<td>Girls</td>
<td>33</td>
<td>42</td>
<td>77</td>
</tr>
<tr>
<td>Boys</td>
<td>47</td>
<td>37</td>
<td>64</td>
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<tr>
<td>Totals</td>
<td>80</td>
<td>79</td>
<td>141</td>
</tr>
<tr>
<td>Total Responses</td>
<td>300</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chapter four presented the results from the researcher—designed survey in numerical form. Each question in the survey was analyzed and the results
were placed in tables, the values of which were shown as percentages. Each table was separated by grade, gender, and subject.

Tables 2 through 4 presented the results of question two on the survey, which asked students, grades four through six, to rank the importance of core subjects from 1-5; one being most important and 5 being least important. These subjects included mathematics, social studies, reading, science, and writing.

Tables 5-7 presented the results from question 3 of the survey. This question asked the same students to rank the importance of specials from 1-4, one being most important and 4 being least important. These specials included art, music, physical education, and computers.

Tables 8 and 9 presented the results from question 4 of the survey, which asked the students to indicate possible career choices. Table 8 detailed boys' responses, grade 4 through 6, and Table 9 detailed girls' responses, grades four through six.

Tables 10-15 presented the results from question 5 of the survey, which asked the same students, grades four through six, to indicate whom they perceived as more capable in a variety of school subjects. Students were able to choose boys, girls, or neither (neither boys nor girls). Tables 10-12 indicated results that pertained to the core subjects such as mathematics, social studies, science, reading, and writing. Tables 13-15 indicated results that pertained to the specials such as art, music, physical education, computers, and library.
Table 2
Order of Importance of Core Subjects to Fourth Graders
1 = most important; 5 = least important
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Importance</th>
<th>Mathematics</th>
<th>Social Studies</th>
<th>Reading</th>
<th>Science</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
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<tr>
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<td>19</td>
<td>30</td>
<td>23</td>
<td>6</td>
<td>31</td>
</tr>
<tr>
<td>Girls</td>
<td>Number 1</td>
<td>34</td>
<td>12</td>
<td>12</td>
<td>34</td>
<td>15</td>
</tr>
<tr>
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<td>Number 5</td>
<td>18</td>
<td>30</td>
<td>18</td>
<td>21</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 3
Order of Importance of Core Subjects to Fifth Graders
1 = most important; 5 = least important
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Importance</th>
<th>Mathematics</th>
<th>Social Studies</th>
<th>Reading</th>
<th>Science</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
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<td></td>
<td>Number 4</td>
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<td>19</td>
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<td>14</td>
<td>17</td>
<td>6</td>
<td>28</td>
<td>32</td>
</tr>
<tr>
<td>Girls</td>
<td>Number 1</td>
<td>39</td>
<td>17</td>
<td>24</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
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<td>Number 5</td>
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<td>29</td>
<td>15</td>
<td>24</td>
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</tr>
</tbody>
</table>

Table 4
Order of Importance of Core Subjects to Sixth Graders
1 = most important; 5 = least important
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Importance</th>
<th>Mathematics</th>
<th>Social Studies</th>
<th>Reading</th>
<th>Science</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
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<tr>
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<tr>
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<td>Number 5</td>
<td>7</td>
<td>21</td>
<td>16</td>
<td>21</td>
<td>33</td>
</tr>
<tr>
<td>Girls</td>
<td>Number 1</td>
<td>31</td>
<td>9</td>
<td>22</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Number 2</td>
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<td>27</td>
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<td>Number 3</td>
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<td></td>
<td>Number 4</td>
<td>14</td>
<td>23</td>
<td>19</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Number 5</td>
<td>26</td>
<td>27</td>
<td>13</td>
<td>21</td>
<td>10</td>
</tr>
</tbody>
</table>
MATHEMATICS:

Thirty-four percent of fourth grade girls found mathematics to be most important and less than 20% found it to be least important in both fourth and fifth grade. The level of importance peaked in fifth grade with 39% indicating mathematics as most important. However, in sixth grade, this number dropped to 31%. It should be noted that 26% of sixth grade girls found mathematics as the least important subject.

Thirty percent of fourth grade boys found mathematics to be the most important subject. The level of importance also peaked for boys in the fifth grade with 50% indicating mathematics as the most important. This number dropped slightly to 44% in sixth grade. However, as grade level increased for boys, the number of boys ranking mathematics as least important continuously dropped and in sixth grade was as low as 7%.

With exception to fourth graders, boys more frequently indicated mathematics to be more important than girls did.

SOCIAL STUDIES:

As grade level increased, the importance of social studies for boys decreased slightly from 19% in fourth grade to 13% in sixth grade. With exception to fifth graders, which placed social studies as number two with 31%, the majority of boys placed social studies as least important. Girls
also frequently placed social studies as a lesser important subject with 31% of fourth grade girls placing social studies as number 4 and 30% as least important; 29% of fifth grade girls and 27% of sixth grade girls placing social studies as least important.

**READING:**

Excluding fifth grade boys, who indicated reading to be somewhere in between most important and least important, reading became slightly more important (4% increase) as boys went entered sixth grade. Also, only 13% of sixth grade boys as compared to 23% of fourth grade boys ranked reading as least important.

The importance of reading for girls increased from 12% in fourth grade to 24% in fifth grade and then dropped to 22% in sixth grade. However, there was a steady and continuous decrease in percentage for reading being least important, meaning that as grade level increased, fewer girls ranked reading as least important.
SCIENCE:

As grade level increased, boys’ perceptions that science was the most important subject decreased from 32% in fourth grade to 18% in sixth grade. Boys also more frequently ranked science as least important in grades five and six.

Thirty-four percent of girls in fourth grade indicated science as most important. This value dropped significantly to 5% in fifth grade and then increased to 18% in sixth grade. Girls in grades five and six indicated that science was not as important as it was in earlier grades and continuously placed science as number three and four in importance.

WRITING:

Boys, grades four through six, consistently ranked writing as least important; 31% in grade four, 32% in grade five and 33% in grade six. Boys seemed to indicate that writing was not particularly important, seeing as how only 14% of fourth grade boys, 11% of fifth grade boys, and 13% of sixth grade boys ranked writing as most important. Girls, on the other hand, indicated writing as being slightly more important as grade level increased, with 15% of fourth grade girls, 17% of fifth grade girls, and 22% of sixth grade girls placed writing as most important.
Table 5
Order of Importance of “Specials” to Fourth Graders
1 = most important; 4 = least important
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Importance</th>
<th>Art</th>
<th>Music</th>
<th>Physical Education</th>
<th>Computers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Number 1</td>
<td>29</td>
<td>12</td>
<td>60</td>
<td>17</td>
</tr>
<tr>
<td></td>
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<td>33</td>
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<td>Number 4</td>
<td>14</td>
<td>19</td>
<td>14</td>
<td>24</td>
</tr>
<tr>
<td>Girls</td>
<td>Number 1</td>
<td>24</td>
<td>15</td>
<td>58</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Number 2</td>
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</tr>
<tr>
<td></td>
<td>Number 4</td>
<td>24</td>
<td>27</td>
<td>21</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 6
Order of Importance of “Specials” to Fifth Graders
1 = most important; 4 = least important
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Importance</th>
<th>Art</th>
<th>Music</th>
<th>Physical Education</th>
<th>Computers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
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<td>6</td>
<td>70</td>
<td>17</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td>Number 3</td>
<td>46</td>
<td>41</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Number 4</td>
<td>6</td>
<td>31</td>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>Girls</td>
<td>Number 1</td>
<td>32</td>
<td>12</td>
<td>51</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Number 2</td>
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<td>24</td>
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<tr>
<td></td>
<td>Number 4</td>
<td>24</td>
<td>24</td>
<td>10</td>
<td>49</td>
</tr>
</tbody>
</table>

Table 7
Order of Importance of “Specials” to Sixth Graders
1 = most important; 4 = least important
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Importance</th>
<th>Art</th>
<th>Music</th>
<th>Physical Education</th>
<th>Computers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Number 1</td>
<td>20</td>
<td>5</td>
<td>64</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Number 2</td>
<td>53</td>
<td>16</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Number 3</td>
<td>20</td>
<td>40</td>
<td>18</td>
<td>21</td>
</tr>
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<td>Number 4</td>
<td>7</td>
<td>39</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>Girls</td>
<td>Number 1</td>
<td>41</td>
<td>12</td>
<td>41</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Number 2</td>
<td>23</td>
<td>39</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Number 3</td>
<td>26</td>
<td>30</td>
<td>27</td>
<td>22</td>
</tr>
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<td>Number 4</td>
<td>10</td>
<td>19</td>
<td>13</td>
<td>51</td>
</tr>
</tbody>
</table>
**ART:**

Generally, the majority of boys, grades four through six, indicated that art was somewhere between most important and least important, consistently ranking art as number 2 and 3. However, girls, grades four through six, showed a steady increase in the importance of art as grade level increased; 24% of fourth grade girls, 32% of fifth grade girls, and 41% of sixth grade girls placed art as most important.

**MUSIC:**

Boys, grades four through six, consistently ranked music as number 3 in importance; 40% of fourth grade boys, 41% of fifth grade boys, and 40% of sixth grade boys. Only 12% of fourth grade boys, 6% of fifth grade boys, and 5% of sixth grade boys placed music as most important. Girls also indicated music as being slightly less important, with only 15% of fourth grade girls, 12% of fifth grade girls, and 12% of sixth grade girls ranking music as most important. The majority of fourth grade girls (43%) placed music as number 3 and the majority of fifth grade girls (37%) and sixth grade girls (39%) placed music as number 2.
PHYSICAL EDUCATION:

Boys and girls, grades four through six overwhelmingly ranked physical education as most important. An astounding 60% of fourth grade boys, 70% of fifth grade boys, and 64% of sixth grade boys placed physical education as most important; 58% of fourth grade girls, 51% of fifth grade girls, and 41% of sixth grade girls placed physical education as most important. Directly proportional to these percentages, few boys or girls, grades four through six, ranked physical education as least important.

COMPUTERS:

With exception of fourth grade boys, the majority of which ranked computers as number 2 in importance with 26%, boys in grades five and six overwhelmingly ranked computers as least important with 50% of fifth grade boys and 45% of sixth grade boys. The girls followed this same trend. Forty-six percent of fourth grade girls placed computers as number 2 in importance, and 49% of fifth grade girls and 51% of sixth grade girls ranked computers as least important.
### Table 8
Career Choices for Boys
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Career Choices</th>
<th>Fourth Grade Boys</th>
<th>Fifth Grade Boys</th>
<th>Sixth Grade Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics</td>
<td>23</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>Clergy</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Computers</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Customer Service</td>
<td>15</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Education</td>
<td>7</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Firefighting</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Law Enforcement</td>
<td>13</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Medicine</td>
<td>4</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Military/government/judicial</td>
<td>12</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Performing arts/music/art</td>
<td>5</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Publishing</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sciences</td>
<td>5</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Trade</td>
<td>4</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

### Table 9
Career Choices for Girls
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Career Choices</th>
<th>Fourth Grade Girls</th>
<th>Fifth Grade Girls</th>
<th>Sixth Grade Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics</td>
<td>3</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Clergy</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Computers</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Customer service</td>
<td>13</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Education</td>
<td>28</td>
<td>24</td>
<td>23</td>
</tr>
<tr>
<td>Homemaker</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Law enforcement</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Medicine</td>
<td>21</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Military/government/judicial</td>
<td>6</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Performing arts/music/art</td>
<td>21</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Publishing</td>
<td>2</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Sciences</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Trade</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>
The majority of boys, grades four through six, indicated the desire to enter careers in the field of athletics. Careers in the area of education, customer service and law enforcement were the next most frequent career choices for fourth, fifth and sixth grade boys. Other career choices for boys, grades four through six included areas such as the computer field, medicine, trade, military/government/judicial, performing arts/music/art, clergy, firefighting, and publishing.

The majority of girls, grades four through six, indicated a desire to enter the field of education. Performing arts/music/art and the field of medicine were the next most frequent career choices for girls, grades four through six. Other career choices included areas such as the computer field, clergy, athletics, customer service, law enforcement, military/government/judicial, science, trade, and publishing.
Table 10
Gender with greatest ability in Core Subjects according to Fourth Graders
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Greatest Ability</th>
<th>Mathematics</th>
<th>Social Studies</th>
<th>Science</th>
<th>Reading</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Boys</td>
<td>34</td>
<td>21</td>
<td>68</td>
<td>21</td>
<td>28</td>
</tr>
<tr>
<td>Girls</td>
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<td>32</td>
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<td>9</td>
<td>49</td>
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<td>34</td>
<td>34</td>
<td>23</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>Girls</td>
<td>Boys</td>
<td>18</td>
<td>24</td>
<td>21</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Girls</td>
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<td>30</td>
<td>30</td>
<td>42</td>
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<tr>
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<td></td>
<td>61</td>
<td>36</td>
<td>49</td>
<td>58</td>
<td>52</td>
</tr>
</tbody>
</table>

Table 11
Gender with greatest ability in Core Subjects according to Fifth Graders
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Greatest Ability</th>
<th>Mathematics</th>
<th>Social Studies</th>
<th>Science</th>
<th>Reading</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Boys</td>
<td>48</td>
<td>30</td>
<td>54</td>
<td>35</td>
<td>16</td>
</tr>
<tr>
<td>Girls</td>
<td></td>
<td>14</td>
<td>24</td>
<td>16</td>
<td>14</td>
<td>46</td>
</tr>
<tr>
<td>Neither</td>
<td></td>
<td>38</td>
<td>46</td>
<td>30</td>
<td>51</td>
<td>38</td>
</tr>
<tr>
<td>Girls</td>
<td>Boys</td>
<td>19</td>
<td>40</td>
<td>33</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Girls</td>
<td></td>
<td>50</td>
<td>24</td>
<td>36</td>
<td>43</td>
<td>54</td>
</tr>
<tr>
<td>Neither</td>
<td></td>
<td>31</td>
<td>36</td>
<td>31</td>
<td>47</td>
<td>36</td>
</tr>
</tbody>
</table>

Table 12
Gender with greatest ability in Core Subjects according to Sixth Graders
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Greatest Ability</th>
<th>Mathematics</th>
<th>Social Studies</th>
<th>Science</th>
<th>Reading</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Boys</td>
<td>37</td>
<td>21</td>
<td>54</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Girls</td>
<td></td>
<td>14</td>
<td>29</td>
<td>8</td>
<td>46</td>
<td>48</td>
</tr>
<tr>
<td>Neither</td>
<td></td>
<td>49</td>
<td>50</td>
<td>38</td>
<td>46</td>
<td>41</td>
</tr>
<tr>
<td>Girls</td>
<td>Boys</td>
<td>25</td>
<td>25</td>
<td>48</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Girls</td>
<td></td>
<td>34</td>
<td>29</td>
<td>10</td>
<td>52</td>
<td>55</td>
</tr>
<tr>
<td>Neither</td>
<td></td>
<td>41</td>
<td>46</td>
<td>42</td>
<td>42</td>
<td>40</td>
</tr>
</tbody>
</table>
MATHEMATICS:

Thirty-four percent of fourth grade boys indicated that boys had greater abilities in mathematics, yet 34% also indicated that neither boys nor girls had greater abilities in mathematics. Forty-eight percent of fifth grade boys seemed to think that boys had greater abilities than girls in mathematics, and 47% of sixth grade boys indicated that neither boys nor girls had greater abilities in mathematics. However, boys, grades four through six did not believe that girls had greater abilities in mathematics, with all the percentages in the "girls" category on the low side. Girls indicated that as grade level increased, both boys and girls increased in mathematical ability, but indicated that girls had more ability than boys did. Twenty-one percent of fourth grade girls, 50% of fifth grade girls, and 34% of sixth grade girls indicated that girls were better in mathematics. These same girls indicated that, in fourth grade, only 18% of boys were better in mathematics; fifth grade girls indicated that only 19% of boys were better in mathematics; sixth grade girls indicated 25% of boys to be more able in mathematics.

SOCIAL STUDIES:

Forty-five percent of fourth grade boys indicated that girls were more able in the area of social studies. Forty-six percent of fifth grade
boys and 50% of sixth grade boys indicated that neither boys nor girls had greater ability levels in social studies. The girls varied tremendously in this area. Forty percent of fourth grade girls indicated that girls were more able, yet 40% of fifth grade girls believed that boys were more capable in this area. By the time girls reached sixth grade, 46% indicated that there was no difference in ability levels between boys and girls in the area of social studies.

**SCIENCE:**

Sixty-eight percent of fourth grade boys and 54% of both fifth and sixth grade boys indicated that boys were better than girls in science. The majority of fourth grade girls, 49%, felt that neither boys nor girls were better in science. In fifth grade, only 3% more of girls felt that girls were better in science (36% compared to 33% indicating boys to be better in this area). At the sixth grade level, 48% of girls overwhelmingly indicated that boys had more ability than girls did in science.

**READING:**

Fourth and sixth grade boys predominately indicated that boys were less proficient in the area of reading. The majority of fourth grade boys indicated that girls had the upper hand in this area. Forty-six percent
of sixth grade boys felt that girls were better, yet 46% of sixth grade boys also felt that neither boys nor girls had higher ability levels in the area of reading. In fifth grade, 35% of boys indicated boys were better in the area of reading, and 51% indicated that neither boys nor girls were better in this area. Girls in grades four and five both indicated that neither boys nor girls were better in the area of reading (51% of fourth grade girls and 47% of fifth grade girls). The majority of sixth grade girls (57%) indicated that girls had greater abilities in reading then boys did, yet 42% still felt that there was no difference in ability level of boys and girls in this subject.

**WRITING:**

The majority of boys, grades four through six, felt that girls were more capable in the area of writing; 44% of fourth grade boys, 46% of fifth grade boys, and 48% of sixth grade boys. With the exception of fourth grade girls, of which 52% indicated that there was no difference in ability level between boys and girls in writing, 46% of fifth grade girls and 55% of sixth grade girls indicated that girls were more capable in writing.
### Table 13
Gender with greatest ability in "Specials" according to Fourth Graders
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Greatest Ability</th>
<th>Art</th>
<th>Music</th>
<th>Physical Education</th>
<th>Computers</th>
<th>Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Boys</td>
<td>44</td>
<td>21</td>
<td>64</td>
<td>49</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>26</td>
<td>53</td>
<td>17</td>
<td>21</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Neither</td>
<td>30</td>
<td>26</td>
<td>19</td>
<td>30</td>
<td>38</td>
</tr>
<tr>
<td>Girls</td>
<td>Boys</td>
<td>18</td>
<td>9</td>
<td>49</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>52</td>
<td>82</td>
<td>18</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Neither</td>
<td>30</td>
<td>9</td>
<td>33</td>
<td>46</td>
<td>55</td>
</tr>
</tbody>
</table>

### Table 14
Gender with greatest ability in "Specials" according to Fifth Graders
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Greatest Ability</th>
<th>Art</th>
<th>Music</th>
<th>Physical Education</th>
<th>Computers</th>
<th>Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Boys</td>
<td>49</td>
<td>19</td>
<td>76</td>
<td>57</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>35</td>
<td>57</td>
<td>5</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Neither</td>
<td>16</td>
<td>24</td>
<td>19</td>
<td>32</td>
<td>59</td>
</tr>
<tr>
<td>Girls</td>
<td>Boys</td>
<td>17</td>
<td>8</td>
<td>57</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>54</td>
<td>84</td>
<td>19</td>
<td>38</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Neither</td>
<td>29</td>
<td>14</td>
<td>24</td>
<td>45</td>
<td>29</td>
</tr>
</tbody>
</table>

### Table 15
Gender with greatest ability in "Specials" according to Sixth Graders
Numbers are shown in Percentages (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Greatest Ability</th>
<th>Art</th>
<th>Music</th>
<th>Physical Education</th>
<th>Computers</th>
<th>Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Boys</td>
<td>34</td>
<td>5</td>
<td>87</td>
<td>40</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>33</td>
<td>68</td>
<td>2</td>
<td>14</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Neither</td>
<td>33</td>
<td>27</td>
<td>11</td>
<td>46</td>
<td>43</td>
</tr>
<tr>
<td>Girls</td>
<td>Boys</td>
<td>8</td>
<td>4</td>
<td>67</td>
<td>26</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>65</td>
<td>75</td>
<td>6</td>
<td>27</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Neither</td>
<td>27</td>
<td>21</td>
<td>27</td>
<td>47</td>
<td>61</td>
</tr>
</tbody>
</table>
ART:

Boys, grades four through six, consistently indicated that boys were more capable in art than girls were. Forty-four percent of fourth grade boys, 49% of fifth grade boys, and 34% of sixth grade boys indicated boys as being better in this area. Yet, with the exception of fifth grade boys, high percentages of boys also indicated that there were no ability differences between genders in art. These percentages were still lower than those that indicated boys to be more capable in art. Girls seemed to indicate that as grade level increased, the ability of boys in this area decreased and the ability of girls in this area increased. Eighteen percent of fourth grade girls indicated boys as being better in art as compared to 52% in favor of girls being more capable; 17% of fifth grade girls indicated boys as being better as compared to 54% in favor if girls being more capable; 8% of sixth grade girls indicated boys as being better in art as compared to 65% in favor of girls being more capable in art. The percentages for both boys and girls, grades four through six, were comparable in the “neither” category with a peak variance of 13%.
MUSIC:

Boys, grades four through six, indicated that as grade level increased, the ability levels for boys in the area of music steadily decreased from 21% in fourth grade to 5% in sixth grade. Girls, on the other hand indicated that as grade level increased from grades four to six, the ability levels in the area of music steadily increased from 52% in fourth grade to 65% in sixth grade.

PHYSICAL EDUCATION:

Boys, grades four through six consistently indicated that as grade level increased, the ability levels for boys in the area of physical education increased. These percentages rose from 64% in fourth grade, to 76% in fifth grade, and topped at 87% in sixth grade. These boys also indicated that girls were not very capable in this area, and this lack of ability was actually heightened as the girls moved up in grade level. Overwhelmingly, boys believed that boys had better skills in this area. Girls, grades four through six, also indicated that as grade level increased, the abilities of boys in the area of physical education increased. The percentages ranged from 49% in fourth grade to 57% in fifth grade and topped to 67% in sixth grade. Less than 20% of girls in grades four and five indicated girls to be more capable in physical education, and this figure dropped to a mere 6%
in sixth grade. Nineteen percent of fourth grade boys and 33% of fourth
grade girls, 19% of fifth grade boys and 24% of fifth grade girls, and 11%
of sixth grade boys and 27% of sixth grade girls believed that there was no
difference in ability levels between boys and girls in physical education.

**COMPUTERS:**

With the exception sixth grade boys, who felt that there was no
difference in ability levels between boys and girls in the area of computers,
fourth and fifth grade boys believed that boys were more capable in the
area of computers than girls were. Forty-nine percent of fourth grade boys
indicated boys to be more able in computers as compared to only 21% of
girls; 57% of fifth grade boys felt that boys were better in the area of
computers as compared to only 11% of girls; 40% of sixth grade boys
indicated boys as being more capable in the area of computers as
compared to 14% of girls (46% felt there was no difference in ability
levels). The majority of girls, grade four through six indicated that there
was no major difference in ability levels between boys and girls in the area
of computers (46% of fourth grade girls, 45% of fifth grade girls, and 47%
of sixth grade girls).
LIBRARY:
With the exception to fifth grade boys, of whom 59% indicated that there was no difference in ability levels between boys and girls in the area of library, 41% of boys in grades four and 46% of boys in grade six indicated that girls were more able in library. With the exception of fifth grade girls, who indicated that girls were better in the area of library, 55% of girls in grade four and 61% of girls in grade six also indicated that there was no difference in ability levels between boys and girls in the area of library.
CHAPTER V
CONCLUSIONS AND FINDINGS

Purpose
The purpose of this study was to determine what school subjects elementary school aged children perceived as more masculine and feminine.

Conclusions
The set of data from this study, which asked boys and girls to rank the importance of school subjects, yielded stereotypical results that have been seen in past research studies. Boys more frequently than girls ranked mathematics, science, and physical education as number one in importance. Girls, on the other hand predominantly ranked reading, writing, art, and music as number one in importance. The areas of social studies and computers were given the lowest ranking among both boys and girls, implying that these two subjects were of little value to students at these grade levels. However, the data that were obtained by asking students to indicate whom they believed to be more capable in these same school subjects yielded slightly different results.
The results from that particular area of the study showed that as grade level increased from fourth to sixth grade, neither boys nor girls were indicated as having the greater ability levels in the area of mathematics. Fourth graders believed that girls were more capable in the area of social studies, but as they moved into sixth grade it was shown that neither boys nor girls were more capable in this subject. Boys, grades four through six consistently indicated that their gender was better in the area of science. Girls, however, changed their views as grade level increased from neither boys nor girls, to girls, and finally deciding that boys were more capable in science. Fourth grade boys and sixth grade girls agreed that girls were better in the area of reading, yet fourth grade girls and all fifth graders believed that neither boys nor girls were more capable in this area. By sixth grade, boys gave equal percentages for girls being more capable and neither boys nor girls as being better in this area. All students, grades four through six, overwhelmingly agreed that girls were more proficient in the area of writing and music than boys were whereas boys were more capable in the area of physical education. Each gender indicated that they were more capable than the other gender in the area of art, and this trend continued through sixth grade. Students’ indications of ability level in the area of library varied between girls being more capable and neither boys nor girls being more capable. None of the
students indicated that boys were better at this special. Sixth grade boys and girls indicated that neither boys nor girls were more capable with computers. However, fourth and fifth grade boys believed that the male gender had the upper hand in this area whereas fourth and fifth grade girls believed that neither boys nor girls were more capable in this area.

I believe that there was variation between the results due to the differences between students' school environment and the students' outside environment. Generally, the attitude or belief that certain areas are geared more towards males, and certain areas geared more for females is exacerbated though the attitudes of parents, the media, and environmental factors. Even though schools do enable this attitude in a variety of ways, such as by gender stereotyping in classrooms, allowing sex stereotyped books to be read and studied, not introducing male and female role models into the students' lives, the schools are trying to give both genders equal opportunities in the classrooms. This is made obvious when we see that girls and boys indicate no major difference in ability levels in areas such as mathematics, social studies, computers, and library. Since there are still certain subjects that boys and girls feel are geared towards each gender, as a teacher, I think that there is still more work that can be done.
There is also the factor of demographics and socioeconomic status. The students that participated in this study were from very different demographics. The majority of them were from very blue-collar families. Many of the participants were from both middle and lower class socioeconomic status. As a result, it was likely that these students would have had assorted opinions on what subjects were most and least important and as to which gender was more capable in certain scholastic areas.

**Implications for the Classroom**

As a result of this study, it was seen that more should be done in the classroom to enable a more equal vision of what subjects are important to boys and to girls. As we saw from the data that disclosed how boys and girls ranked a variety of school subjects, boys still ranked areas such as mathematics and science as most important whereas girls still ranked areas such as reading and writing as most important. These prevailing attitudes need to change in order to enable more equality in scholastic areas in high school and college.

As we have seen, parents, as well as the media facilitate more traditional attitudes. Students need to diverge from the stereotypical
scholastic trend. It is important to stress the importance of all subjects on both boys and girls at a young age. By allowing students, particularly female students, to read about, research, and listen and talk to outstanding females in areas such as mathematics, science, and physical education, as well as other avenues, we will open their minds to the ideas and beliefs that females can indeed excel in these areas that have been dominated by males. By allowing students, particularly male students to read about, research, and explore famous and outstanding male writers, composers, and artists, we can open up their minds that males can excel in these areas as well. What the schools, as well as the parents, friends, and media need to do is expose children to a variety of outstanding men and women whom excel in all fields. By allowing students to explore the achievements of both men and women, we as teachers and parents are inevitably encouraging each student to achieve and excel in whatever field of study that child ultimately wants to pursue.

**Recommendations for Future Research**

The study should be conducted again, however on a larger scale. The subjects should be given surveys every two years, starting at grade three and should be continued through the end of high school. The
subjects that participate should be from both white collar and blue-collar families, come from a variety of different backgrounds, and should attend schools in rural, urban, and suburban school districts. This diversity would allow for a very detailed and comprehensive collection of data that could then be compared and analyzed using both qualitative and quantitative methods.
References


*Gender & Education* 13 (3) 261-274.


Wilson, J.S., & Milson, J.L. (1993). Factors which contribute to shaping female’s attitudes toward the study of science and strategies which may attract females to the study of science. *Journal of Instructional Psychology* 20 (1) 78-87.

APPENDIX A

1. (Circle your answer) I am a BOY / GIRL

2. Rank these school subjects in order of importance to you
(1 being most important to you and 5 being least important to you)

<table>
<thead>
<tr>
<th>Subject</th>
<th>BOYS</th>
<th>GIRLS</th>
<th>Neither BOYS Nor GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computers</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Rank these school subjects in order of importance to you
(1 being most important to you and 4 being least important to you)

<table>
<thead>
<tr>
<th>Subject</th>
<th>BOYS</th>
<th>GIRLS</th>
<th>Neither BOYS Nor GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computers</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. If you had to pick two careers or jobs to have when you get older, what would they be?

5. Put an X in the box of who you think is better in each of these subjects. For instance, if you think that girls are better than boys in mathematics, put an X in the box that says GIRLS. If you think that boys are better than girls in mathematics, put an X in the box that says BOYS. If you think that boys and girls are equally as good in the subject, put an X in the box that says NEITHER.
APPENDIX B

When asked to rank the areas of mathematics, social studies, reading, science and writing in order of importance, 1 being the most important and 5 being the least important, students answered as followed (answers were shown in percentages and separated by grade, area and gender):

(Chart 1)

Fourth Grade Boys
Mathematics

<table>
<thead>
<tr>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19%</td>
</tr>
<tr>
<td>2</td>
<td>30%</td>
</tr>
<tr>
<td>3</td>
<td>16%</td>
</tr>
<tr>
<td>4</td>
<td>19%</td>
</tr>
<tr>
<td>5</td>
<td>16%</td>
</tr>
</tbody>
</table>

(Chart 2)

Fourth Grade Girls
Mathematics

<table>
<thead>
<tr>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18%</td>
</tr>
<tr>
<td>2</td>
<td>34%</td>
</tr>
<tr>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>4</td>
<td>12%</td>
</tr>
<tr>
<td>5</td>
<td>21%</td>
</tr>
</tbody>
</table>

(Chart 3)

Fifth Grade Boys
Mathematics

<table>
<thead>
<tr>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>14%</td>
</tr>
<tr>
<td>2</td>
<td>50%</td>
</tr>
<tr>
<td>3</td>
<td>8%</td>
</tr>
<tr>
<td>4</td>
<td>14%</td>
</tr>
<tr>
<td>5</td>
<td>14%</td>
</tr>
</tbody>
</table>

(Chart 4)

Fifth Grade Girls
Mathematics

<table>
<thead>
<tr>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12%</td>
</tr>
<tr>
<td>2</td>
<td>39%</td>
</tr>
<tr>
<td>3</td>
<td>17%</td>
</tr>
<tr>
<td>4</td>
<td>15%</td>
</tr>
<tr>
<td>5</td>
<td>17%</td>
</tr>
</tbody>
</table>

(Chart 5)

Sixth Grade Boys
Mathematics

<table>
<thead>
<tr>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18%</td>
</tr>
<tr>
<td>2</td>
<td>44%</td>
</tr>
<tr>
<td>3</td>
<td>7%</td>
</tr>
<tr>
<td>4</td>
<td>18%</td>
</tr>
<tr>
<td>5</td>
<td>13%</td>
</tr>
</tbody>
</table>

(Chart 6)

Sixth Grade Girls
Mathematics

<table>
<thead>
<tr>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26%</td>
</tr>
<tr>
<td>2</td>
<td>31%</td>
</tr>
<tr>
<td>3</td>
<td>14%</td>
</tr>
<tr>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>5</td>
<td>19%</td>
</tr>
</tbody>
</table>
Fourth Grade Boys
Science
- Number 1: 9%
- Number 2: 19%
- Number 3: 21%
- Number 4: 12%

Fourth Grade Girls
Science
- Number 1: 21%
- Number 2: 12%
- Number 3: 21%

Fifth Grade Boys
Science
- Number 1: 22%
- Number 2: 26%
- Number 3: 14%
- Number 4: 17%

Fifth Grade Girls
Science
- Number 1: 24%
- Number 2: 5%
- Number 3: 29%
- Number 4: 20%

Sixth Grade Boys
Science
- Number 1: 21%
- Number 2: 21%
- Number 3: 11%
- Number 4: 13%
- Number 5: 34%

Sixth Grade Girls
Science
- Number 1: 21%
- Number 2: 19%
- Number 3: 17%
- Number 4: 25%
When asked to rank the areas of art, music, physical education and computers in order of importance, 1 being the most important and 4 being the least important, students answered as followed (answers were shown in percentages and separated by grade, area and gender):

(Chart 31)

Fourth Grade Boys
Art
Number 1
Number 2
Number 3
Number 4

(Chart 32)

Fourth Grade Girls
Art
Number 1
Number 2
Number 3
Number 4

(Chart 33)

Fifth Grade Boys
Art
Number 1
Number 2
Number 3
Number 4

(Chart 34)

Fifth Grade Girls
Art
Number 1
Number 2
Number 3
Number 4

(Chart 35)

Sixth Grade Boys
Art
Number 1
Number 2
Number 3
Number 4

(Chart 36)

Sixth Grade Girls
Art
Number 1
Number 2
Number 3
Number 4
### Fourth Grade Boys
- Computers

- **Number 1**: 24%
- **Number 2**: 17%
- **Number 3**: 26%
- **Number 4**: 33%

### Fourth Grade Girls
- Computers

- **Number 1**: 27%
- **Number 2**: 46%
- **Number 3**: 21%
- **Number 4**: 6%

### Fifth Grade Boys
- Computers

- **Number 1**: 50%
- **Number 2**: 17%
- **Number 3**: 11%
- **Number 4**: 22%

### Fifth Grade Girls
- Computers

- **Number 1**: 49%
- **Number 2**: 24%
- **Number 3**: 49%
- **Number 4**: 20%

### Sixth Grade Boys
- Computers

- **Number 1**: 45%
- **Number 2**: 16%
- **Number 3**: 18%
- **Number 4**: 21%

### Sixth Grade Girls
- Computers

- **Number 1**: 51%
- **Number 2**: 18%
- **Number 3**: 18%
- **Number 4**: 22%
When asked to choose futuristic careers, students answered as followed (answers were shown in percentages and separated by grade and gender):
Fourth Grade Girls Career Choices

- Athletics
- Clergy
- Computers
- Customer service
- Education
- Homemaker
- Medicine
- Military/Government/judicial
- Performing arts/music/art
- Publishing

Fifth Grade Girls Career Choices

- Athletics
- Computers
- Customer service
- Education
- Medicine
- Military/government/judicial
- Performing arts/music/art
- Publishing
- Sciences
- Trade

Sixth Grade Girls Career Choices

- Athletics
- Clergy
- Computers
- Customer service
- Education
- Law enforcement
- Medicine
- Military/government/judicial
- Performing arts/music/art
- Publishing
- Sciences
- Trade
When asked to indicate whom students believed more able in a variety of school subjects, boys, girls, or neither boys nor girls, students answered as followed (answers are shown in percentages and separated by grade and gender):

(Chart 61)
Fourth Grade Boys Mathematics
- Boys: 34%
- Girls: 34%
- Neither: 32%

(Chart 62)
Fourth Grade Girls Mathematics
- Boys: 18%
- Girls: 61%
- Neither: 21%

(Chart 63)
Fifth Grade Boys Mathematics
- Boys: 38%
- Girls: 48%
- Neither: 14%

(Chart 64)
Fifth Grade Girls Mathematics
- Boys: 31%
- Girls: 19%
- Neither: 50%

(Chart 65)
Sixth Grade Boys Mathematics
- Boys: 49%
- Girls: 37%
- Neither: 14%

(Chart 66)
Sixth Grade Girls Mathematics
- Boys: 41%
- Girls: 25%
- Neither: 34%
Chart 79

Fourth Grade Boys
Music

- Boys: 26%
- Girls: 21%
- Neither: 53%

Chart 80

Fourth Grade Girls
Music

- Boys: 9%
- Girls: 9%
- Neither: 82%

Chart 81

Fifth Grade Boys
Music

- Boys: 24%
- Girls: 19%
- Neither: 57%

Chart 82

Fifth Grade Girls
Music

- Boys: 14%
- Girls: 2%
- Neither: 84%

Chart 83

Sixth Grade Boys
Music

- Boys: 27%
- Girls: 5%
- Neither: 68%

Chart 84

Sixth Grade Girls
Music

- Boys: 21%
- Girls: 4%
- Neither: 75%
Fourth Grade Boys Reading

- BOYS: 30%
- GIRLS: 21%
- NEITHER: 49%

Fourth Grade Girls Reading

- BOYS: 12%
- GIRLS: 58%
- NEITHER: 30%

Fifth Grade Boys Reading

- BOYS: 35%
- GIRLS: 14%
- NEITHER: 51%

Fifth Grade Girls Reading

- BOYS: 10%
- GIRLS: 47%
- NEITHER: 43%

Sixth Grade Boys Reading

- BOYS: 8%
- GIRLS: 46%
- NEITHER: 46%

Sixth Grade Girls Reading

- BOYS: 6%
- GIRLS: 42%
- NEITHER: 52%
Fourth Grade Boys
Writing

- Boys: 28%
- Girls: 28%
- Neither: 44%

Fifth Grade Boys
Writing

- Boys: 38%
- Girls: 16%
- Neither: 46%

Sixth Grade Boys
Writing

- Boys: 41%
- Girls: 11%
- Neither: 48%

Fourth Grade Girls
Writing

- Boys: 6%
- Girls: 52%
- Neither: 42%

Fifth Grade Girls
Writing

- Boys: 36%
- Girls: 10%
- Neither: 54%

Sixth Grade Girls
Writing

- Boys: 40%
- Girls: 5%
- Neither: 55%
Fourth Grade Boys
Computer

Fourth Grade Girls
Computer

Fifth Grade Boys
Computer

Fifth Grade Girls
Computer

Sixth Grade Boys
Computer

Sixth Grade Girls
Computer

BOYS
GIRLS
NEITHER

30%
21%
49%

24%
46%
30%

32%
11%
57%

17%
45%
38%

46%
14%
40%

26%
47%
27%