

SINGLE-GENDER CLASSROOMS:  
IMPROVING ACHIEVEMENT OF GRADE 9 MALES

by

Pamella Groves

B.A., B. Ed., University of British Columbia, 1993

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APPROVAL

Name: Pamella Groves

Degree: Master of Education in Counselling

Thesis Title: SINGLE-GENDER CLASSROOMS: IMPROVING  
ACHIEVEMENT OF GRADE 9 MALES

Examining Committee:

---

Supervisor: Dr. Dennis Procter  
Associate Professor, Education  
University of Northern British Columbia

---

Committee Member: Dr. Colin Chasteauneuf  
Assistant Professor, Education  
University of Northern British Columbia

---

Committee Member: Brian Kangas  
Master of Education, Director of Instruction  
School District #52

---

External Examiner:  
Dr. Si Transken  
Assistant Professor, Social Work  
University of Northern British Columbia

Date Approved:

---

### ABSTRACT

This qualitative research project examined the experience of participants in single-gender Math and English classes within a coeducational middle school in British Columbia, Canada. Through interviews, 30 boys and 2 teachers described a typical day in single-gender and mixed-gender classes. Responses provided insight into the attitude, behavior and achievement of Grade 9 male students. Teaching strategies tailored to best meet the needs of male students were investigated. Students and teachers documented gains in achievement. The greatest improvement in achievement occurred with below average students; students with A-averages disliked the class. Conversation, comfort, support, participation, joking around, and physical interactions increase, yet bullying behaviors decrease. The boys' culture does not change; it is merely strengthened. Finally, classroom management with boundaries and lessons that reflect the boys' need for physical and verbal interactions leads to a classroom that serves the academic and social needs of the boys.

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## CHAPTER ONE: SINGLE-GENDER CLASSROOMS

### Introduction

Some of British Columbia's schoolboys are in trouble; they are falling behind their female counter parts in the subject areas of Reading and Writing (Gurian, 2001; Lee, 2000; British Columbia Ministry of Education, 2003; Programme for International Student Assessment, 2003; Riordan, 1998; Schaefer, 2001; Statistics Canada, 2003). Change is needed to address this growing concern about some male's achievement. A single-gender classroom is one strategy that can remedy the lack of success with our male students (Gurian, 2001; Hancock & Kelb, 1996; Martino & Meyenn, 2002; Slater, 1996; Sukhnandan, et al., 2000; Swan, 1998; Younger & Warrington, 2001). This underachievement of some boys is not only a Canadian phenomenon; the question of 'What about the boys?' has been asked in Britain, Australia and the United States (Arnot, Gray, James & Ruddock, 1988; Gurian, 2001; Kenway & Willis, 1998; Yates, 1997; Younger & Warrington, 2002). When the British Columbia Ministry of Education (hereafter, Ministry of Education) published results from the Foundation Skills Assessment 2003, a snapshot of how Grade 4, 7 and 10 students perform in reading, writing and mathematics, girls outperformed boys at all levels in reading and writing (Ministry of Education, 2003). In 2003, the Report of the Pan-Canadian Educational Indicators stated,

Overall, it appears that for Mathematics and Science, both nationally and internationally, achievement gaps between males and females are small. The same cannot be said for reading achievement; the results point to a need to improve the reading proficiency of young males. (Council of Ministers of Education, 2003)

Further, the School Achievement Indicator Program, which studies pan-Canadian student outcomes in Reading, Writing, Math and Science reported, “There were significant differences between males and females in writing achievement. Girls performed consistently better than the boys at almost all levels.” (Council of Ministers of Education, 2002)

When one accepts the idea that girls are out-performing boys in certain areas, we ask, “Does something need to be done?” and if it is desirable for some boys to improve, the question that arises is: “What can be done?” There exist many suggested answers to the problem, but the answer put forth is that single-gender classes may improve the success of some boys in school. In the past ten years, single-gender learning has emerged as one way to address gender inequalities (Gurian, 2001; Hancock & Kelb, 1996; Martino & Meyenn, 2002; Slater, 1996; Sukhnandan, et al., 2000; Swan, 1998; Younger & Warrington, 2001). The movement to institute single-gender classrooms is growing.

Are single-gender classrooms a viable solution? The data collected in this study helps to answer this question. The literature review reveals some disagreement as to the state of the gender-gap, but one fact remains clear: boys consistently fall behind their female counterparts in English (Gurian, 2001; Lee, 2000; Ministry of Education, 2003; Programme for International Student Assessment, 2003; Riordan, 1998; Schaefer, 2001; Statistics Canada, 2003). This is reflected in the increasing concern about male literacy. In the past year, media coverage on the topic has been significant, and many schools have begun to experiment with single-gender groupings (Jackson, 2002; Martino & Meyenn, 2002; Parker & Rennie, 2002; Younger & Warrington, 2002).

This research presents an ethnographic study that explored the experience of the males and teachers in single-gender English 9 and Math 9 classrooms. Single-gender classes were implemented at a middle school in a small community in British Columbia for the 2003/2004 school year. This qualitative study describes the attitude, behavior, and achievement of the boys attending these classes. Jackson (2002) asserted that it is essential, when assessing the value of single-gender classrooms, to focus on the student's experience and not just examination results. The findings provide a complete picture of a typical day in this new learning environment. The teachers helped to fully develop this picture with their perspective of the class.

#### The Research Problem

##### *What is the Experience of Males in a Single-Gender Class?*

In undertaking this study on boys in a single-gender learning environment, two research problems emerge. I attempt to discover the meaning of attending these gender-segregated classes. The first research question is: "What is the experience of males attending single-gender English 9 and Math 9 classrooms?" Experience encompasses the three areas of attitude, behavior and perceived academic achievement.

*Attitude.* There are three components to attitude: cognitive, affective and behavioral. Attitude is defined as the state that influences or modifies the individual's choice of personal action or response. Attitudes are formed through social institutions, which include the school and classroom and are learned through interactions with others (Gagne, 1916). Attitudes are explored by asking these questions: "What do you think about learning in a single-gender environment? How do you feel about the class?" Attitude also encompasses the boys' self-concept. How is their self-esteem affected in the single-gender grouping?

*Behavior.* When exploring behavior, I asked the boys to describe their behavior and involvement in class on a typical day. Specific questions were asked about participation, as well as physical and verbal interactions. Jackson (2002) noted there is an increasing tendency of researchers to focus on academic achievement and neglect classroom interaction issues. Thus, these factors were also explored, as the boys' interactions often reflected their attitudes.

*Academic Achievement.* Academic success is measured by the letter grade the student reported. The closer to an "A" the student achieves, the more successful the student is in the measure of grade point average. Success is also relative for each student. Another measure of success occurs when a student perceives improvement. Traditionally, many ninth grade students experience a downward trend in their marks. If this process is slowed or reversed, there is also improved achievement.

#### *What is the Experience of Teaching a Single-Gender Class?*

Another research problem that increases in importance with recent studies on single-gender learning is the ability of teachers to incorporate knowledge about gender into their pedagogy (Jackson, 2002; Parker & Rennie, 2002; Younger & Warrington, 2000). It is

becoming apparent that simply separating the genders is not enough; teachers also have to learn what works best for the male only and female only class. The teachers of a single-gender class were asked: “What is your experience of teaching a male only classroom? Describe your teaching style, classroom management and practice in both single-gender and mixed-gender classes? Explain the behavior, attitudes and achievement of the boys in your classes.”

### The Significance of the Research Problem

In British Columbia, we know very little about how boys perform in single-gender groupings. Single-gender classrooms have not been empirically studied in British Columbia prior to one study has just been completed in a small community, in which boys and girls were separated for Grade 9 Math and Grade 9 English (Carpenter, 2004). Carpenter explored the achievement of boys by comparing Grade 8 to Grade 9 letter grades. She found improved performance in the boys’ single-gender English class, as the boys outscored (89.00%) the boys in the three mixed-gender classes (59.75%, 66.75%, and 68.25%). By comparison, the girls in the three mixed-gender English classes scored 76.00%, 78.00%, and 63.50% (Carpenter, 2004). My research adds to the body of knowledge collected in this study by completing the picture about the boys’ experience in the single-gender classroom. My qualitative approach complements and contributes to the understanding of performance of males in these specially created classrooms.

As the literature search informs, single-gender classrooms do work for some students. In a time of tightening public purse strings, this solution can offer low cost relief, only the scheduling of the school’s timetable need be altered. This phenomenon is worthy of study. As schools recruit new students, single-gender classrooms can be a marketing option for school administrators in light of open boundary policies, which allow students to choose the school that

they wish to attend. Further, it is an option that may serve boys and girls equally well in its implementation.

This ethnographic study allows the researcher to delve into the minds of these boys to ask: “Does this work for you?” These students can help to answer the question?

The most exciting part of single-gender education in English is the educational opportunities a male-only class offers the students. Teachers at the middle school received professional development in the area of gender strategies and learning styles. The grouping of students by gender invoked improvement; this can be enhanced with the addition of literature that appeals to boys, boy-friendly pedagogy and classroom rules and activities suited to the culture of being a high school boy. Leaders within the school system emphasize the rewards of individualizing education, but they do not even make allowances for gender with the literature used in classrooms. Teachers need to understand that gender matters. Exploring teachers’ perceptions of single-gender classes furthers investigation in this field as done by Rennie and Parker (1997), Martino and Meyenn (2002) and Younger and Warrington (2002, 2003). When we acknowledge that the research examining solutions to the gender-gap are scarce, studies such as this guide the quest for inclusion and empowerment of all youth.

### Limitations and Delimitations

#### *Limitations*

A unique grouping of students does occur within these classes. At this middle school, there were two gender-segregated classes and three mixed classes for Math 9 and English 9. Students were randomly placed into the classes by a computer program, and the parents were approached to obtain permission for their son or daughter to be schooled in a single-gender

environment. Some students opted out of the class, and some anomalies occurred. After programming took place, approximately half the seats remained in the single-gender classrooms. Students who registered late were placed in the single-gender class. Many of these students had academic, social and behavioral concerns. This grouping created challenges with the single-gender classes, as there were more students with challenging behaviors than are typically found in a middle school classroom.

In total, there were 30 boys in the single-gender Math 9 and English 9. There were 21 students in the English 9 class, and 24 in the Math 9 class. This meant many of the same boys were in both English and Math. In fact, many of the boys had a number of classes together. This affected the class, as is later explained by the male students and their teachers. Furthermore, many of the students were friends. The discussion will show how this also influenced the behavior and attitudes in the single-gender classes.

The site itself is limiting, as the conclusions of the research can not be generalized to similar site selections with similar class selection strategies. This middle school has a student population of approximately 400 students in Grades 7, 8 and 9. Some feeder schools have the lowest socio-economic population in the school district. There are 23 full time teaching staff, two vice-principals and two part time school counsellors. The school has one full time drug and alcohol counselor and one full time youth and family counselor. It has a reputation of being a tough inner city school with drug and behavior problems. Over the past few years, administration and staff have noticed a trend of positive, higher achieving Grade 7 students transformed into difficult Grade 9 students who lack motivation. Many of these academically challenged students were clustered in the single-gender classrooms that were studied.

The site is also a middle school. In this middle school, Grade 9 students are the oldest students in the building; whereas, in a high school, they are some of the youngest students in the building. There exists a different mentality when you are the oldest in the school. There is also a school-wide behavior management plan in this school. As well, this was the first year of single-gender classes in the school. As it is a new phenomenon to the school, there was apprehension in being a participant in the class. The results will show improvement in perceptions of the single-gender class as the school year progresses. This fear of the unknown may subside in subsequent years, as the class becomes part of the school culture.

There could be a limitation in data collection. Although it appears that the boys took the task of the interview to heart, some of the boys may not share their true thoughts and feelings. Students in the class may develop an interest in the success or failure of the single-gender environment, and might tailor their responses to reflect this bias; therefore, they may not provide a truthful representation of what occurred. For example, a student may like and respect the teacher and report what they think the researcher or teacher wants to hear. As well there may be short-term improvement due to the Hawthorn effect, which states that any group taking part in a social experiment shows immediate improvement (Thomas, 1997).

### *Delimitations*

The sex of the teachers for the single-gender classes may also affect the findings. A female taught the English 9 class and a male taught the Math 9 class. VanOostendorp (1991) found that female teachers are more likely to be chosen as effective disciplinarians by female students, and male teachers are more likely to be chosen by male students. A male teacher is said to provide a role model to help boys find their masculine identity and autonomy (Gurian,

2001; Kryger, 1991; Jackson, 2002). As well, Beckwith (1968) claimed that male and female teachers differ in their view of their roles as English teachers.

The teacher will be a major factor in any class. Teaching style and philosophy of the participating teachers, as well as their attitude towards single-gender learning, was recorded so readers can draw conclusions about the impact of the teacher. This cannot be avoided; the teachers' role is so significant, the effects go beyond the gender of the teacher. The rapport, teaching style and students' perceptions of the teacher all have major impacts on the classes.

As a researcher, may have biases about the way boys exist in class because I am also a teacher. I have watched how males behave in class, and I may assume typical behaviors. I also have ideas about why boys act they way they do in front of girls. As a female, I have never been a participant in the culture of being a boy. I view them from a female perspective. I am aware of the stereotypes that exist in male and female development, attitudes and behavior. As well, I hope single-gender groupings will be a success in addressing achievement concerns. This may cloud my judgment and cause me to interpret events that do not reflect the boys' reality. I am aware of these biases, but no researcher can be perfect in self-awareness. To address this concern, a peer debriefer was used. I also videotaped the interviews so that my interpretations can be verified by the actual words of the students and teachers. Each student was asked to ensure that his voice was properly recorded on paper. In addition, the questions to the students were worded as to not assume that change occurred. I tried to remain objective in asking the students and teachers to simply describe their experiences in a typical day in the single-gender class and a typical day in a co-educational class.

The gender of the researcher is also a consideration. Their answers may be softened for the female ear. One boy explained, “I can’t tell you, you’re a girl, but I guess it’s confidential, so I’ll tell you. We like to put down his mom.” They may have been reluctant to say what they truly felt.

### Conclusion

This research furthers work already done in the area of single-gender classrooms elsewhere in the country. The results and discussion will enable teachers and school administrators to make informed choices about this learning strategy, and if it is applicable to the needs of their school. Creative solutions are required when budgets are tightened. Single-gender classrooms can provide some of the remedy to the achievement of some boys.

## CHAPTER TWO: LITERATURE REVIEW

### Introduction

The literature surrounding the plight of boys and the use of single-gender classrooms demonstrated the need for further research. First, the argument that boys are falling behind their female counterparts is presented, as considerable debate exists on which gender's needs are not being addressed by the school system. The history of the gender-gap, various perspectives and the two prominent explanations for its existence are explored. Following this discussion, the underlying theory of this research paper is presented. The single-gender classroom is then suggested as a solution for the underachievement of males in our school system. The question of 'Why separate?' is addressed, as well as the pros and cons of such an action. Finally, and most importantly, empirical studies of the single-gender learning environment are examined. These studies have delved into the female and male experience in single-gender educational experiments. The research shows that although not all attempts at employing the single-gender strategy have been successful, most illustrate the viability of single-gender classrooms as a method of improving achievement.

Ultimately, the literature points to the need for more knowledge in this field, as the studies are limited in number and geographical location. The majority of researchers have come from Britain, United States, and Australia. The single-gender classrooms created at the middle school in this present study are the first single-gender classes to be studied in British Columbia. Further, the Canadian Teacher's Federation has a web site with important and recent publications listed. Under the area of gender equity, there is no mention of boys. All nineteen publications are aimed at female gender equity (Canadian Teacher's Federation, 2001). The literature review

suggests a need to address the concern surrounding the boys and to empirically explore the possibility of single-gender classes.

### The Gender Gap

For the past few decades there has been considerable debate about the changing nature of the gender gap. The gender gap is defined as the difference in achievement between boys and girls in the school system. Traditionally, the gender gap has been said to favor the boys, as girls fell behind in Math and Science (American Association of University Women, 1992; Lynn, 1997). In the past few years, it has been the boys' failure in the Humanities that has emerged as a concern (Gurian, 2001; Lee, 2000; Ministry of Education, 2003; Programme for International Student Assessment, 2003; Riordan, 1998; Schaefer, 2001).

In the past decade, girls held the attention of those who studied the gender gap. Boys outscored girls in Math and Science; however, girls maintained strength in the Humanities. Numerous research projects and studies were carried out on girls, their development and their needs (Lynn, 1997). Policies were created and funding was provided to broaden girls' career aspirations, to make pedagogy and the curriculum more girl-friendly, and to ensure equal spending on boys and girls. The American Association of University Women (AAUW) reported in 1992 that girls were not well served by the schools. This sparked public policy discussions about gender equity. At this time, girls were behind boys in Science and Mathematics, girls participated less than boys in class, and girls suffered a major decline in self esteem while adolescent boys gained in self esteem (AAUW, 1992). In a follow up study the AAUW (1998) stated that girls were failing in the area of Computer Science advancement.

The AAUW did, however, shift its position to report that girls were catching up to boys in school. Riordan (1998) suggested, "The broad nationwide efforts to bring about gender equity in schools have been effective. Boys, rather than girls, are now on the short end of the gender gap in many secondary school outcomes." According to *Trends in Educational Equity of Girls and Women*, a report requested by Congress and released by the National Center for Education Statistics (NCES), the gender gaps in education "have in most cases been eliminated and, in others, have significantly decreased" (Bowman, 2000). Girls encountered fewer problems in early grades, and they consistently outperformed boys in reading and writing. As high school seniors, girls had higher educational goals, it noted, and they were more likely to enroll in college in the fall after graduating from high school. Once enrolled in college, freshman women were also more likely than their male counterparts to complete a bachelor's degree within five years. Fewer men were graduating.

The British Columbia Teachers Federation (BCTF) research report that was last revised in April 2001 in British Columbia supported similar findings as the NCES. The report entitled *G.I. Joe meets Barbie, software engineer meets caregiver: Males and females in B.C.'s public schools and beyond* illustrated how boys were not performing well in B.C. classrooms (Schaefer, 2001).

The Council of the Minister of Education in Canada (2003) reported, "Secondary school graduation rates are one of the many indicators that point to the better performance of females in education. This gap has narrowed in the latter half of the 1990s". This claim was reiterated in the Statistics Canada Report for the province of British Columbia (Statistics Canada, 2003) as seen below:

Table 1: Statistics Canada Report

Performance Indicator	Males	Females
Full time University Enrollment 1994-1995	22,739	24,957
Full time University Enrollment 1998-1999	24,639	29,400
University Degrees Granted 1994-1995	76,470	101,604
University Degrees Granted 1998-1999	71,949	100,127

Girls were approximately one and one half years ahead of boys in reading and writing competency in the middle school years (Gurian, 2001). A comprehensive look at gender differences in achievement and ability over time tested 428 girls and 415 boys at Grades 1, 3, 5, 8 and 10 (Lee, 2000). Lee found males had a weaker achievement on tests of language skills that increased over school years. Further, males comprised a higher proportion of low scoring students for language and reading tests, with females showing corresponding strengths in these domains. No gender differences in Mathematics skills were identified.

32 countries across the globe participated in the Programme for International Student Assessment (PISA). Fifteen-year-olds were assessed in three areas – reading literacy, mathematical literacy, and scientific literacy. In 2000, the focus was reading literacy, when approximately 30,000 students from more than 1,000 schools took part. Program for International Student Assessment noted, “Girls performed significantly better than boys on the reading test in all countries and in all Canadian provinces. The lower average for boys was a source of concern, since poor reading performance has a profound effect on performance in all other subjects” (Organization for Economic Co-operation and Development, 2003).

Boys not only trailed in academics, they also represented the group most behaviorally challenged. In Canada, boys were over represented in special education settings, failure rates and disciplinary actions (Patton, 2001). Females were less likely to experience learning and psychiatric difficulties and behavior disorders; boys made up two-thirds of the learning disabled and 90 percent of the behaviorally disabled population (Gurian, 2001). Boys caused the majority of discipline problems, and they had higher drop out rates. As well, boys were more likely to use violence and be the victims of violence (Gurian, 2001).

The debate over the gender gap extended beyond Canada and the United States. British and Australian educators began looking into the plight of boys in the early 1990s. Similar to North America, the 1970s, 1980s and the early 1990s were decades when British and Australian researchers concentrated on the girls (Arnot, Gray, James & Rudduck, 1998; Kenway & Willis, 1998; Warrington & Younger, 1999; Yates, 1997, Younger & Warrington, 2000, 2002). Younger and Warrington (2000) examined the gender debate of that era and concluded:

Research demonstrated that career expectation and gender choices were structured along traditional gender lines. They showed that the hidden curriculum contributed to the reinforcement of sex roles, and that aspects of the formal curriculum reinforced masculine notions of subjects such as science and mathematics. Studies showed that girls were frequently marginalized in the classroom, with teachers responding more readily to boys who monopolized linguistic and physical space and teacher attention. Furthermore, the staffing structure on co-educational schools frequently denied girls high-achieving role models. (p. 494)

However, they cited the same evolution in gender gap concerns, as girls consistently outperformed boys in achievement across all subjects, but particularly in English, the Humanities and foreign languages (Arnot, Gray, James & Rudduck, 1998; Warrington & Younger, 1999). In Australia, Kenway and Willis (1998) identified the ways in which the boys' story has become gender reform's biggest dilemma, and Yates (1997) described how policies in gender equity were being hastily rewritten to give more prominence to the needs of boys.

The under achievement of males in our school system needs to be addressed in a manner that will not marginalize females in the schools. Younger and Warrington (2000) issued a word of caution. The concerns of the previous decades should not be forgotten, as females were still left behind in a male dominated environment outside the school. With this concern in mind, when numerous indicators of success were examined, girls appeared to have made great gains, whereas, boys have stagnated. Herein lay the concern.

This decade the focus will switch, as educators, parents and the media become more aware of the current academic performance of males. With males falling behind their female counterparts, the question that will inevitably arise is "What can be done to improve the achievement of boys in our schools?" To help answer this question, researchers will want to know "Why does this gender gap exist?"

### The Gender Gap Explored

Possible answers to the above questions abound from many different researchers (Acheron, Lipitiz & Acheron, 2001; Anokhin & Lutzenberger, 2000; Bennett & Bennett, 1994; Best, 1993; Carter & Wojtkiewicz, 2001; Caviness & Kennedy, 1996; Cullingford, 1993; Dawson, 1981; Deslandes, Bouchard & St. Amant, 1998; Francis, 2000; Gurian, 2001; Kruse,

1996; Kurdeck & Sinclair, 1988; Lynn, 1992; McIntyre & Tong, 1998; Meidzian, 1991; Mulrine, 200; Nobel & Bradford, 2000; Rosen & Kuehlwein, 1996; Pollack, 1998; Younger & Warrington, 2000). Vigorous research has taken place in order to discover the cause of boys' lower level of achievement. Pedagogy, biological differences, brain-based learning styles, gender role development, the social environment of the boys, and the culture of being a boy, are all reasons for the under-achievement of males and the need for differential treatment. Boys and girls are different; consequently, their education needs to be *genderized* in schools. Two main differences evolve when explaining the gender gap: biological differences (Acheron, Lipitz & Acheron, 2001; Anokhin & Lutzenberger, 2000; Caviness & Kennedy, 1996; Gurian, 2001; Lynn, 1992; McIntyre & Tong, 1998; Meidzian, 1991; Mulrine, 2001) and socio-cultural differences (Bennett & Bennett, 1994; Best, 1993; Carter & Wojtkiewicz, 2001; Cullingford, 1993; Dawson, 1981; Deslandes, Bouchard & St. Amant, 1998; Francis, 2000; Kruse, 1996; Kurdeck & Sinclair, 1988; Nobel & Bradford, 2000; Rosen & Kuehlwein, 1996; Pollack, 1998; Younger & Warrington, 2000). Both these theories support the claim that the boys and girls should be educated differently.

### *Biological Differences*

An area studied in great detail was the natural or biological influence of gender performance at school. In aptitude tests, given in both the United States and Britain, researchers identified differences in cognitive ability (Lynn, 1992). The gender differences most frequently reported were that males typically obtained higher scores in spatial and mathematical ability. Girls were typically better than boys in perceptual speed and verbal ability (Lynn, 1992). Anthony, Christensen, Kaavin and Rodges (2004) also found cognitive differences in recall and

reaction time when they accounted for health effects. When McIntyre and Tong (1998) researched the question of why there was an over representation of males in programs for students with emotional and behavioral disorders, they claimed that gender based behavioral patterns place boys at an increased risk for Emotional-Behavioral Disorder identification. Biological differences made boys more impulsive and less efficient classroom learners (Mulrine, 2001). Meidzian (1991) explored the masculine mystique and males' propensity towards aggressive and violent acts in her book *Boys will be Boys*.

In a special edition on understanding nature and nurture in language and learning differences, five biological researcher published the impacts of genetics and brain imaging with regard to reading problems. They claim there are difference in the brains between those who read well and those who do not. They caution that biological differences are but one factor in determining reading ability (Wise, 2001).

Recent scientific studies have proven the difference between the male brain and the female brain. Sex differences begin *in utero* when the male fetus develops testosterone and the sex hormones transform the brain (Acheron, Lipitz, & Acheron, 2001). Researchers argued that these sex differences in the brain result in different ways of processing information, learning, listening and reading (Phillips et al., 2001; Shaywitz et al., 1995). Scientists measured brain development and claimed that girls' brains develop faster than boys' brains (Anokhin & Lutzenberger, 2000; Caviness & Kennedy, 1996). When grouping boys and girls in a class, very different maturity and developmental levels are combined. We should expect to educate them differently to try and maximize learning potential.

Perhaps Gurian (2001) presented the most compelling evidence that girls and boys learn differently through his look at brain-based research. As the human brain was mapped through MRIs and PET scans, scientists compared the female and male brain. There were developmental, structural, chemical and hormonal differences. As well, when functioning and processing emotions, boys and girls were different. These differences had an impact on how a child performed in school. Learning-style differences existed in the following ten areas: deductive and inductive reasoning; abstract and concrete reasoning; use of language; logic and evidence; the likelihood of boredom; use of space; movement; sensitivity and group dynamics; use of symbolism; use of learning teams (Gurian, 2001). Differences also emerged when intelligence styles were compared. The learning implications were that males were better than females at multiple choice tests, discussion of general to specific, work on a board, arguments and moral debates, use of jargon and coded language, as well as the need for variety, movement and breaks (Gurian, 2003).

When looking at developmental and structural differences, the majority of female brains developed earlier and faster than that of their male counterparts. Most girls developed more quickly in executive decision-making, sensory processing, control of impulsive behavior, self monitoring of high risk and immoral conduct and verbal abilities; whereas, some boys were more likely to show physical aggressiveness and spatial abilities. The different hormones and chemicals in the male body and female body seem to have implications for their behavior. Males had less serotonin which caused them to be impulsive and jumpy. Sex drive and aggressiveness were predominant due to testosterone. This may led to males in our culture to needing dominance and establishing a pecking order. The oxytocin in females seems to have created

quick or immediate empathetic responses, and estrogen and progesterone gives some females a tendency towards the formation of social bonds. The functional differences that occurred as a result of males typically using the left side of the brain and females, the right side, were numerous. Some boys have a fight or flight response and were task focused, especially with spatial tasks and abstract reasoning. They could store trivia when it was organized and meaningful. A higher portions of girls were more capable of complex thought, memory and sensory intake (Gurian, 2003).

Gurian (2003) explored Ruben Gurh's work in brain imaging techniques which compared the activity of female and male brains. A larger number of female brains uses resources quickly, more often, and in more places. It had a learning advantage over the male brain. When processing emotions, more boys were more at risk for missed learning and processing opportunities as it took longer to process emotions. A higher portion of females was able to process and to verbalize more emotions.

Dunn and Hongsfeld (2003) looked a gender differences across four countries. They found males had tendencies towards, visual, tactical, kinesthetic and peer orientated learning. Some females were auditory, and self-motivated learners. They said differences were observable and urged educators to consider learning style strengths when teaching.

The differences in learning styles and intelligence can cause disadvantages in the school for some boys and girls. The nature of school, pedagogy of teachers and modes of assessment is said to suit the majority of female student far better than the male (Younger & Warrington, 2000). Although there are frequent claims of bias against girls (AAUW, 1992; Sadker & Sadker, 1994), we rarely hear the other side of the story. This side points to boys' educational

challenges of the feminine orientation of school rules and types of learning. More boys are diagnosed with learning difficulties, behavioral disorders, and they have more discipline referrals. Some of these boys consistently do not perform as well as their female peers. Schools and teachers have not understood their natural impulsiveness, hormonal and neurological factors, lateralization of brain activity, left-hemisphere differences and learning styles (Gurian, 2001). What and how information is taught in the school does not necessarily reflect how most boys learn best. The learning readiness of boys and girls may be at different levels, as the two continuums of development overlap but do not follow the same path.

### *Socio-Cultural Differences*

Those who prescribe to the argument that differences are caused by socio-cultural factors claim the culture of the boys lead to underachievement for some. Younger and Warrington (2000) focused on particular groups of boys and girls that were underachieving; social class, sexuality and ethnicity were important in determining achievement levels at school. The gender gap was not a school-based problem nor simply explained by biological differences, but it was a problem of parental influence and socio-economic status. When over 25,000 students in the United States were examined on parental involvement with adolescent education, it was found that daughters experienced more parental involvement than did sons (Carter & Wojtkiewicz, 2000).

Again, research in this area was plentiful and supported the idea that the family structure impacted academic performance (Deslandes, Bouchard & St. Amant, 1998; Kurdeck & Sinclair, 1988). For example, students from single-parent homes had lower levels of socio-emotional

development and academic achievement (Dawson, 1981). Cohen (1998) warned of placing too much emphasis on the school-based factors and learning styles.

In Great Britain, when high school students' attitudes on gender issues were explored, gender roles did exist. The majority of boys behaved differently and were usually treated differently by their teachers. Most boys and girls stated there were natural differences between the two genders and the attitudes of teachers towards them (Cullingford, 1993). Most teachers believed that females were better students (Bennett & Bennett, 1994). Most boys felt they suffered more from the difference; they did less well academically, were punished more, had fewer privileges, and were "picked on" far more (Cullingford, 1993).

Traditional gender roles are developed in schools. Psychoanalytic theory, specifically the object-relations theory, focused on gender identity development. Kruse (1996) insisted that becoming a boy and girl are two separate processes in our society. The gender division was not created by the school, but emerged as the students acted according to their assumptions. Kruse (1996) claimed this had strong implications for what boys and girls learned in school. Boys were trained to throw themselves into the public area and tackle both success and failure. They did not develop the ability to enter into close and caring relationships. Subsequently, boys expected the girls to fulfill this need for intimacy, and females were placed under pressure to meet this psychological servicing.

Kruse (1996) also embraced the demarcation theory. She pointed out that in order to consolidate their gender identities, the girls and boys demarcated themselves. The consequence of demarcation was that they came to think of the opposite gender as the enemy. It curtailed the possibility of a positive exchange. Girls and boys were forced by one another's presence to

defend and maintain their designated gender identity. Dominance and power were at work as boys tried to strongly reinforce demarcation. Ultimately, she claimed that boys and girls need a separate space to develop gender roles before learning to live together. This could provide support for single-gender learning environments.

Pollack (1998) spent 20 years examining what he called “the mask of masculinity”. He declared most boys and men wear a mask to hide their inner feelings, and to present to the world an image of male toughness, stoicism, and strength. He claimed there is peer pressure to shun all things academic.

Nobel and Bradford (2000) offered many reasons for boys’ underachievement in the schools. They argued in support of genetics, in that women were naturally better communicators, which reflects the school environment. However, the other five major arguments encompassed social context: societal changes, family structure changes, the curriculum, school management and classroom management. They claimed the schools are biased against boys and too many males now have female role models.

However, Francis (2000) rejected the notion of a crisis in masculinity, and claimed that students construct their own gender identities. These gender constructions determine behavior and consequently, academic success.

The position taken in my study is that boys are influenced by their social context and this culture must be understood in the context that boys and girls are naturally different. A social constructivist approach explains that boys create their own language and, within their reality, a shared meaning of the world (Rosen & Kuehlwein, 1996). Social contexts influence the shared experience as interpreted by the individual boys in school. We cannot ignore context. Vygotsky

(1986), a Russian psychologist who fathered sociocultural theory, described the cultural origins of thinking: "All advanced forms of human thought are products of culture, and must be understood in order to understand the individual's cognitive functioning" (p. 12). The classroom is a culture the boys have created for themselves. This, combined with strong biological evidence for gender differences, supports the need to educate boys and girls differently.

Many researchers have tried to understand the reality of boys in school. In a study about the differences in adolescent norms, Sutor and Cartier (1999) found boys' avenues to prestige were sports, grades and intelligence, and behaviors likely to be viewed as rebellious, such as fighting, drugs, and alcohol and sexual activity. Of the 1,755 American students questioned, 87% of the boy respondents claimed sports were the most important route to popularity. Girls' leading avenues were physical attractiveness, grades, intelligence, and sociability. Lightbody (1996) found similar descriptions of student attitudes. Girls liked friends, teachers, outings and lessons, while boys liked sports and school clubs. Pomerantz, Altermatt, and Saxon (2002) found that girls were more concerned with pleasing adults, and boys were less motivated to study unless the material interested them. They also discovered girls were more critical than boys in judging their performance, and in fact, boys had unrealistic estimations of their performance.

Male students were particularly susceptible to anti-intellectual influences from peers (Pollack, 2000; Schneider & Coutts, 1985). A survey that explored the differences in boys and girls' attitudes and perceptions of behavior and achievement found specific roles the genders play (Whitelaw, Milosevic & Daniels, 2000). In a study of why Newfoundland high school girls outperform boys, Bullock (1991) found that student perceptions of their school lives influenced

both their well being and their reading and mathematical achievement. This demonstrated the impact of the boys' culture.

With the socio-cultural underpinnings of my thesis, one then asks what can be done to make the school and its subsequent culture more appropriate to males? How can the culture and attitude towards school be changed? How can we help provide an environment that constructs positive yet challenging meanings for the boys? In past studies, single-gender environments — provided some relief, yet other researchers noticed a different change in the culture. Biological considerations were a strong factor when teaching practices were tailored to meet gender specific needs of the students. The following studies demonstrate the achievement, behavior and attitude of the boys in the altered learning environment. Both their social constructs and biological characteristics impacted these experiences.

### The Use of Single-Gender Classrooms

The studies examined here are single-gender classes within a co-educational school. Single-gender schooling is different from single-gender classes. The environment of the single-gender school leads to unique considerations such as the development of gender relations, sexuality and selective enrollments. Therefore, all literature that focused on single-gender schooling will be ignored, and only those studies on single-gender classes will be examined. To follow is a discussion of the arguments given by proponents (Gurian, 2001; Hancock & Kelb, 1996; Kruse, 1996; Martino & Meyenn, 2002; Rennie & Parker, 1997; Sax, 2003; Slater, 1996; Sommers, 2001; Swan, 1998; Younger & Warrington, 2001; Younger & Warrington, 2002) and opponents (AAUW, 1998; Bengtsson, 1993; Kenway & Willis, 1998; Lee, et. al., 1994; Mael,

1998; Mathews, 1996; Parker & Rennie, 2002; Younger & Warrington, 2001) of single-gender learning environment.

### *Proponents*

The proponents of single-gender classes claimed segregation within a co-educational school was needed to improve the grades of students by removing the distraction of the opposite sex. This resulted in more academically focused classes which correlated with improved academic achievement. Single-gender classes eliminated problems that develop when adolescents start noticing each other. Consciously or unconsciously, there was impressing and entertaining of the opposite sex (Slater, 1996). The opposite sex can be a distraction; separating the sexes from each other in school made students more attentive to their studies. It was more conducive to male learning as there were fewer distractions and sources of embarrassment (Swan, 1998).

In single-gender classes, boys and girls were given the space to develop their gender identities without conflict and power struggles (Kruse, 1996). Torrance (1997) noted that it was generally assumed girls did more poorly in mixed settings because boys were more boisterous and assertive. But the boys in her segregated classes changed that myth; the boys said, "We can focus now because girls talk all the time". Younger and Warrington (2001) reported that boys felt they had a chance to shine, to compete on a level playing field without the girls who were the usual high achievers of the class. Boys became more cooperative and asked more questions because they had no fear of looking stupid in front of girls (Futurist, 1998). Girls also enjoyed increased self-confidence and less harassment in the single-gender class (Rennie & Parker, 1997). In mixed classrooms, girls took a more active role in classroom interactions. The boys

were more passive, and in some lessons, more was expected from the girls by the teachers (Younger & Warrington, 2002). Removal of the girls increased the involvement of males in the classroom.

Other reasons included strengthening discipline and motivating boys to work harder (Hancock & Kelb, 1996). Gurian (2001) claimed that during the middle school years, the greatest hormonal changes occurred in males and females. In order to deal with these physical and cognitive changes, students engaged in extreme behaviors as masking devices. A single-gender classroom tempered these behaviors.

Gurian (2001) also suggested single-gender groupings were an important method to address brain-based differences. Educational experiences can be tailored to meet the differing needs and learning styles of boys and girls, while providing facilities, equipment, staff, and curriculum of equal quality. Teachers can be educated on the learning styles and intelligence differences and similarities between the genders. The single-gender environment allowed teachers to motivate boys more effectively by focusing on methods and issues that apply to them. Teaching in single-gender classes permitted teachers to modify their teaching methods and curriculum material to reflect the individual learning needs of the two sexes. Teachers adjusted pedagogy to reflect the needs of boys, more hands on, group work, physical activities, interests and result orientated work, action text books (Martino & Meyenn, 2002). Boys' lessons were more structured, with a variety of activity and more teacher imposed momentum (Younger & Warrington, 2002). When teaching literature to boys, teachers chose non-fiction, real events, objective fact-orientated assignments, and avoided asking boys their feelings about a book (Sax, 2003).

Arguments were made that boys equate reading and writing as feminine (Martino & Meyenn, 2002). Boys' rejection of literacy may be attributed to the lack of male role models who read. Sukhnandan et al. (2000) stated that single-gender classes enabled teachers to challenge boys' stereotypes more effectively. Further, Sommers (2001) challenged feminists' theory, and said that it was harming the boys. She explained that teachers who cater to gender dispositions have been accused of being sexist. When these feminists voices prevailed, the elimination of gender stereotypes became more important than teaching to the benefit of the child.

### *Opponents*

There are critics of segregation. Separating the sexes sent a message that girls and boys cannot work together, thus reinforced myths about their differences (Mathews, 1996). They were concerned that single-gender classes would set back the cause of gender equity. The AAUW (1998) did not want to revert to the time of different learning curricula and criteria for boys and girls.

American schools had been wary of drawing attention to single-gender classes that may violate gender-bias laws. However, this fear was recently lifted as President George W. Bush in the United States proposed changes to Title IX which previously disallowed gender discrimination in the schools (Economist, 2002). He asked the United States Department of Education Office for Civil Rights to re-examine the policies that prohibited single-gender programs. In the past, educators worried that one gender may receive a better education than the other. Many public schools now have the option to incorporate single-gender classrooms as a learning initiative.

The behavioral problems of grouping boys were also a concern as lower end boys were much harder to control (Jackson, 2002; Kenway et al., 1998; Parker & Rennie, 2002; Younger & Warrington, 2001, 2002). Girls were a steadying influence on the boys (Younger & Warrington, 2001). Staff announced they would rather teach an all girls class than an all boys class because of the classroom management problems (Parker & Rennie, 2002; Younger & Warrington, 2002;). Boys complained about the loss of girls, behaved poorly and teachers allowed more sexist language to pass unchallenged (Jackson, 2002; Kenway et al., 1998)

Martino and Meyenn (2002) argued that the state of boys' literacy can be attributed to the feminized nature of school and curriculum. Their study examined the assumptions and knowledge about gender and its influences on pedagogical approaches. They warned of a limited view that claimed the student was the problem and not the impact of teaching practices and the social and cultural contexts of the students. They admitted the possibilities of single-gender classes, but cautioned about reinforcing particular versions of masculinity.

Others concurred that a learning environment in which gender role stereotypes were reinforced ensured the continuation of sexism (Kenway & Willis, 1998; Lee et al., 1994; Mael, 1998; Shmurak, 1998). Separate classes perpetuated gender stereotyping as differences were emphasized. When gender roles were considered, Bengtsson (1993) stated boys and girls appeared to be converging in terms of norms. Gender-segregation reinforced a dualism that did not exist. Coeducation provided an opportunity to learn from the opposite sex in order to become more rounded individuals. Girls and boys had different views and feelings about topics and issues that should be heard by the opposite sex. Further to this, students needed to learn how to work with people of both sexes.

### Single-Gender Classrooms

Will single-gender classes help student performance? The studies completed thus far do not result in a resounding “Yes” or “No”. In most schools, single-gender teaching was in the pilot stage, and therefore, lacked systematic evaluation (Younger & Warrington, 2002). The literature suggested that females benefited from single-gender education more than males, as many more female studies have positive finding than do the male studies. Findings of studies completed on male and female single-gender classrooms, while not overwhelmingly conclusive, did point to the need to explore this option as a valuable tool for promoting boys in our schools. More research is needed before an informed, responsible judgment could be made about the merits of single-gender and mixed-gender classes in coeducational schools (Marsh & Rowe, 1996).

The lack of conclusive studies is compounded by the lack of literature on the topic in Canada. Other countries such as England, Australia, and the United States made further inroads in the exploration of single-gender learning as major nation wide studies were implemented to study the effects of single-gender classrooms. In Germany, Berlin and at least five other German cities, announced that boys and girls would be separated for Science and Information Technology lessons. Some teachers were pushing for single-gender lessons in modern languages, as boys tended to be weaker in this area. Berlin authorities accepted the results of their pilot projects that single-gender classes work (Sharma, 1999). Can the same claim be made for Canadian schools?

Of the forty-eight studies and articles that addressed the issue of single-gender classrooms, the majority of articles - 36 - were classified as supporting single-gender classes,

while 12 supported coeducational classes. Support for either side is determined by the overall findings of the researcher; consequently, some studies will have both positive and negative findings. The female experience is examined first, as this is where the single-gender environment was introduced to address the lack of success of girls in Math and Science. Both positive and negative findings of these studies are explored. Finally, the experience of boys in a single-gender educational environment is covered. Due to the lack of empirical data, anecdotal trials of single-gender classrooms are also included. These provide a more descriptive and widespread look; however, the validity of the claims from these studies must be questioned as they are not scientifically designed and have not been empirically validated.

#### *The Female Experience: Negative Findings*

The literature on the negative effects of single-gender classrooms for girls is sparse. The AAUW, which initiated the call for gender equity, was one of the leading voices in the argument against single-gender classes (Murray & Gest, 1998). An exploration of single-gender and mixed-gender educational environments in England showed no real effect of single-gender grouping of girls. The study involved a two-year investigation in an English co-educational secondary school where single-gender Mathematics classes were introduced for one cohort of pupils for five school terms, after which mixed-gender classes were reintroduced. Overall, the evidence suggested co-educational environments created possible social interaction disadvantages for girls, but that academic self-concept was not adversely affected by transferring from single-gender environments into mixed-gender environments (Jackson & Smith, 2000).

Critics also worried that segregated classes would set back the cause of gender equity just when girls were finally being integrated into all-male academies. The Times Education Supplement (1993), in the article titled, *What about the boys?* claimed,

More than 10 years ago, when research on girls' academic achievement first seemed to show that they performed better when separated from boys, several schools experimented with single-sex classes – especially for Math and Sciences; but any short term gains seemed to have been lost by the time pupils reached 16. In fact, the research evidence in favor of single-sex schools is not all that clear; many are selective or used to be, and when researchers control for pupils' ability, the differences between single sex and mixed schools virtually disappear. (p. 1)

However, these claims were made with no mention of the studies nor empirical data to back up these statements.

#### *The Female Experience: Positive Findings*

Far more studies supported the use of single-gender classes as a method to help girls narrow the gender gap than did studies that recommended against their implementation. A single-gender class established to enrich female Math achievement more than 20 years ago was a success (Kravetz, 1984). Proponents claimed single-gender classes have improved the Math and Science standings of girls (Schroeder, 1998; Seitsinger, Barboza & Hird, 1998; Simpson, 1996). The gender sensitive environment of an all-girls Physics class had a positive effect on achievement, self-concept and career choices (Martin, 1996). In a study of a single-gender Algebra class, girls had higher exam scores than mixed gender classes, and the girls attributed this to the fact that they did not need to compete with the boys (Stutter, 1997). In a three-year

longitudinal study of single-gender Physics classes, females gained confidence and earned better marks (Gillibrand et al., 1999). Cassidy (1997) reported the results of a single-gender teaching program implemented by the Mill Hill County High School in London, England. A single-gender Math class created a more comfortable learning environment and narrowed the gap in Math achievement scores (Dursot, 1996). Girls' achievement increased in the Sciences under the program and when the pupils were interviewed, they found benefits of a boy-free class. A three-year longitudinal study showed that females in single-gender Physics classes gained confidence and experienced better achievement (Gillibrand, Robinson, Braw, & Osborn, 1999). Private coed schools found benefits in single-gender classes (Archer, 1998). The girls showed personal growth through improved confidence (Arbor, 1998), a positive self-image (Lee, 1986), and higher self-esteem (Bozzone, 1994; Mael, 1998). In the single-gender classroom, girls took more risks and asked more questions (Streitmatter, 1997). A study on the anxiety of women in single-gender versus coeducational Math revealed that females flourished in the single-gender class and were more likely to enroll in advanced Math courses (Campbell & Evans, 1997).

#### *The Male Experience: Negative Findings*

We do know that empirical studies in the United States, Australia and Britain have shown single-gender education can work for boys (Gurian, 2001; Hancock & Kelb, 1996; Kruse, 1996; Martino & Meyenn, 2002; Rennie & Parker, 1997; Sax, 2003; Slater, 1996; Sommers, 2001; Swan, 1998; Younger & Warrington, 2001; Younger & Warrington, 2002). But, like their female counterparts, male-only classes have also faced criticism (Budge & Cassidy, 2000; Connell, 1995; Jackson, 2002; Rennie & Parker, 1997; Sangster, 1988; Thomas, 1997).

In 1999, the English government demanded that all local education authorities address boys' underachievement in new Educational Development Plans. Although England was years ahead of North American in its public concern for the literacy of boys, there was conflicting evidence over single-gender success in Great Britain. One study claimed the improvement of boys' performance in a comprehensive school in Essex, England, was only through compulsory pairings with girls (Times Educational Supplement, 2000). Results of a study comparing boys' academic achievements as compared to their female counterparts showed that gender was only a small factor in boys' failure (Budge & Cassidy, 2000). Furthermore, there were complaints from boys separated from girls in a single-gender class at the George Dixon Secondary School in Birmingham, England (Thomas, 1997). Rennie and Parker (1997) studied single-gender and mixed-gender Mathematics classes and found a more supportive environment for girls than boys. In a more recent British study, Grade 7 students prospered in the mixed-gender classes, had a better understanding of opposite-gender classmates, and offered more help to their classmates (Mathews, 2004).

Another study found similar results. Kruse (1992) wanted to determine if the single-gender class would promote self-esteem, give gender identity and raise issues of gender. The girls were close-knit, outspoken and felt free from ridicule. In contrast, the boys had higher levels of conflict, teasing and noise. They missed the girls who kept the classes quiet. There was competition for the teacher's attention, and the popular boys determined classroom activities.

Baker and Jacobs (1999) found the same, but they went further to claim that neither males nor females can be considered winners in single-gender math and science classes. In a

study of over 4000 pupils in Belgium, boys had less progress in their single-gender language classes, yet improved standing in Math (Van de gaer, Pustjens, Van Damme, & De Munter, 2004).

A program of gender-segregation in Math in Ontario, Canada resulted in no change of attitude; in fact, males were more likely to believe the program had a negative impact on their attitudes and achievement (Sangster, 1988). Another single-gender class had relatively little effect on Mathematics achievement and attitudes. Boys liked the single-gender classes less than their mixed gender classes (Marsh & Rowe, 1996).

Connell (1995) claimed boys had a culture of violence and harassment that remained intact when boys were separated from the girls. Often the least “manly” boys became the target and were used as a substitute for the girls. However, Maritno and Meyenn (2002) found in the absence of girls there was male bonding that fostered a need for acceptance and less competitiveness.

Jackson (2002) contradicted this finding when she studied single-gender classes with in co-educational school in England. She stated her findings, “The boys only class that do nothing to challenge the problematic macho male cultures that are inherent in schools actually exacerbate the problem” (p. 37). The boys were ambivalent and a substantial number reported negative effects. They reported getting more punishment for the fighting, roughness and cheating in the boys-only classes. Jackson found positive effects for the girls; they had increased self-confidence through a more relaxed and supportive environment. Jackson cautioned, however,

As such, curriculum-as-usual single-sex boys' classes are unlikely to offer the solution that many schools are hoping for. If single-sex classes are to begin to

challenge problematic male behavior, they must include elements that encourage boys to reassess gender relations and challenge traditional notions of masculinity. (p. 46)

### *The Male Experience: Positive Findings*

There were a number of studies that support male-only grouping; however, some were not empirically validated and were merely observations by educators and non-scientific experiments by administrators. An example would be newspaper interviews with schools that were separating the sexes without a researcher to document the findings. The following studies are statistically supported findings. Younger and Warrington (2001) reviewed the potential of single-gender classes as a means for improving performance of boys. A high school in Home Counties, England taught single-gender classes for most of their lessons. This study examined the parents', teachers' and students' perspectives in single-gender classes. They suggested that the single-gender mode of teaching was effective in contributing to high achievement levels and offered more advantages for girls than boys. Further, their recommendations were for groupings that recognized different teaching for the learning styles of the genders.

Younger and Warrington (2002) studied another co-educational school that had employed single-gender teaching since the 1970s to examine the long-term effectiveness of single-gender grouping. They found boys and girls benefited from having their own learning space. The relative improvement of boys and girls were similar, and significantly higher than the national average in England. They argued that single-gender teaching did have the potential to raise achievement level in some context, and this potential was maximized when single-gender teaching approaches were implemented, monitored and evaluated (Younger & Warrington,

2002). However, they also found teachers rarely planned different activities to utilize the potential of single-gender classes.

They followed up this study with another look at single-gender teaching in 31 English schools (Younger & Warrington, 2003). Again, the single-gender classes were implemented as a means to address the underachievement of male students. They found mixed results. Boys had raised academics with increased confidence and participation, but there was a larger number of behavior problems. Further, the stereotype of macho behavior was perpetuated in the classes taught by male teachers. They suggested benefits were realized in the single-gender environment if teachers were willing to employ teaching practices that challenged gender stereotypes.

Rennie and Parker (2002) praised the use of single-gender classrooms,

Overall, it was apparent that single-sex grouping created environments in which teachers could implement gender-inclusive instructional strategies more readily and effectively than mixed-sex settings. Teachers were able to address some of the shortcomings of previous education (specifically the poor written and oral communication of boys). Further in same-sex classrooms, sexual harassment, which inhibited girls learning, was eliminated. (p. 881)

They also explained that the success of the Single-Sex Education Pilot Project in Western Australia depended on teacher's commitment to the single-gender strategy. The interviewed teachers said they could work on boys' task-orientated written and oral communication skills through group work. Boys indicated they received more encouragement from teachers and were

able to talk about more personal things. However, teachers commented on the amount of harassment in the male only classes.

In a more recent Australian study, Mulholland, Hansen and Kaminski (2004) determined that single-gender environment raised achievement on standardized tests for English single-gender classes. However, there were no significant differences in the single-gender Math classes.

Sukhnandan, Lee and Kelleher (2000) echoed the positive impact of gender-inclusive instructional strategies. Teachers could modify their methods and materials to suit the learning styles and preferences of boys and girls. The students at Hollingworth High School in Greater Manchester, England experienced the benefits of single-gender teaching in French class (McDonald, 1998). One study compared the performance of boys in two high schools in England and attributed the rise in pupil academic performance to the implementation of single-gender classes at Mill Hill County High School in London, England (Times Educational Supplement, 2000).

When Martino and Meyenn (2002) studied teacher's perspectives on single-gender classes in English, they found, "Improved classroom learning environment and self-esteem for both boys and girls; modification of pedagogy to reinforce gender stereotypical learning behaviors; modification of curriculum content to accommodate boys' and girls' interests; enhanced curriculum decision-making spaces to address specific gender issues for both boys and girls." (p. 309)

Wood Harbour Junior High School in Western Canada separated boys and girls for academic courses. The objectives for the boys were improved schoolwork and increased literacy

skills. This qualitative study found more positive results for females than males, but benefits were found for the boys (Blair & Sanford, 1999).

In Lancaster, Pennsylvania, sixth, seventh and eighth grade students were grouped by gender for all major subjects for one semester and grouped heterogeneously for one semester (Smith, 1999). Results indicated that teachers and students perceived that single-gender classrooms had educational benefits, such as improvements in self-esteem, discipline, and academic growth for both male and female students. Results should be interpreted with caution, as from the original 80 participants, only 35 remained. Evans (1993) found similar results when 100 seventh graders were involved in a single-gender group-learning project. Behavior, attitudes, motivation, work habits and academic performance improved.

When comparing the achievement of male-only, female-only, and mixed Physics 11 classes in Illinois, females performed equally as well, and the males performed better in the single-gender environment. Despite this achievement, Gierl (1994), reported that females had a stronger preference for the single-gender grouping.

Single-gender classes were employed to raise the achievement of African American males in two high schools in New Jersey (Maddox, 2000). Although many variables numerically favored the African American male classes, often the differences were insignificant and cannot be generalized to the African American male population. Also in New Jersey, an urban middle school dealt with behavior and discipline problems by making every class single-gender. The change helped curb classroom distractions, reduced discipline problems and restored a sense of order (Richardson, 1995). In two inner city schools, class grades were higher in the single-

gender class, although the difference was not always statistically significant (Singh, Vaught & Mitchell, 1998).

Kruse (1996) looked into 15 single-gender classes and did in depth surveys in seven of them. She found boys became more aware of their differences when separated. They learned new skills for solving problems and interacting, a role the girls usually played. Eventually the male teacher was successful in getting the boys to be more relaxed, less competitive and more open. Friendships strengthened. They became more open to self-reflection and critique because of a heightened awareness of power plays with females. The boys did miss the girls in the class, but enjoyed having their own interests mirrored by the teacher. Most boys noticed a significant change in tone towards more raw and ironic language use and more noise in the classroom (Kruse, 1996).

As there is a lack of studies about same-gender boys' schooling, non-validated studies and anecdotal accounts were briefly examined. They illustrated the experiences of high schools and educators in the search for an answer to the problem of boys. In England, an all-boys English class was formed in 1995. The researchers said that it was too early to conclude that the single-gender experiment has produced a long-term rise in exam results, but the head teacher was certain it improved classroom behavior (Times Educational Supplement, 2000). Same-gender classes in an Alberta school claimed success with the sexual segregation in schools (Torrance, 1997). The segregation of adolescent boys and girls improved students' grades by reducing the tensions and distractions caused by their emerging sexuality. In Montreal, at James Lyng High School, the division of the sexes was a triumph as boys calmed down and teachers tailored their teaching to the genders (Peritz, 2003). A middle school that kept boys and girls apart to enforce

discipline claimed success (Coles, 1998). Officials at Marsteller Middle School divided girls and boys into separate academic classes to stop hormonal influences from distracting students from their studies. Single-gender classes were utilized in a program to improve the self-esteem of both boys and girls (Curriculum Review, 1992). In French language classes, success was found with all-male groupings. Teachers found them both a challenge and a pleasure to teach (Mireylees, 1998).

#### *Literature in Support of Methodology*

My research methodology used to understand the reality of the participants in single-gender class is an ethnographic, qualitative study. Ethnographic studies have been used to study the experience of attending a single-gender class for female students (Streitmatter, 1998). As well, others have used this approach while studying student's attitude and perception of school (Garza-Lubeck, 1980). Ethnographic studies have been used to discover more about a relatively unknown occurrence. Further, ethnographic methods have been proposed as one alternative to research based heavily on statistics and experimental design. Ethnography essentially means a way of systematically learning reality from the point of view of the participant (Passmore, 1981). Further, qualitative methodologies have been a recognized method of program evaluation in education (Hatch, 1983).

The social context of boys is part of the conceptual framework used to explain the gender gap. The social constructivist approach was also present in the theory of methodology. Qualitative researchers have been concerned with understanding a social phenomenon from the participant's perspective. Analyses of the participants' meanings resulted in greater

understanding of the boys' world. Meanings included their thoughts, feelings, beliefs, ideals and actions as influenced by their social context (McMillan & Schumacher, 1997).

I attempted to gain an understanding of attending a single-gender class through interviewing the participants. The role of researcher interviewer has been primarily used in ethnographic studies (McMillan & Schumacher, 1997). This was accepted method for data collection when taping a semi-structured interview (Rennie & Parker, 1997; Martino & Meyenn, 2002; Younger & Warrington, 2002). All findings were corroborated by all participants. This use of a peer debriefer is an accepted strategy to minimize researcher bias (McMillan & Schumacher, 1997).

#### Summary of Literature Review

There is a gender gap in educational attainment. Its nature and strength has changed from 30 years ago when females were seen to be at a disadvantage in school. For the past decade, males and their underachievement have captured the spotlight. Two important explanations exist for the gender gap: biological differences and socio-cultural differences. Although seemingly at opposite ends of the spectrum, these two positions come together to form a complete picture of why there are differences in achievement. There have been some positive results when separating gender within coeducational schools, and this can help to silence critics of this teaching tool. However, the findings of single-gender classrooms for girls and boys demonstrate a need to explore this experience further as an option for improving achievement, as we lack consistent empirical data for how boys will react to single-gender classes.

With the gender gap widening in favor of females in our school system, something needs to be done to improve the success of boys. This study provides an in-depth look at one solution.

Upon the conclusion of the study, the researcher answered the question of “What is the boy’s experience of a single-sex classroom?” This study allowed for an initial look into the boys’ world in single-gender classes in British Columbia.

## CHAPTER THREE: METHODOLOGY

## The Research Questions

What was the experience of attending an English 9 and Math 9 classroom that only includes males? What was the experience of teaching a single-gender classroom? These questions were answered through exploring the attitude, behavior and achievement of the students who participated in a single-gender learning environment at a middle school in British Columbia.

## Methods and Design

*Design*

These research questions were investigated through a qualitative, ethnography study. I felt the participants also needed to be asked their perceptions of the single-gender class and how it compared to a mixed gender class. I asked the teachers and the students to describe their experiences. The purpose of this study was to explore the benefits and drawbacks of participating in a single-gender class. The following questions guided my research. The students were asked:

1. Describe your attitude in the single-gender class;
2. Describe your behavior in the single-gender class;
3. Describe your achievement in the single-gender class;
4. How did your attitude compare to co-educational classes;
5. How did your behavior compare to co-educational classes;
6. How did your achievement compare to co-educational classes?

The teachers were asked:

1. How did you feel about the single-gender class;
2. How did you act in the single-gender class;
3. What did you think about the single-gender class;
4. How did your teaching compare to co-educational classes?

As the topic of “participant perceptions” was largely unexplored, the main purpose was to identify important variables and themes on the topic. This approach allowed the researcher to consider the boys’ voices fully. I attempted to understand the reality of being in a single-gender classroom.

#### *Carpenter Quantitative Data*

My study was done in conjunction with Lori Carpenter’s dissertation *Exploring Single-Gender Mathematics and English Classrooms at the Middle School Level* in which statistical data was used to determine the effects of the single-gender learning environment on achievement (Carpenter, 2003). She studied the same students. In her study, multiple collection strategies were employed. The methods used were observations, summary observations, field notes, surveys, and archival records, report cards and tests. She compared the achievement of single-gender classes to mixed gender classes via their overall letter grades. In effect, my study becomes a mixed model when the quantitative data in the Carpenter study is used to support and validate the boys’ and teachers’ perceptions about achievement.

#### *Site Selection*

A middle school in British Columbia addressed the issue of boys’ low achievement through implementing single-gender classes. Four single-gender classes were created, two boys’ and two girls’ English 9 classes and Math 9 classes. The middle school covered Grade 7 to

Grade 9 and had approximately 400 students. Historically, there was a discrepancy in the achievement of boys and girls in this school. In the 2002/2003 school year, 15% of Grades 7,8, and 9 female students and only 4% of the male students achieved a perfect grade point average. Further, girls outperformed the boys on both the Stanford Diagnostic Mathematics and English assessments. In every subject area, the females earned a higher percentages of A and B letter grades than males (Carpenter, 2003).

### *Researcher Role*

I entered into the field as an interviewer. I arrived at the school on Monday and was introduced to students and staff as a Master's student interested in discovering the participants' thoughts and feelings about single-gender classrooms. To minimize researcher bias, participants were asked to verify my findings. All interpretations were corroborated with a peer.

### *Sampling Strategies*

The sample was a Grade 9 English class of 24 boys and a Grade 9 Math class of 21 boys. Parental permission was obtained for all participating male students (Appendix A). In their Grade 8 year students were asked if they would like a single-gender learning environment. Every attempt was made to place these students in the English 9 and Math 9 single-gender classrooms. After time tabling, just under one half of the class was filled. Students who were late in submitting a course request form were then placed in the class. As it was, many of these students could be categorized as lower achieving or as students with behavioral concerns. In fact, the school held a meeting with the high school that the Grade 9 students would attend in the following year. Students with behavior, academic and emotional concerns were identified. Sixty-six percent (16/24) of these students were in the Math 9 single-gender class, as compared

to 32% (12/31) in all other Math classes. Ten out of the 15 students who were in both the English and the Math single-gender classes were on this identification list.

Those who study the gender gap all agree on one point; girls are more successful in English than boys. For this reason, the single-gender English class was to be the main focus of the research. However, a single-gender Math 9 class was also created at the school. Thus, it was also studied, as the data was useful in forming interpretations about the boys' attitudes towards single-gender learning.

Grade 9 males were targeted for two reasons. They had previous experience with attending a middle school, and they have not yet reached the maturity of a senior student. Middle school, Grades 6 to 9, is a time of great hormonal change in both males and females, and Gurian recommended this strategy for middle school students (Gurian, 2001). Staff and administration at the school in Courtenay noticed a drop in achievement and attitudes of Grade 9 students, and they were keen to find a solution.

### *Data Collection Strategies*

The primary method of data collection was interviews. There were 30 student participants in my study. As many of the boys were enrolled in both the English 9 single-gender class and the Math 9 single-gender class, this number reflected all of the boys enrolled in single-gender classes at the middle school. The collection of data occurred from June 1 to 6. To prepare for the one-on-one interviews, the boys completed a two-page survey, as provided by the principal of the school (Appendix D). This information was a portion of Carpenter's dissertation. The boys completed this survey in class. There was very little privacy, as the boys were loud and often shared answers.

Following the in-class survey on Monday, the students were interviewed during the rest of the week. The interviews were videotaped, so the researcher could ensure proper interpretation of the boys' words. Notes were taken during the interview, and students were asked to check these notes to ensure accuracy. The teachers provided class lists, and I systematically interviewed each student over a five-day period. The interviews took place during school hours and lasted between 20 minutes and 45 minutes. This discrepancy in time was due to the fact the some male students were better able and more willing to articulate their thoughts. Before any data was collected, permission was obtained from the teachers, parents and students (Appendix A).

Fourteen questions were asked of the boys (Appendix B). These questions were open-ended and semi-structured to elicit the reality of the students. I asked the participants to describe a typical day in the single-gender class and their co-educational classes. Some additional questions did arise in order to ensure an accurate picture of the boys' world. For example, I asked boys to describe why they wanted to achieve differently in a single-gender class than a co-educational class when they gave this response. Additional questions were also guided by the conversation in an attempt to delve further into the boys' world by asking them to further explain their responses.

I also interviewed the two teachers about their experience of teaching in these boys only classrooms. They were asked to describe a typical day in their single-gender class and a typical day in their co-educational classes. Both teachers were asked the same questions. Subsequently, their responses were compared. The names of the teachers were changed to ensure

confidentiality. The pseudonyms used are Anne Powell as the teacher of the English class and Gordon Mackie as the teacher of the Math class.

Anne Powell volunteered to teach the single-gender classes. She taught the Grade 9 boys-only class and the Grade 9 girls only class in English. She was very interested in trying a new learning strategy. In total, she has taught for fourteen years; the last three, at the middle school in Courtenay. Her areas of expertise were teaching English and Technology.

This was Gordon Mackie's first year teaching at this school. When he arrived at the school, he was asked if he would like to teach the single-gender Grade 9 boys Math class. This was also his first time teaching Grade 9 Math. Although, the class was new to him, teaching was not. Gordon was a teacher for fifteen years.

Both interviews lasted approximately 35 minutes. They were asked, "What was the experience of teaching a single-gender classroom?" Fifteen questions (Appendix C) were asked to elicit an understanding of this experience. It was important to report the teacher's perspective of this class to get an understanding of single-gender classrooms. They gave information about their perceptions of boys' attitude, behavior and achievement. As well, they provided insight into practices which best suit the needs of boys.

The teachers were also another source of valuable information about teaching practices for a single-gender class. Proponents of single-gender learning claimed the homogenous nature of the class would allow teachers to use strategies, discipline and materials that are more suitable to a boy's learning style. The teachers were asked, "Did this actually happen in the class?" The two teachers were also questioned about their pedagogy in single-gender classes and co-

educational classes. They reflected on the actual academic success and behavior of the male students in their classrooms.

The video tapes and note taking sheets will be stored in a locked cabinet for one year after the thesis has been completed and accepted.

### *Inductive Data Analysis*

The data was organized into categories and patterns were identified. In order to make sense of the data, it was first coded and then recorded. Pseudonyms were used in the findings to maintain confidentiality. Interpretations were made as to the boys' attitudes, behaviors and achievement in the class. Patterns emerged when discovering the boys' rationale for behavior and achievement.

The research questions were, "What was the experience of attending a single-gender class?" and "What was the experience of teaching a Grade 9 boys single-gender class?" Experience encompassed the areas of attitude, behavior and achievement, thus the findings for the boys were divided into those three categories. The data for the 30 boys is divided into themes. The interviews for the two teachers are discussed separately, and the findings reflect their answers about the single-gender experience.

### *Conclusion*

In order to evaluate the success or failure of single-gender classrooms, it was important to gain an understanding of the reality of those who participated in these classes. In interviews, teachers and male students were asked to describe a typical day in the single-gender class. They commented on their attitude, behavior and achievement. A social-constructivist attempts to

understand the experience of attending these classes. We hear their voices explain their reality. From this perspective, we can determine the viability of single-gender classes.

## CHAPTER FOUR: RESULTS

## Attitudes

*First Reactions*

The question first posed to the male students was, “Think back to when you first started this single-gender class, what was your attitude to it? Attitude can be described as your thoughts and feelings.” Their answers reflected a strong dislike of the class. The majority of boys, 22 out of 30, said they were shocked, surprised and thought it would be weird without girls. Justin pointed out, “At the beginning people made fun of us for not having the girls around, now it is easier.” Bill explained, “People would say things like, “You picked it. You’re a fag.”” Two other students said, “It sucked because there were no girls to help you out with the questions.” Another male supported this idea, “I hated it, but I lost the sheet to transfer out. I thought there would be no smart people to copy off of (the girls).” “I was not happy because my friends are girls and I wanted to be with them. And I didn’t sign up for it,” responded Conner. A couple of males didn’t see the point because they were working okay in their mixed-gender classes.

The eight other boys replied with a more positive outlook with the newly created all boys’ class. They didn’t mind the class because it meant more of their friends would be in the same class. “I thought it would be cool because then I could goof off more,” Tyler explained. Shane said, “Interesting because more talking about guy things.” One boy clarified, “I thought it was a good idea because girls talk a lot, and guys stick to themselves, but guys still form groups. Girls are louder.”

There were only two boys who admitted to choosing the class. They claimed, “I switched to be in it, the teacher thought it would be better for me,” and “I asked to go into it because I am not good with girls around.”

### *Positive Attitudes*

When asked to describe current attitudes about the class, those males who enjoyed the class were reluctant to say so in front of their peers. In a private conversation with the researcher, Scott revealed, “Guys don’t want to admit that they like the class and they would say girls should be in it, because they would be bugged if they said they liked it, and they are worried about what their neighbor says.” Mathew agreed with him, “Most guys say they don’t like it because others bug us about being in a sissy class. But I don’t know why they don’t like it, we get to talk more.” “Some guys say they don’t like it around girls, but I think most of them like it,” was yet another comment made by a male student.

This secretive nature about their overall satisfaction with the class was very evident with two data collection methods. As discussed in the methods, to prepare for the one-on-one interviews, the boys completed a two-page survey, as provided by the principal of the school. Almost all of the boys were strongly opposed to the single-gender classes on the survey. The surveys were issued in the classroom with no privacy; the boys often shared answers and read their peers’ comments. Most echoed the sentiment, ‘I am not a fag. I like being with girls. I would never sign up for a single-gender class again.’ One of the questions on the survey was, “Would you recommend this class to others?” Of the 30 boys, two said, “yes”, 25 retorted, “no”, and three, “didn’t care either way.”

In a conversation that was confidential, the overall satisfaction was completely different. I asked, “Would you recommend this class to others?” Seventeen out of 30 males responded, “yes”, ten responded “no” and three replied, “didn’t care either way.”

When asked why the boys had a positive attitude toward the class, two themes emerged, improved grades and increased amount of fun.

Table 2: Reasons for Recommending Single-Gender Learning

Improved Grades	Increased Fun
Sure, it is definitely good. You can be more open without having to worry about how girls see you.	It is a good way to hang out and be yourself. It is easy for people who are easily distracted by girls and can’t pay attention. It is a good place to learn because of the teasing and all guys.
I guess, it helps you learn with the pressure to get work done.	Yeah, might help if you are shy around other people.
If you have trouble concentrating, it is easier.	There is not as much responsibility to act proper.
It helps us understand stuff better.	Yes, because it is fun, laid back and calmer. There is more fun teasing and it is easier to be in.
If you are not doing good and want to do a good job. It worked for me.	Maybe, if you are not doing well or you like rough housing, I would recommend it.

Jonathon had much wisdom with his statement, “Yep, if you are willing to work, if not there is no point, does not matter what class you are in. It should be for guys who want to work.”

Overall, the males seemed to like the single-gender classes because they were fun, their friends were in it and the work was easier to understand. Michael summed it up, “I have grown to like it. It is more fun and you have the same amount of distractions (regular class-girls, single-gender class- games and play fighting), but I understand the work better, and the materials are easier.”

Boys had a positive attitude toward the class because they achieved higher marks as a result of being in the single-gender class. Nathan spoke of a very telling impact, “I am doing

good in that class. The better I do, the better I feel. If I have a single-gender class, before other classes, it is easier. I am motivated to be better and I try harder.” Jason claimed, “Good because it changed my grade. I went from a failing mark to a B. With no girls, I get more work done.” Greg was very frank, “My friends make fun of me a little, but hey, I get better marks.” This sentiment was very common, as all 30 students judged the class based on marks that they received. When letter grades were matched with attitude, a pattern emerged. The majority of boys liked the class because their grades improved. The high achieving students did not like the class. The following table illustrates this pattern.

Table 3: Comparison of Attitude Toward Single-Gender Learning and Achievement

Achievement	Positive Attitude	Negative Attitude	Neutral Attitude
High (A, A+)	2	3	1
Average (C+, B)	4	3	2
Low (C, C-, F)	2	1	0
Improved 1-2 letter grades	8	0	0
Dropped 1-2 letter grades	2	1	1
Total	18	8	4

Eight students claimed the single-gender environment improved their marks. These boys typically earned a C letter grade in their co-educational classes, and in the single-gender class this improved by one or two letter grades.

#### *Negative Attitudes*

Those male students who did not recommend the class did not do so because their grades did not improve and their work habits deteriorated. Jordan explained, “No – didn’t like it. It was not much fun. But if you really cared about school, yeah, you get more work done in both my

single-gender classes.” David concurred, “No, it was way too crazy to do work. It might work better if you have more discipline, and separate friends and the bad students. In a mixed class, the guys do less talking.” Another boy stated, “No, I would rather be in a mixed gender class because I didn’t do as well. There were too many distractions with the yelling out.” “No, because of all the noise. It is easier to learn in the mixed class, but it was more fun in the single-gender class,” responded Brad.

Thomas said he would not enroll in a single-gender class again unless he had strict teachers and no friends in the class. Gee had a very negative experience, “No, I got suspended and worse grades.” Two other boys wanted girls to be in the class. They responded, “No, I would rather be talking to girls than boys” and “No, it’s pretty much the same as a mixed class. I would not enroll again. We need girls.”

Two male students responded with, “I don’t care. It doesn’t make a difference for your marks, and it depends where your friends are. You can always see girls at lunch and after school.” Alex said, “It works for some classes. Math was loud and noisy, and English had order and she made you do your work. It would be really good for CAPP when we could talk about guy stuff.”

Eight of the males said they preferred the mixed-gender classes because it was a better learning environment. The single-gender class was too violent, loud and not an environment that encouraged a strong work ethic. Eddie expressed, “Sometimes girls can be a distraction, but guys are even more of a distraction.” The other male students gave these reasons: I can’t concentrate; people are lazy and not willing to work; too much fooling around. Alex had much to say about his attitude, “I do not like the all boys class. I thought it would be a good idea, but

in the end I didn't like it. All groups in the class are too loud. I usually go to the library. It is a bad working environment. Everyone is too preoccupied with other things besides Math. The teacher needs to separate the troublesome groups and put some good kids in."

### *Increased Comfort Level*

The boys did comment about their ability to speak their minds in a single-gender class. The responses about their comfort level were numerous, as 18 students spoke about "being themselves". Without the girls around, a boy could "speak my mind more and tell my opinion because I don't get trouble from the girls," and "be more open in a single gender class. I was more nervous and didn't want to say the wrong thing in front of the girls." The boys enjoyed "getting to be themselves". Alex clarified, "I put up my hand more because it feels more comfortable. If you say a wrong answer people won't say you're dumb. I don't put up my hand in mixed classes. I am worried about what the girls will say."

Tyler elucidated, "We are more outspoken and more comfortable in the presence of guys. It is more relaxed. If a guy has an opinion in the mixed class, he keeps it to himself." Males spoke of being more nervous with the girls around. They feared being made fun of by others, male and female peers. One student explained, "My opinion about myself is a little different in that I am a little more confident in the all boys' class." Paul said, "It's cool that we say things that we would not say in front of any girls." Jordan was quite honest when he told, "We save our sick sense of humor for ourselves. It degrades us in front of girls because you have sunk so low. It is okay in our class; the male teachers have this hip thing going on. It is just wrong to say certain jokes in front of girls."

## Classroom Behavior

*Self-Awareness about Behavior*

The question, “What did you learn about yourself as a result of being in a single-gender class?” was posed to the male students. Twelve boys answered, “Nothing.” Eighteen other students provided insight about their work habits and behavior.

Three boys reflected about their work: “I can function with guys around”; “I work way better in the single-gender class”; “I work faster and better in the single-gender class.” Derrick claimed, “I can work well if I just try and if I listen I can learn something.” Four of the boys had difficulty learning in the single-gender class with its increased noise level. Two explained, “I learned it is easier to concentrate without people bugging me” and “I know I can get good marks, and shouldn’t be worried about either class.” Alex said, “The class was frustrating because it takes a toll on you. I can still work, but it is not the easiest environment”. Mike stated, “I find it harder to learn when I can not concentrate.”

On being off task, four male students were very honest. The greatest thing they learned was about their behavior changes. One boy was very enthusiastic about when he answered the question of what he had learned, “I learned I like to punch people bigger than me because I know I can take them out. Horner’s hurt (a game of flinging elastic bands at others – was developed in my Math class.” Sam simply stated, “I am more violent in school.”

*The Distraction of Girls*

Others who admitted a behavior change attributed it directly to the absence of females. Warren said he learned that sometimes he did cover up stuff in front of girls, and around guys he could be more honest. Evan furthered this, “You act a lot different. I don’t talk as much and I

pay attention because the girls aren't distracting me." Steven admitted, "Yeah, I fool around more. With girls, I really don't fool around." One boy admitted, "I am more wild without girls." Peter was self reflective when he described, "I have a tendency to blurt out stupid things without girls around."

There were many comments made about losing the distraction of girls. Some boys enjoyed the loss; others missed the girls for their calming influence. Jacob claimed, "Girls keep you in line from having fun; they are annoying and won't shut up. The girls talk more, hold the class behind, but then they work and catch-up and we still have not done our work."

However, thirteen of the boys asserted that it was easier to concentrate without the female presence. Keith said, "Girls are smart, but they don't work as hard and they talk more. It is harder to concentrate." Two other boys agreed, "It makes it easier for concentration because guys can't focus; they are concentrating on the girls," and "At first all my friends said they didn't like it, but now they say they work way better without getting distracted by the girls." Mike commented, "Some don't like it. I don't know why because we can goof off. I guess in the multi-class some girls wear g-strings and low riders."

It appeared the higher achieving students did not like the atmosphere in the single-gender learning environment, as only two out of the six straight-A students would enroll in a single-gender class again. They preferred order, discipline and quiet.

### *Increased Participation*

The male students also commented about increased participation with single-gender grouping, 15 noted increased participation, ten participated the same in single-gender and coeducational classes, and five boys participated less. Participation was described as classroom

discussion about the academic subject, whether it be in the form of group discussion or putting up a hand to answer a question. Two students could not articulate why they were different; they just noticed a difference. "I am more open and participate a little more and I prefer speaking in a single-gender group," said Mike. Gee explained, "I participate a lot in the single-gender class. Whenever the teacher asks, I go up to the board and try to figure it out. In the mixed classes, I do not answer questions as much. I note take and work it out. I don't know why, I just do." Two boys specifically mentioned the absence of girls as the reason they took more chances with participating in their single-gender classes. Bill said, "I put up my hand most of the time in the guys class because there is no pressure. I didn't put up my hand in the mixed class. You don't have to worry about looking like a goof. You don't have to watch yourself – you can make a fool of yourself because they are all guys." Neils voiced, "It is easier speaking in front of all guys. I am more comfortable."

Other boys found benefits to the increased participation. Julian responded, "I participate more than I usually would. I would put my hand up, so I understand the stuff a little better. In the regular class, I do not put my hand up as much." "It is easier to stand up in front of the class. I still don't like to answer. In the mixed class, I never put up my hand," Geoff answered.

When asked to describe classroom behavior, the boys commented on the increased amount of talking with the most frequency; only one boy did not remark about more frequent dialogue. Conversation was defined as off-task talking, not related to subject matter. The reasons for heightened discussion were different and better conversations without the girls and classroom management. They also had more friends in the class, so they had more people to talk to.

The absences of females had a definite impact of the topics of teenage male conversation. Pete informed, “We talk about better stuff like fighting, hockey, and girls. No small talk, I like it. We can work and talk at the same time.” David explained, “I am talkative in both types of class. With the guys, I know what they are talking about, I understand the Math, and then talk about whatever, movies, music, sports... Sometimes it gets annoying and I shut up and work. Girls talk about nothing, I don’t usually talk to them, but I get distracted by what they talk about.” Another boy explained, “We talk a lot more but not about other people. We talk about video games and sports – things guys like to talk about.” Some boys referred to the inappropriate jokes that are told without the girls’ presence. Julian stated, “I kid around a lot more in the single-gender class. In the mixed-class, the girls say ‘Shut-up Julian. It is not funny.’ ”

A major reason for increased talking was the higher number of friends in the class. “I sit with friends, so I talk a lot, but I work more because I am not as distracted. I just tell them to be quiet. I am just as distracted in the mixed classes, but it is harder to tell the girls to be quiet,” commented Bill. The boys felt that without the girls, they could be themselves and that guys were easier to talk to. Alex said, “It is laid back. People aren’t stuck up, behaving themselves.” Theo said, “If I don’t understand it, I will start talking to my friends because they are all at the same table.” However, one boy did note, “I talk a lot more because I have more friends in the single-gender class and I get to sit with them. I like sitting with my friends, but I do much better with a seating plan.”

The following boys showed how noise in the classroom actually facilitated learning. These boys thrived with the ability to talk more freely. Gee said, “The loud distractions don’t

matter; I can still get my work done,” and Jonathon explained, “The loudness doesn’t bother you.” One boy went as far to say, “I goof around with friends, but the chaos doesn’t distract me. Guys can tolerate the noise more.” A number of boys loved the way they could goof off and it was more conducive to learning. Caleb replied, “It is easier with teachers that joke around with you – I try harder.”

Despite the noise working for ten boys, 16 of the students felt the noise was too distracting for learning to take place. When asked what was the worst thing about single-gender classes, seven boys responded with “the loudness”. Two males said, “It is disrespectful, the way they act,” and “The students are a bunch of goofs where Math comes second.” Another boy seemed to act totally different in the single-gender class, “The only time I got into trouble is with the all boys class. I was always talking, fighting and goofing around. This did not happen in my regular class.”

Lonnie was frustrated by the noise when he said, “I just stick to myself and only help kids nearby. I am more focused on what I am doing, not on other kids. I just block out the yelling and crap. There is just so much. I don't care to pay attention to it anymore. In the mixed class, I treat others as they treat me. I still help out other kids.” Peter echoed this sentiment, “I talk lots, but work hard, and don’t like it when people disrupt. There are fewer distractions in the mixed class. I keep to myself in mixed classes, unless I know people. People are ruder to me in the single-gender class.”

There were four male students who believed there was less talking or an equivalent amount of talking in the single-gender classes as in their coeducational classes. It was surprising that not all boys agreed on the noise level. One boy rationalized, “There were no girls so I could

focus on my work. In the mixed classes, I just talked to the girls and would ignore my teacher. I goof off more in my other classes because I have more friends in it.” Two others paid attention to their work more, “You can get more done because there are less people talking to you,” and, “I don’t talk as much, I pay attention to my work because girls aren’t distracting me.” Huang accounted, “Usually it is the same people goofing off and trying to be funny. But the same guys are showing off for girls in the mixed class.”

*Peer Relations: Teasing and Bullying*

There was a pattern in the amount of teasing that occurred in the single-gender class. On the whole, there was more teasing, but of the good-natured variety. The boys explained there was less serious harassment than in a coeducational class, and the teasing occurred because there were more friends in the class to joke with. This was a positive aspect of the single-gender learning environment. The guys that were usually picked on in the mixed classes were mainly left alone in the single-gender classes. Conversely, the boys who claimed to be the “bullies” did not engage in as many bullying behaviors. Bully behaviors are defined as verbal, relational, and physical abuse that is ongoing and has intent of harm which creates fear within another student. On the whole, there was more teasing, but less bullying. The teasing appeared to be a way of being for the boys; this was their form of communication with peers. As an outsider, it seemed harsh and unfriendly, but the boys enjoyed the comfort of social banter.

Dave explained, “You behave more nonchalantly and don’t pick on the nerds because the girls jump to their defense. You don’t want to look like an ass in front of the girls.” Alex had a different perspective, “Some guys are nicer; they don’t have to show off for the girls. I get teased more in the mixed classes because guys are trying to look cool, but girls think it is

immature and dumb.” These comments followed a similar line of thought: “I get teased and bugged more in the mixed classes, but the guys in the single-gender class treat me nicer. I don’t know why, there is just less teasing; I bug people when they annoy me in the mixed class. I am not made fun of as much in the single-gender class. It changes the way I think; I feel better about myself. I still get bugged sometimes, but not as much. I am nicer to others because they are nicer to me; The same guy in my mixed classes can be mean, but he’ll be nice in the boys’ only class; there is less teasing, girls pick on others and talk behind your back.” Jared explained how guys behave with the presence of girls, “More guys are trying to be cool, even with the way they sit and stand. You have to be tough to try and impress girls.” Alex furthered, “Once in a while, I get picked on, but I dish it back. In the mixed class, I just sit and watch and only goof around with friends.”

Two main reasons emerged for increased teasing in the single-gender class. The first one being the class had more friends in it, so it was more fun to tease. Joseph put it best, “There is more teasing because we know each other. It is joking and we don’t care about the insults.” Another male supported this idea, “I treat people worse but it is not serious. More of my friends are in the classes, so there is more joking.” One of the better insights was provided by Tom, “It is more violent, with more insults, but it is friendly. In the mixed class, it is aimed to hurt more. It hurts more and there is more anger when someone tries to one up you around the girls.”

Eight boys felt increased teasing in the single-gender class came as a result of not having the girls around. This was the most frequent reason provided for increase teasing. There were many explanations for why this occurred. Mostly, boys could be themselves without the tempering influence of the girls. Table 4 provided further details.

Table 4: Reasons for Increase Teasing by Boys Without the Presence of Girls

Girls can control what you say by making you feel bad, like an idiot. I watch my temper around girls.
Things are rougher. Instead of asking a guy to move, you give him a small shove. You know how much a guy can take, and guys interpret stuff different than girls. Guys think of girls as dainty people who will break. They don't like things like pushing. The guys' code of Honor – you don't push a girl
In the mixed class, there is not as much teasing and bugging because the guys are dispersed around the room with girls because they are trying to get with the girls. When the guys are rude in front of girls, the girls say that's 'mean'. People will stick up for each other and stuff.
When I get bored, I look for someone to beat on or insult. Guys let loose and go nuts when nobody is watching. Girls are not as physical. Girls tell you to stop and get annoyed.
There is more joking because guys know how to take it. Guys are nicer when girls are around. You don't want them to think you are mean when you are only joking.

There were three male students claimed increased competition in the single-gender class lead to more verbal harassment. Brad told, "I punch and bug more (verbal). There is more of an attitude of 'I am the best. Don't put me down'. In the mixed class there is less competition and we treat each other better." Leo expounded on this, "I still pick on people, on who ever is a good target. I pick on more people in the guys' only class because I do not pick on the girls and there are more targets to choose from in the guys' class. Guys are trying to see who is the toughest; they don't do this in front of the girls." One boy explained, "In the single-gender class, it is every man for himself, unless you are in a group, you are pretty much alone."

#### *Physical Interactions and Discipline*

All 30 boys noticed an increase in his or his classmates' off-task, aggressive behavior in the single-gender class. Miles claimed, "I am more rowdy. I still get wild in my other classes,

but not as much.” James and Alex concurred, “There is more goofing around because my friends are in the class.” At length Jinn spelled out, “My behavior in the single-gender class is worse. We don’t do work. We make fun of people, push others around and play card games. There are no girls to impress. So I can goof around. In the regular class, there is a little talking and goofing around, but having the girls around makes us calmer.” Yet another boy told of his different behavior, “It is easier to get out of control in the single-gender class. I keep quiet and am more polite to the girls. I changed a lot this year. It is a new way of acting – goofing around and making funny jokes.” Approximately half the male students (15) said they didn’t care how they acted without the girls around.

Seven of the boys were very insightful about their change in behavior. They noted the lack of discipline in their classes lead to more opportunity to misbehave. Two boys made a similar comment, “The teachers let more slide because there is just more roughhousing going on.” Jacob expounded, “Guys just take things because the teacher doesn’t discipline much. In the regular classes people ask to borrow. They are a lot nicer.”

Perhaps one of the most telling comments came from Jack, “It is different. With the guys’ class, somebody will give you a shove, then I’ll push back. I let it out, and it is over. With the girls, I won’t do anything, I will just get mad. There is no difference in fights in the two classes.”

As there were two single-gender classes with two different teachers, obvious differences arose in their discipline style. This had an impact on how the classes behaved. As I asked the boys to describe their behavior, two very different pictures began to emerge. I began to ask questions about how their teachers addressed the noise and off task behavior. The

aforementioned sections of participation, talking and teasing were fairly similar in the two classes, as comments were the same for both classrooms; however, a major difference occurred in the amount of violence in the two classes. Every boy in the Math class noted the physical nature of interactions in the classroom. It was a problem for some, but enjoyed thoroughly by others. In this regard, the experience of the single-gender Math class is different from those boys who were in the single-gender English class. The boys in the English 9 class felt classroom management controlled their behavior, and they appreciated a controlled environment.

### Achievement

When the boys commented about their perceived achievement, 20 students felt they earned better marks in the single-gender class, eight felt they did worse and three noticed no difference in their achievement in coeducational and single-gender classrooms. Other questions were addressed in the area of achievement. The male students were asked what letter grades they would like to achieve and to what did they attribute their success or lack of success. As well, they spoke about what the teacher did to support their learning. Students were asked to describe their teacher's style of teaching, activities in the classroom and how much help they received from the teacher.

### *Positive Results*

Positive experiences are first explored. There was a student who switched into the single-gender class because other boys harassed him; his comment was, "I am willing to do more work. I am motivated and doing way better. I went from 70% to 90% when I switched into the single-gender class." One boy proudly stated, "I did better in English this year at 98%, Math is

the same at 96%.” Two other boys were a little less descriptive, “Some of my friends are actually doing pretty good in the class,” and “I am doing better in the all boys class.”

A few boys could not explain their improvement, they just knew they were getting better marks: “I am doing better this year, not sure why; I did good this year because I liked all my teachers, but I liked them last year, so it may be the single-gender thing. It is the only thing different”; “There is a big difference because now you want to work more than last year, mainly in the single gender class.”

There were a variety of reasons given about the improved achievement. Alex commented, “I concentrate better because the girls aren’t there. The loudness doesn’t distract you; guys can tolerate more than girls can.” “It was good to let us sit in groups, not in rows, because then it is easier to ask for help from my friends,” explained Brad. Another student noted his different behavior, “I listen, answer more questions and understand it better. I put up my hand in the regular classes but the girls beat you to it. If I wasn’t listening, I would lose out.” Gee responded, “There was less copying. With no girls, it made me work. I would help out my friends, and if I helped them to do their work, the teacher would let me put my name on it. All teachers should do this.”

A few male students learned a lesson about effort. Markus claimed, “I am trying harder in all my classes because I know how well I can do in a single-gender class, so I try harder. Ralph simply stated, “Effort makes a difference.”

Twelve students found the teachers’ lessons easier to follow than in their coeducational classrooms. “We can focus on guy stuff. The teacher explains it better than other teachers, and we work faster and harder. Other teachers get more frustrated with me,” replied Justin. Huang

expanded, “The teachers explain it really well. We have more time to do work. In our free time we can have fun- play cards, hornet wars. In the other classes it is a big rush to do work. You try not to talk so you don’t have homework. Girls like to do more work than guys, and we play crappy stuff like handball games.”

Students specifically talked about their teachers: “The teachers explain things right off. Sometimes it is difficult, but it is easy to ask for help; It is easier to learn; the teacher gives examples to help us figure it out; The teacher explains things easier, normally I am failing up to now.” Geoff also noticed a difference, “I understand the work easier. The teacher made it easier to figure out. He would explain it and then it would click. I went from a C to a C+. Last year, I was distracted by the class. I was very social. Now I talk sometimes, but I can zone everyone out.” Trevor said, “I switched into the class, went from a C to a B to an A. I like it. It is easier to concentrate. She doesn’t push us and lets us work at our own pace.”

There were two students who were just happy to be passing. Eddie explained, “I missed a lot of school this year, but I am passing all my single-gender classes. I am not passing my other classes. I don’t do homework.” This student’s comment showed that the single-gender class kept him coming to school, “I am doing worse this year. I have moved from A’s and Bs to C’s and B’s in all my classes. I am not trying as hard this year. School is boring. I don’t like it this year. The one thing is, my single-gender Math class is not boring, and I like going to that class.”

Although 20 boys felt they did better in their single-gender classes, six of those boys did not attribute their improvement to the single-gender environment. One boy said, “I listen more often, but that is because I am maturing.” Steven explained, “In all my classes, I am less lazy

this year.” Aaron described, “I buckled down big time, and I am doing better because I am working harder. Colleges don’t accept people who get bad grades.” Others said, “I get straight A’s but school is boring”; “There is no difference in single-gender and mixed classes. I do my homework and pay attention”; “I aim for B’s in all my classes. If I get all B’s my parents give me \$100”; “It doesn’t really matter. I try hard in all my classes”; “I get C’s and C-’s in all my classes”; “I get A’s and B’s in Math and English, doing the same in other classes.” One male said, “I do my homework in all my classes because my mom is strict and I don’t get to play sports if I mess around.”

### *Negative Results*

There were also comments that gave support to the opponents of single-gender classes. Eight students felt their marks dropped because of the single-gender learning environment. One boy whose grade dropped said, “I concentrate more in the mixed classes because I am not talking with friends. In the mixed classes, I sit there and do my work and I am way more talkative in the boys’ class.” Wade echoed this sentiment, “In the single-gender class, I do not do my work. In the mixed-gender class, I do my work. I get more homework because I do less in class. In the mixed classes, I get my work done.”

Two males were disappointed with the class, “They put me in this class and my marks have slipped. They thought it was the girls, but I’m just goofing off more,” and “My marks have dropped. I could do well if I really wanted to. There are lots of kids and I just get distracted. When others are doing work you want to, but when others aren’t, it is tempting not to do it. I get better grades in the other classes.” Many students referred to the noise and distractions as a major impediment to learning. Steve, an A-student, said, “The single-gender class slowed

down the process of doing well with too many distractions.” Theo, a C-student, said, “It is hard to learn in the Math class with all the rowdiness. I learn better when it is stricter. You have to be smart enough to choose Math over fun. I could try harder and do better.”

### *Motivation for Achievement*

Just under half of the male students remarked about how they felt about letter grades. They were asked to describe their desire to succeed in the single-gender class and their co-educational classes. Six boys felt there was less competition without the girls. They said they wanted better grades with the girls around because good grades could impress them. One guy did not want to look like a nerd in front of his male peers. Lonny explained, “Guys don’t talk about letter grades like girls. With girls around, I would rather do better because girls talk about it. I am more aware of what marks I get.” There seemed to be a feeling that the girls were smarter than the boys. Cale claimed, “Everyone is doing the same in class (grades). There is less competition, usually the girls kick our ass.” “Some people work a lot harder in the single-gender class because they don’t have to worry about showing off for the girls and the way they act,” replied Roger. Another male liked having the girls removed because it was more laid back with not as much competing and less bragging. He felt girls were the ones always trying for the best mark.

These comments were counter-balanced by three students who now cared more about their letter grades. Roger observed, “In the single-gender class, if someone fails, they get mad. They rip it up or throw it in the binder. Guys want to do better when the girls are not around. When they are around, they pretend they don’t care. Another male related his personal experience, “I compete more than I do with the mixed class. You assume the other guys are

more competitive than the girls are, and you think other guys are the same. So you say stuff like, 'I am gonna get an A and beat you.'" Alex, a C+/B student said, "I hate getting A's. Everyone calls me a nerd. I hate being the center of attention, in the spotlight; I don't mind the insults so much with the guys."

### *Peer and Teacher Support*

The males in the single-gender class had much to say about the amount of support they received in their English and Math class. They were asked to describe the help given to them by the teacher. Although they were asked to describe help from the teacher, they also commented on help from their friends. Sixteen boys felt they received more help in their single-gender class. There were a number of reasons for this. They felt they had more friends in the class, so they could ask them for help. Boys also received more help because they felt the teachers were more helpful and there were fewer students in the class. It is interesting that the absence of girls was not given as a reason for increased amount of help.

Robert explained, "You feel more comfortable asking the guys for help. If no one gets it, the teacher is good at explaining it from other points of view." A couple of students responded to the questions, "You would get more help in the single-gender class because what would happen is that you would ask your friends for help first, then the teacher. So the teacher is usually less busy helping out other people, so the teacher has more time for you. "You get more help because you know the people beside you. Everyone is like this, so the teacher has more time to talk to you," was one boy's thought on getting more help. Four boys spoke about helping others: "I help the guys out more. My mom taught me how to read well, so now I help them out; my good friend is in the class, so we help each other to learn; I share answers more. I ask a

neighbor instead of the teacher because the teacher can't see it from a teen's point of view."

Another student explained, "Our friends are all there, they can help you and after school they can help you because we are all doing the same thing."

Boys put up their hands more in the single-gender classes because the guys won't make fun of each other. They won't say things like, "You don't know what you are talking about loser or you don't really see a boy putting up his hand in the mixed class. They are shy and only the girls know what is going on. You don't put up your hand because you don't know what is going on."

There were many compliments paid to the teachers of the single-gender classes in describing the amount of help. Students attributed the increased amount of help to the constructive nature of their teachers. Harold asserted, "My math teacher helps me more than other teachers. You ask for more help because he makes you understand it more. Jacob added, "It is easier to ask for help because the teacher won't confuse you when you ask for it. Other teachers are more confusing." Mike furthered this, "The teacher helps a lot. She makes us figure it out, so we have to do it, but she explains it so we get it. Other teachers get more frustrated when I don't understand, I ask for the same amount of help, but it gets frustrating not understanding so I get tired of working and I slack." Another student said, "We get more help. The teacher will tell you the answer. In other classes, they tell you to read it and look harder. This really doesn't help because I can't find the answer to begin with."

Again, the students spoke highly of their teachers. This student confirmed what has already been stated before, "My teachers are easier to understand so I don't ask for as much help.

They talk slower. I ask for more help in my other classes.” Cameron concluded, “I help others more because I understand more of what I have been learning.”

A few students cited the smaller number of student as a reason for more help.

Alex acknowledged, “I get more help in the single-gender class, but I asked for it more, and there were less people in my class (21 compared to 30+).” Darren relayed an interesting reason, “I get more help than the regular classes because most people are not doing their work, so the teacher has more time for me.” Three students explained, “I get more help because I ask for it more in the single-gender class.” One boy admitted that he asks for more help because he talks a lot and does not listen to the teacher.

There were 11 students who said they received the same amount of help in single-gender as in the mixed-gender classes. There was no change. They explained that whenever they asked for help, they received it.

Three boys said they didn’t get as much help because they felt they received better support with the girls around. Tyler explained, “I would not go in a single-gender class again because some girls can help you understand things better, if you are with only guys, you are kinda stuck.” Yet another missed help from the girls, “It is fun doing projects with girls. They are really helpful, a lot smarter than boys. We get a lot more help if the teacher is busy.”

### *Instructional Strategies*

The boys described a typical day in the single-gender and co-education classrooms, in terms of their teacher’s teaching styles and the activities in the classrooms. When the boys stated differences existed between the two learning environments, they were then asked: What did the teachers do in the single-gender classrooms that made it easier for you to learn?” The boys had a

difficult time describing teaching styles and found few differences in the lessons and activities from regular class. Almost all of the 30 boys spoke of their teachers writing notes on the overhead and then seat work. But 20 boys encountered an ease of learning in the single-gender class. They said, "It was just easier to understand in the single-gender class." Despite the lack of vocabulary to describe instructional strategies, they noticed a difference in their ability to understand. It was simply easier. Some interesting patterns emerged. When asked to describe what made learning easier they answered: computers, graphic organizers, explanations, resources, playing games.

*Computers.* Fourteen boys felt working on the computer helped their learning. Derek explained, "We play Math games on the computer and use web sites. I liked the grammar unit on the computer." Others liked Shakespeare and power point presentations on the computers. Jason stated, "We did an easy unit on the computers in Math."

*Graphic Organizers.* Although five students did not know the terminology, graphic organizers were referred to. David said, "The teacher uses 'fancy stuff' that makes it easier to learn." After questioning, it was determined that fancy stuff referred to diagrams and graphic organizers. A few males made the comment, "Web charts and summaries make it easier to learn."

*Explanations.* Graphic organizers were alluded to; in addition, seventeen of the boys commented that the teachers' explanations were easier to understand. It was difficult to get a clear picture as to why this occurred, but the frequency of the response bears noting. The boys consistently mentioned two main reasons. Ten students mentioned the slower pace in their

learning, and eleven students talked about the interesting examples used by their teachers of the single-gender classes.

Alex said, “I try to listen in my classes, but they go too fast. It is confusing, then I goof off. The single gender classes go slower. It is just easier. I have no idea why it is easier, it just is.” A few boys were able to pinpoint the reason. “My teacher stays on topic for a long time to make sure we get it. He slows it down,” replied Jacob.

Two others commented, “I learn best by having examples,” and “She writes everything down on the board.” Relevant examples seemed to be the key for some of the students. One student explained, “The teacher explains more and we get more examples. The teacher breaks it down better. We understand it better.” Brad described his female teacher, “Our teacher words stuff in a way we understand. For not being male, our teacher knows how to have you understand it. We did this thing on Code of Honor. It was cool. Other teachers are neutral with not as many examples.”

Five students had some unexpected things to say about poetry: “Poetry and Shakespeare are fun and interesting. It is easier to learn because it is more fun; Poetry is a lot easier than last year. The teacher explains it better; Poetry is fun, and rhyming is cool; Rhyming is one of the easier things.” Ask any Grade 9 English teacher, these words are rarely spoken by male low achievers.

*Discussion.* The male students enjoyed discussion when they could be open and honest. They declared discussions were different and interesting. A memorable discussion was on the Code of Honor; ten males mentioned it during their interview. Frank proclaimed, “The Code of

Honor was a great discussion. There was way more talking . One guy admitted he would take advantage of drunken girls. We booed him.”

*Resources.* Those who argue in favor of single-gender classrooms point out the benefits of being able to choose literature and activities that appeal to boys. Nine boys mentioned the use of appealing books, stories and poetry. The English teacher started with an unpopular novel. After a few days of painfully encouraging the boys to read the novel, she switched to another more boy-friendly book. Students appreciated the effort and behavior improved. Two boys explained, “Books were picked just for us, specific to what we need. We switched books when we didn’t like the first one. The books are more real to us.” Gee furthered, “We read guy books, not about unicorns n’ stuff.” Alex had more to say about how they read the books, “We do more active work. We get challenged to read it, and other teachers just read it for us.”

*Playing Games.* Nine boys praised Games Day in their single-gender Math class. Todd described it best, “Games Day was real fun. Every few weeks, when we did our work, we would have a Games Day as a reward. We would play Math games, cards and go on the computer to play on-line Math games.” Another boy commented on its effectiveness, “The Games Day happened when we finished our work. It was a motivation to do the work.” In addition to Games Day, boys enjoyed games as a learning tool during regular classes. One boy mentioned, “We played more games than other classes. It helped us to learn. It was an easier technique than always writing on the board, which gets boring. In the Math class the teacher used the dice to play probability games.” There was a theme of remaining active that the male students appreciated in the single-gender class. David explained, “Guys need active work, instead of

writing. We need to be creative like a cartoon or drawing. We can show what we know in different ways.”

*Humor.* One boy voiced about his English teacher, “She uses humor and funnier things are easier to remember.” Yet another added, “She gives us the flat line. She says it like it is and it is funny – like Shakespeare. It is the way we think and it is funny.” Seven boys referred to humor and fun as a learning tool.

*Miscellaneous strategies.* The boys also benefited from food, music and fewer tests as these were mentioned once by the following boys. Tom was very forthcoming when he claimed, “Free food would make me learn better.” Joe concurred, “The best thing about the single-gender classes were the candies we got from the teacher.” Jared established, “Music helps us learn better.” “I like the fact that we had less tests in the English class,” said Kyle. Another four boys said that doing projects was fun.

*Unsuccessful strategies.* Stress balls and workbooks didn’t accomplish the desired effect. Stress balls were recommended as strategy to use with male-only classrooms. It could keep them active while learning (Gurian, 2003). Both teacher and students recognized the balls did not relieve any stress. Two boys admitted, “The stress balls didn’t really work; we trashed them and used them as projectiles,” and “Stress balls – we just wrecked them. They were too much of a distraction.”

Another recommended strategy for males only was a minimalist work environment. It was thought the less they had on their desks, the less they would be distracted. Gee announced, “The notebook and pencils that he gave us lasted a few days, we worked on them, lost them and forgot about it. Everybody took the pencils.” Another male said, “The booklet and pencils

didn't really matter." Harry gave his own take, "I get worksheets done quicker than work from the textbook. Guys are lazy; we don't have to get out paper with the worksheets."

Although only one male student in the single-gender class mentioned homework, Jonathon's words bear mentioning. He explained how his homework did not get checked in his Math class, so he didn't bother to do it. However, in his other classes, the teachers checked his homework, so he did it. Left unchecked, some Grade 9 boys lack the internal motivation to do work. This sentiment was reiterated by Kale, "It works better when teachers stay on top of us, rather than just let us fail. In other classes, if we don't do our work, it is our fault, and we fail."

#### *Gender of the Teacher*

The boys were asked the question, "Would you prefer a male or female teacher?" Exactly half the boys answered that gender did not matter. They cared about teaching skills and personality. One boy specifically wanted a teacher who was relaxed and not trying to turn him into a robot. The rest of the males were fairly evenly divided, seven preferred a male teacher and eight wanted a female teacher. Proponents of single-gender learning often claimed boys should be taught by male role models. This theme prevailed in the literature. However, these boys clearly demonstrated that sex of the teacher was not an issue. Some of the reasons given for their gender preferences follow.

Eight boys felt a male teacher was more understanding of their needs. Three boys claimed, "You usually do better with a male teacher because he can explain it in a way we understand." Another one revealed, "It seems normal this way; it would be weird the other way." Alex liked the way he could talk to the male teacher about anything. Three boys enjoyed the freedom with their male teacher, "In an all boys class, they understand and let you fool

around.” Yet another boy agreed, “They (female teachers) are more strict and less fooling around gets in the way, with a guy teacher it would just be easier.” Ralph decided, “It helps to learn and it is a lot of fun with a male teacher.”

On preferring a female teacher, the boys felt they were nicer. Two boys actually asserted, “They understand guys better,” and “she is better about thinking about what we like than the male teacher. He understands us but not to the same depth as my female teacher.” Two opposing ideas came forward. Three boys thought female teachers were stricter, and one boy thought female teachers were more easy going. Larry explained, “A little more strict. I prefer teachers that keep order in the class.” Paul had an interesting comment. He preferred a female teacher because they were not trying to control you whereas, he felt a male teacher wants to be in control.

#### Teacher Interviews

I interviewed the two teachers of the single-gender class, Anne Powell and Gordon Mackie (names have been changed to ensure confidentiality). They were asked to describe a typical day in their single-gender class and a typical day in their co-educational classes.

##### *Anne Powell: Single-Gender English Class*

Anne Powell would describe her overall experience as positive and was keen to teach the class again. When asked how she prepared for teaching the single-gender class, Ms. Powell responded, “Not a huge amount, I thought the gender separation would be enough.” She did read some literature including Gurian’s book on brain based differences. Gurian recommended techniques for teaching males and females. Not only did she discover new strategies for gender-specific learning, Ms. Powell realized this created a dilemma in her co-educational classes. Most

of what she learned did transfer to the mixed classes, but now that she was equipped with the knowledge of what works best for boys and what works best for girls, she was very careful to be fair about what strategies she used in the co-educational classes. She struggled to create lessons that matched boys and girls learning styles.

To the question, “Describe what you believe to be the strengths of the single-gender class?”, she provided two responses. The quality of discussion greatly improved for males in her single-gender class. Ms. Powell illustrated with an example, “We had a discussion on Shakespeare and the ownership of women. There were various perspectives voiced with an open and honest dialogue. It was great to see.” This honestly was reflected in the unity of the class. She noted the boys were secure enough to talk with no outbreak of laughter. Conversely, Ms. Powell was asked to describe the weaknesses of a single-gender class. She simply stated, “I didn’t think there was.”

The single-gender teachers were asked a series of questions to elicit descriptions of a typical day in single-gender and co-educational classrooms. On teaching style, Ms. Powell said, “I never set out to teach the boys’ and girls’ classes totally different. My purpose was to see if the various methods I use in the classroom would benefit boys/girls. I use multiple-intelligences, project-based learning, collaborative learning, writing for excellence and infusion of technology in all my classes, not just the gender ones.” The differences occurred in the time spent on an activity or topic. For the boys, she found, “Chunking of time into ten minute blocks worked better.” However, the girls needed to focus on one activity for a longer period of time.

When asked to describe her classroom management style, Ms. Powell said she was firm, but relaxed in both her classes. In the mixed-gender classroom, she made students aware of her

expectations and didn't slack off on these throughout the year. She claimed that they could still have fun and joke. She relayed that she was more relaxed in the single-gender classes because she felt she knew them better, as the class ran for the entire year. This is important. She remained vigilant, but found more joking occurred in the classroom. Ms. Powell maintained her rules and watched the swearing and put-downs. She told this of her boys: They are reasonable. I was surprised at the respect in the classroom. As a warning to other teachers of males in a single-gender environment, she said, "I always knew it would take five to ten minutes to let the guys settle down once they came into class. They were fine after this period."

"Expectations of goofy," Ms. Powell said existed in the single-gender male classroom. "They don't cross boundaries and they know when I have had enough," she explained, but, "the boys take the teasing more good naturedly." In the co-educational classes, the girls would get bugged and tell. Because the boys didn't do this, there was a far more relaxed environment.

When asked about the behavior of students, she noted the lack of discipline problems. In fact, a classroom of 24 boys is easier to monitor than the co-educational class with 32 students. In the mixed classes, she said girls distracted boys and the boys stayed at their desks more in the single-gender class. She described the case of a boy who transferred into her classroom, "He was a huge discipline problem in the mixed class. In the single-gender class, the guys didn't pick on him anymore."

Ms. Powell had a very interesting observation about the treatment of newcomers into the classroom. She said she was shocked at the differences she found. When a new person came into the girls-only class, they would be welcomed and helped. She depicted the males as a pack of wolves. She stated, "The three new boys who came into the class sat together; the rest of the

boys would ridicule them. One of these boys actually had friends in the class, and they still treated him as an outsider. It took two months to move out of the social cliques.”

Ms. Powell had much to share about teaching strategies and resources. Computers were used in her classes, thus supporting the wishes of boys. She listed web quests, a talking head, on-line poetry portfolios, grammar-on-line and projects. She made an interesting observation when she tried the same computer assignment in her female-only class, male-only class, and mixed-gender class, “I tried it with the mixed; it was chaos. The girls needed help and the boys just wanted to do it.” Ms. Powell also stated, “When using computers, boys engaged in learning. There were rarely behavioral problems. In fact, many boys would ask to use a computer to do even the minor assignments.” Project based learning was another key component of what she did in her classrooms. The boys enjoyed the group work. She also used a lot of graphic organizers for the male students.

As for resources, she chose a book specifically for the boys, but when the students floundered, she switched to a book that she thought would have higher interest level with the boys. Behavior difficulties persisted until she substituted *Cue for Treason* for *Whale Talk*. She also allowed students to partner and to read in the hallways. She said it worked well for students who struggle with reading and, remarkably, they stayed on task.

When students studied Shakespeare, she changed her teaching methods for the boys. She explained, “The boys responded incredibly well to my pre-Shakespeare unit. The primary task is a project based learning activity that gives the boys background knowledge for the play. I created *talking heads*, a computer animation, that guides students on a journey about Shakespeare.” The boys did not enjoy character diaries as much as the girls did. Ms. Powell

explained that she used many of Chris Tovani's ideas of marking text, fix-up strategies, stickies and two column journals. They would read each page, stop and share. She said this method transferred over to her mixed class where it was quite successful.

The boys and girls did the same short story unit. She explained, "The short story unit was the same with one exception. I used more graphic organizers for the boys' class. The boys were to take the graphic organizer and get right to work filling in the boxes." She said she would choose different stories for the boys next time. She noted, "The boys really got into Edgar Allan Poe. It was gruesome enough for them." She noted that many of the boys read science fiction already and that a mystery focus might be more of a "grabber" for them.

Another component of English 9 was the poetry unit, and judging by the positive comments from the male students, she was successful in making this relevant and interesting for them. Her strategy was to create a poetry booklet for each poem with vocabulary on one page, surface questions on another, and then followed by deeper questions. She said this concrete method of examining poetry worked well for the boys. She was also surprised at poetry composition. Sharing of poetry occurred regularly. Ms. Powell concluded, "The guys had confidence in knowing no one would laugh at them when they read their poems."

As for classroom testing, there were no changes in the tests that she gave to boys, girls and mixed classes. She explained that she really only gave three to five tests a year and the majority of marks were project based.

When asked about the support she was able to offer her single-gender male class she described, "In the co-educational class, girls take up a lot of time. I have more time for the males in the single-gender class. I get a chance to talk to them, and they ask questions."

Ms. Powell was very excited about the achievement of the male students in the single-gender classroom. She said most students did better. The boys increased by just over 5% on average. When she compared final letter grades to the boys' Grade 8 marks, seven boys stayed the same, nine improved and five did worse. She had this to say, "I don't know how much it improved the grades of the A-students, but for the modified and adapted students, it made a huge difference in achievement. They did very well." She accounted this to the work ethic in the classroom. If the boys around them were working, they would too.

*Gordon Mackie: Single-Gender Math Class*

Overall, Mr. Mackie described his year as a real learning and growth opportunity to try different things. He enjoyed the year and wanted to try it again. Mr. Mackie stated, "I would like to give it a few more years to try out new things." To prepare for teaching the class, Gordon Mackie read Gurian's book *Boys and Girls Learn Differently*. He continued reading and researching throughout the year.

When asked what he believed to be the strengths of the single-gender class he responded, "It allowed the boys to be more relaxed. It did not stifle; the guys could ask question and get help. It allowed for the risks the males took. They could let me know and their friends know when they didn't understand."

When questioned about the weakness of the class, Gordon Mackie talked about discipline. "With a group of 21 boys," he explained, "Things could degenerate very quickly unless you curbed it. They would feed off of each other." He did make a disclaimer when he said, "I definitely felt the class could get nuts really quickly if it was last period of the day. When it was first period of the day, there were far fewer discipline issues." The scheduling of

the boys compounded this problem. When they had Math class late in the day, the boys had already spent a lot of time together, whether it be in the single-gender English class or another class. He strongly argued these boys should not be together for the last block of the day.

In addition to learning about teaching single-gender classes, Gordon made self-discoveries. He proclaimed, "I was too tolerant. I allowed more to go on in the classroom, and I should have reined it." This carried over to his mixed classes. He said he was more aware of tolerance and gender issues.

Gordon Mackie's teaching philosophy encompassed asking questions. He stated, "Education is questions that tie into Math." He said he was willing to address questions to follow students' interests that relate to real life. Gordon felt that if he could make the classroom an interesting place to be where it was comfortable and fun, then there was an opportunity to teach. He explained, "If this occurs, I can usually hook the students and teach them something."

On his teaching style, Gordon did not change much in the delivery of material to the students in his single-gender and co-educational classes. He relayed that this was a small school and there was much talk between the students. He said, "Students would be upset if they weren't treated similarly." He did change the examples with math problems. With the boys, he created examples about sports and food. With the mixed classes, he would try and find examples that would appeal to all.

Mr. Mackie used more group work with the single-gender male class than he regularly did in his coeducational classrooms. He said he was less concerned about whom the boys worked with and where they sat. The boys took advantage of this and were constantly moving. There was no rigid seating plan. He said they spread out on their tables. This was different than

the co-educational class where the desks were in rows with a seating plan. Students in these classes would choose to work on their own rather than with others.

Gordon Mackie noticed a difference in activities that engaged the boys. He stated, “The males enjoyed the mechanically orientated and spatial challenges. They really excelled with the hands on. The girls did not do well with spatial ideas and the girls thought the computers were dumb. The boys loved the computers.”

He tried a few strategies that did not work. The stress balls were implemented so that the males would have something to do with their hands while they worked. It would satisfy the male need to move and keep active. Gordon explained what occurred, “They were hard on the balls; they want to throw them. The guys destroyed them.” Mr. Mackie did have suggestions for successful implementation of the balls. He said next time he would slowly introduce the stress balls to a few select students and then, only for short time periods.

The other strategy was provision of notebooks and pencils for the boys, rather than binders. He thought there would be less clutter and materials for the boys to organize. He said these notebooks did not work because he slowly stopped using them. Mr. Mackie explained, “It was difficult to collect the book, mark and return in a timely manner. They could still work; the use would just have to be altered.”

Classroom tests remained the same for single-gender and co-educational Math 9 classes. There were common midterms and final exams given to all students.

He described the achievement in his classroom, “Sixty percent of the students came into my class with the usual grade of a C. Many maintained or obtained a slightly higher letter grade, which is an improvement. Typically, students’ marks tend to drop in Grade 9 Math.” He

claimed it was a little early to say if the single-gender grouping had made an improvement.

“Perhaps more students would have dropped,” he stated. Mr. Mackie also explained that it was difficult to compare the single-gender class to his co-educational classes, because there were so many students who had behavior and academic challenges in the single-gender class. His final comment about achievement was, “Some rose, some didn’t because of the lack of structure.”

When questioned about his classroom management in single-gender and co-educational classes, Gordon Mackie noted a difference. He described the co-educational class, “I have expectations that the students are paying attention and following along. If there are disruptions, it is the teacher’s position to bring it to attention. I follow the three-step system of the school. With the girls’ presence, the boys would focus much faster.”

In the single-gender class he spoke of flexibility in discipline. Gordon said, “I am more accommodating. There is fluid and movement during work time. Sometimes I will send the boys for a run around the flag pole. That helped to calm them down.” He tried to compromise more in the single-gender class. “Rather than push buttons,” he explained, “They would get more work done if I allowed more to go on.” He did find it frustrating with time constraints when the boys were not in a mood to do work.

As for the behavior of the male students, Mr. Mackie had a few points to make. The boys wanted to solve things physically, yet there was very little posturing for position. They left each other alone more; fewer boys were picked on than in the co-educational classes. In those classes, he noticed more male targets with some boys singled out more. Guys pointed out other people’s fault with greater frequency. The topic of conversation was different in the two types of classrooms. In the all boys class he explained, “They would revert to boys’ style humor very

quickly. They would talk about cars, skateboarding and music.” The co-educational class had more small talk with discussion revolving around who was going out with whom.

Gordon did note the atmosphere of the single-gender classroom. He relayed, “It was more relaxed which can explain some of the silliness. They were more accepting of each other. The boys were more willing to say, ‘I don’t understand.’ ” In the mixed class, they won’t admit as they are more guarded about what they don’t understand. He explained the boys do not want to look stupid.

### Conclusion

The boys were asked to describe a typical day in the single-gender classroom and in the coeducational classroom. The juxtaposition of their attitudes, behavior and achievement in the two classrooms allowed for an awareness of the differences brought about by the single-gender grouping. The two teachers were also asked to describe their teaching, management and instructional strategies in the single-gender class. From the two groups of participants, we gain a greater understanding about the viability of single-gender classes.

## CHAPTER FIVE: DISCUSSION

The journey into the world of Grade 9 boys proved to be enlightening. They confirmed much of what had been stated in prior research, but they also shed new light about their year-long experience. The teachers and students who participated in the single-gender classes shared their experiences, both good and bad. This knowledge allows educators to make informed decisions about the merits of single-gender learning. The boys explained their attitudes, behaviors and achievement in their classes. Interesting patterns arose as the boys generally enjoyed the class for the camaraderie, but found the noise level very distracting. They often performed better, asked more questions and felt freedom to behave like boys. From the teachers, we discovered two different experiences with the single-gender classroom and, in the process, learned about classroom management and instructional strategies. All participants informed us about male-friendly pedagogy.

There were many reasons, as supported by prior research, which led me to explore the meaning of attending a single-gender male only class as a method to address the gender gap in achievement. Proponents claimed without the distracting presence of females that there would be increased academic achievement (Blair & Sanford, 1999; Evans, 1993; Maddox, 2000; Martino & Meyenn, 2002; McDonald, 1998; Mulholland, Hansen & Kaminski, 2004; Rennie & Parker, 2002; Slater, 1996; Smith, 1999; Younger & Warrington, 2001, 2002, 2003), more involvement in classroom activities for the male students (Kruse, 1996; Rennie & Parker, 1997, Younger & Warrington, 2001, 2002), improved classroom behavior (Evan, 1993; Hancock & Kelb, 1996, Richardson, 1995), better attitude (Evans, 1993; Kruse, 1996; Smith, 1999) and learning tailored to meet the needs of boys (Gurian, 2001; Martino & Meyenn, 2002; Parker &

Rennie, 2002; Sommers, 200; Sukhnandan, Lee & Kelleler, 2000). These claims will be looked at in terms of whether or not the boys at the middle school in British Columbia found them to be true.

Opponents stated the single-gender learning environment would not increase the success of Grade 9 boys. They claimed the behavior problems that result when grouping boys together would prove to be too much of a distraction for any learning to take place (Connell, 1995; Kenway et al., 1998; Jackson, 2002; Parker & Rennie, 2002; Younger & Warrington, 2001, 2002). Furthermore, some researchers found no significant differences in achievement (Budge & Cassidy, 2000; Marsh & Rowe, 1996). Others cited a poor attitude of the boys in the single-gender experiment (Marsh & Rowe, 1996; Sangster, 1988; Thomas, 1997). Researchers also asserted the reinforcement of stereotypes would be harmful (Bengtsson, 1993; Lee et al., 1994; Kenway & Willis, 1998; Mael, 1998; Shmurak, 1998), as would the implied message that boys and girls could not work together (Mathews, 1996). Again, these claims will be evaluated as they applied to the boys at the middle school. The three themes of attitude, behavior and achievement used to explore the experience of the single-gender classes will provide a similar structure for examining the successes and failures of the participants' experiences.

#### Attitude

The attitudes of the boys evolved throughout the year. At first, many of the boys did not want to be in the single-gender class, but as the year progressed their attitudes changed. When asked to describe their current attitude about the single-gender classes, 17 out of 30 males were positive, ten were negative and three were neutral. This shows a continuum exists. There is not a dichotomy between the genders, but a wide spread within the genders.

Boys cited improved grades and increased amount of fun as the main reasons for liking the class. Those male students who had negative attitudes claimed their grades did not improve and their work habits deteriorated. The main theme to evolve was the ability to be more open and honest.

### *Increased Comfort Level*

The findings of this study supports much of what has been claimed in the literature about boys being more open in a male only classroom (Blair & Stanford, 1999; Evans, 1993; Kruse, 1996; Smith 1999). Males in the single-gender class discovered they could express their thoughts and feelings without consideration of female judgement. This freedom created a comfortable classroom environment where “boys could be boys”. This they did, with increased frequency the boys put up their hands, answered questions and participated in discussion. There were repeated comments about candor and the ability to be themselves. Younger and Warrington (2002) explained how boys were usually passive in mixed classes. Without the girls, they had no fears of looking stupid nor aspirations to impress.

This increased frankness reflects the demarcation theory as explained by Kruse (1996). She stated that boys and girls need the freedom from the opposite sex in order to develop their gender identities. The boys’ took this opportunity and felt more comfortable to be themselves without the pressure of impressing the girls. However, they did not drop the mask of masculinity that Pollack (1998) described. The boys still presented toughness through increased violence in the classes. Most boys thrived with the freedom to express themselves aggressively and verbally. Increased participation resulted in improved achievement (Kruse, 1996; Rennie &

Parker, 1997, Younger & Warrington, 2001, 2002). Furthermore, many of the boys cited the atmosphere of the class as a reason for their improvement.

### Behavior

When examining classroom behavior, a number of differences between the co-educational classes and single-gender classes emerged. Each boy was asked to describe his participation, behavior, treatment of others and opinion of himself in the single-gender and coeducational classrooms. They were also asked to comment about their classmates' behavior. The male students were aware of behavior changes, increased participation, change in conversation, and increased talking and rough play. More teasing occurred as a form of communication; however, the boys engaged in fewer serious harassing behaviors. Two main reasons emerged as an explanation for the change in behavior: the absence of female students and more friends in the classes. Just over two-thirds of the male students found they did behave differently. The other third said they acted the same. These boys explained they were either quiet in all their classes or they talked to their friends regardless of single-gender or co-educational grouping. This does show the biological differences as explained by hormones does not apply to all males the same.

### *Physical Interactions and Discipline*

The expectations of both researchers (Connell, 1996; Jackson, 2002) and of some educators were confirmed when exploring behavior of males in the single-gender class. In both classrooms, there was more physical aggression, goofing around and teasing than typically occurs in the co-educational classrooms. Hancock and Kelb (1996) asserted that classroom behavior would improve when the distracting presence of the girls was removed. Gurian (2001)

supported this when he said that single-gender classes would temper extreme behaviors that result from physical and cognitive changes. This was not the case as boys often spoke of increased physical and verbal interactions. Much of the literature on the failure of single-gender classes pointed to this roughhousing, out-of-control behavior as a major weakness of single-gender learning (Kenway et al., 1998; Jackson, 2002; Parker & Rennie, 2002; Younger & Warrington, 2001).

There is another way to view the behavior of the boys. As many boys spoke of the chaos and violence, one might make a quick judgement that the single-gender class is a behavioral nightmare. However, does it work for the boys? We need to step out of the box in desiring perfectly behaved classrooms and realize what the boys need. They showed their natural behaviors without the calming or stifling effect of the girls. The majority of boys behaved differently when girls were present in the classroom. They did not want the girls to see their natural interactions as they thought they would be criticized by the girls. On first thought, we acknowledged they felt more comfortable, but more comfortable to beat on each other and goof off. However, the comfort zone did create a better learning environment for some. The C- and C students felt they did better in the single-gender classes than they normally would; the teachers supported this and so did Carpenter (2004). The physical classroom may help certain boys. Gurian (2001) has long claimed the typical classroom does not address the boys' natural impulsiveness and hormonal factors. It appears as if the boys who traditionally don't do well in school, flourish in this type of environment. Perhaps it does relieve stress and aggression, so the boys can then focus on the task at hand. Yong and McIntyre (1992) also found that an informal classroom with active learning appeals to males. Some females need quiet when learning new

information, some males do not (Pizzo, Dunn & Dunn, 1990). Some of the males in this study echoed the same idea.

The 'A' students found the noise and activity too much of a distraction; nevertheless, these boys still maintained their high marks. The aggressive classroom also did not work for those boys who could not regulate their behavior. These males lacked the ability or motivation to understand when play ends and work begins. One 'B' student commented, "It worked with the less strict rules because there was no pressure, but I think the smarter kids had a harder time." Most boys had an understanding that rough play was distracting, and wished for greater discipline at times. Some said the best part of the single-gender class was the roughhousing and violence, but then in the same breath, said the atmosphere was the worst thing about the class.

Perhaps we need to re-think our ideas of classroom management. The teachers of the single-gender classes were more flexible in order to make their classes more effective. The atmosphere of both classes was overwhelmingly relaxed. It may be hard for authoritarian teachers to let these off task behaviors slide.

Does the single-gender classroom provide a better learning environment? Again, the answer varies for the individual student. If we can help low achieving students improve, it may take a fundamental switch in classroom activities. Maybe the activity of these boys' rooms is a better learning environment for physical young men. Research has demonstrated that movement and physical activity is more suited to the boys (Gurian, 2001), and some of the boys in this study have confirmed it. Those who study the biological differences between male and females claim the males are more impulsive, naturally aggressive and violent (Meidzian, 1991; Mulrine, 2001). The testosterone in males has been traced *in utero* (Acheron, Lipitz, & Achiron, 2001).

We have learned from these boys that the culture of school, as it is, does not allow for natural male tendencies. If changing the physical nature of school within these classrooms helps the boys to focus and learn more, it is worthy of implementation. We wanted to know if the culture of boys would change in the single-gender class; they did not experience a change in culture, in as much as they were able to exemplify the nature of boys. For example, the boys did not transform into well-behaved students who were motivated to do better without the girls' presence, the boys acted as boys do. Without the girls, they acted the way they wanted to.

*Physical Interactions: Teasing and Bullying*

Another interesting phenomenon occurred with the boys' interactions. Not only did the classes become more physical, but they also were filled with the loud voices of the boys. A greater amount of teasing transpired in these single-gender classrooms. Surprisingly, this was an admirable outcome of single-gender grouping. Almost every male claimed the teasing was in jest and between friends. It was their way of interacting with their peers. Martin and Meyenn (2002) also commented on the acceptance and male bonding that occurred. The boys in the English and Math class talked about girls, sports, music, video games and made fun of each other. With the increase in good-natured jesting, there came a decrease in the serious verbal harassment. Boys who were typically targets were left alone. And those who were bullies did not torment their peers as frequently. This experience did not support Connell (1995) and Jackson (2002) who felt the culture of violence was made worse in the single-gender class. They found more harassment occurred. In a time when school administrators, parents and teachers are systematically addressing the problem of harassment in the school, the reduction of bullying is a positive by-product of single-gender classrooms.

*Stereotypes*

Critics of single-gender classrooms were apprehensive about the stereotypes perpetuated in the single-gender classroom (Bengtsson, 1993; Lee et al., 1994; Kenway & Willis, 1998; Mael, 1998; Shmurak, 1998; Younger & Warrington, 2003). Many of the boys illustrated a typical grade-nine boy image in terms of their behavior. Both teachers accommodated the boisterous nature of the boys in their approach to discipline. They also employed resources and examples that were appealing to boys. The male teacher formed a bond with his students which perpetuated the physical nature of the boys. This culture of heightened physical and verbal interactions reinforces gender stereotypes for the boys. Younger and Warrington (2003) claim this should be avoided in order to obtain greater academic achievement. They believe gender stereotypes should be challenged. This challenge did not occur, rather the boy stereotype was reinforced.

The English 9 single-gender class offers respite from male stereotypes. The number of positive comments made about poetry and Shakespeare is a delightful surprise. The boys remarked on the ability of the female teacher to understand them and to increase comprehension through her explanations. She was able to challenge male stereotypes within the English class, as Sukhanadan et. al (2000) also found in their study, albeit, their study was on single-gender classes with a male teacher.

Male teachers are often said to be advantageous, as they can serve as a role model for the male students (Gurian, 2001). These boys, on the whole, did not care about the gender of their teacher. They merely asked for a teacher who could teach well. It appears as if the argument that

boys reject literacy because they lack males who model reading is not the case for these boys (Martino & Meynen, 2002).

Mathews (1996) raises alarms that separating males and females sends a message they cannot work together. Because we are not advocating that single-gender classrooms be implemented for all subjects, boys do learn to work with girls. The results of this study illustrate how males appreciate working beside their female counterparts. They miss the girls for group projects and for their support. Twelve boys had the opinion that girls were smarter, therefore, could help them more.

### Achievement

#### *Positive Results*

Improved achievement will be the benchmark to which the success or failure of the single-gender classes will be determined. Parents, principals and teachers create single-gender classes to explore whether or not improvement will occur. This evaluation of achievement is qualitative; it is the male students' perspectives about their achievement as a result of being in the single-gender class.

Far more male students made comments about improved learning and better marks than those that find less improvement or none at all. Of all 30 boys, in the two classes, 20 students felt they earned better marks in the single-gender class, eight felt they did worse and three noticed no difference. This alone may cause some schools to consider the approach.

Carpenter (2004) measured the actual academic performance, classroom average, of the boys. Her data supports the finding of my study. She reported:

Results indicated that there was greater improvement in students' performance in

math and English skills in single-gender classes than in mixed-gender classes.

Specifically, over the 2003-2004 school year, the boys in the single-gender Math class outscored (77.50%) the boys in the mixed-gender Math classes (66.25% and 68.00%). The boys in the single-gender English class outscored all of the girls and boys in the mixed-gender classes. The boys in the single-gender English class scored (89.00%) compared with the boys in the mixed-gender classes (59.75%, 66.75%, and 68.25%), while the girls in the mixed-gender English classes scored 76%, 78%, and 63.50% (Carpenter, 2004).

Many other studies find a similar improvement in achievement (Blair & Sanford, 1999; Evans, 1993; Maddox, 2000; Martino & Meyenn, 2002; McDonald, 1998; Mulholland, Hansen & Kaminski, 2004; Rennie & Parker, 2002; Smith, 1999; Younger & Warrington, 2001, 2002, 2003). Below average students realize benefits in the form of improved marks. One teacher suggests the work ethic of the classroom is contagious for students who lack motivation. Students claim the release of tension allows them to focus on work.

#### *Motivation for Achievement*

When exploring achievement with the males in the single-gender class, another theme arises. The male students commented on motivation in terms of what letter grades they wished to achieve. The experience of these boys reflected Pollack's (1998) statement: there exists a mentality with the boys that academics are not important. Researchers claim the boys would openly strive for better marks through an increase in competition (Evans, 1993; Younger & Warrington, 2001). This expectation for single-gender classes is not attained. Without the

presence of girls, the boys do not have an overwhelming desire to improve. Removal of females has very little effect on their effort to procure higher letter grades.

Many of the boys echo the sentiment that they want to do well, but do not really want to be seen as doing well. This is the case for both mixed-gender classrooms and single-gender classrooms. It is not cool to earn top marks. This has implications in that more work needs to be done in the area of encouraging boys to openly desire better marks. More needs to be done to change their view of quality achievement. Three boys felt competitiveness for higher marks increases, 27 do not. Simply grouping does not change the nature of boys, it brings out more of who they really are. In the presence of peers, it is not important to be seen to be doing well, with or without the girls. Educators need to ask how do we change this facet of achievement and motivation.

We can also look at motivation in terms of how the boys reported their achievement. Although, it has not been the norm to value high marks in front of their peers, many of the boys spoke about how their grades had improved. This was a major factor in their attitude towards the class; they liked it and the improved achievement that participation in the class brought about. It appears as if boys are quiet in their quest for achievement as their peers are not orientated towards this goal. Further research needs to be done in this area. How can we change the culture to allow this internal motivation to be outwardly pursued? And if boys do speak about wanting better grades with each other, will it result in improved achievement?

#### *Peer and Teacher Support*

The males in the single-gender class received more support from their teachers and their peers. This is due, in part, to their willingness to ask for support from both teachers and

classmates. Others note the smaller class sizes and increased accessibility of the teachers as a reason for additional help. Parker and Rennie (2002) also assert that males receive more help in the single-gender classes. It speaks for the success of single-gender classrooms. Researchers assert the boys do not receive the necessary assistance in mixed classrooms (Baker & Jacobs, 1999; Rennie & Parker, 1997). In these single-gender classrooms, the boys receive all the help they need. Teachers in the male-only classes also noted an increase in the amount of support they provided to the boys. The increased provision of support may be a factor in creating success for the boys.

### *Instructional Strategies*

The majority of boys say assignments and lessons are easier to understand in the single-gender class. The activities are significantly more appealing and interesting. Some students lack the vocabulary and understanding of what created this ease. Those that do answer, provide guidelines for teaching boys. Here lies the strength of the single-gender classes that many researchers comment on: tailoring instruction to meet the needs of boys (Martino & Meyenn, 2002; Parker & Rennie, 2002; Sukhnandan, Lee & Kelleher, 2000). Recall the teachers of the single-gender class prepare for teaching these classes by researching gender strategies. Their efforts are noticed for both their successes and failures. Success occurs with the use of computers, graphic organizers, concrete methods of examining literature, chunking of activities into shorter time frames, games, materials and examples that appeal to boys. The stress balls and provision of workbooks and materials to create an uncluttered workspace were deemed unsuccessful. Both teachers maintain this knowledge about how boys learn best is transferred to

co-educational classrooms. Other educators can use this knowledge to inform their practice.

They can offer options to students to allow them to choose what works best for them.

### Unexpected Findings

#### *Two Classrooms*

The involvement of two classrooms allows for an interesting comparison. The impact of the teacher on any classroom is very difficult to determine. The experience in both these classrooms is different in terms of behavior outcomes. We are able to see the influence of classroom management styles and the subsequent behavior of the male students. One classroom confirms the worries of critics of the all boys classrooms; whereas, the other class illustrates a calmer learning environment. It reinforces the notion that when grouping boys, classroom discipline needs to be attended to. The Math class illustrates enhanced aggression; whereas, the English class shows another outcome of an all boys' class, a calmer class.

This distinction is telling of the teacher's influence on the class. In fact, the teacher's discipline style has such an impact, it is probably the most crucial factor in the classroom. When Hattie (2002) explored how the composition of classes affects learning outcomes, he discovered the learning environment provided by the teacher is the single most important factor in determining achievement. The effect of the teacher outweighs class size, single or co-educational grouping, and the ability of the students. The findings of this study support those of Hattie; the teacher was a defining component of student achievement. We also can not ignore that one teacher was male and the other female. The boys may have behaved differently in the class because of the gender of the teacher. No boys spoke of this, but they may not even be aware of this affect.

*Data Collection Method*

The interview as a method of data collection yields superior results to that of a survey. The male students prepared for the interview by completing a written survey that was administered by the principal of the school. It was issued in class; the noise level was high, as boys often checked out their neighbors' responses. All the boys, with the exception of two, wrote negative comments about the single-gender classes. Each boy was desperate to ensure that his classmates knew that he liked girls. If only the surveys are analyzed, it is easy to conclude these boys do not like single-gender learning, as Sangster (1988) and March and Rowe (1996) maintain. However, this is not a common theme in the one-on-one interviews, as the majority of male students recommend single-gender classes to their peers. A valuable lesson is learned. Teenage boys will say what they think their peers want to hear, and they do not want to appear as to like being in a class with all males. This finding also supports Macmillan and Schumacher (2001) in stating that interviews are a superior data collection method over surveys. In future qualitative studies with this population, data collection methods will be a major consideration, as findings are dramatically different in a confidential setting.

Another strength of this study is the number of males that were interviewed. In this thesis, the voice of every male student who attended the single-gender class is recorded. This allows for a complete spectrum of views from the students. We do not take the chance of interviewing only the smart students or, conversely, the lower-achieving students. Some students are highly articulate and could explain their actions. Others lack the ability to do so, and are frustrated at the word, "Why?" All views are considered and this is very important when determining the overall experience of the single-gender classroom.

### Implications

Longer-term studies are needed. What will happen over time? This is the first year of single-gender classes at this middle school. Do changes in achievement last over time? As time progresses, do the findings differ? Is there a particular grade, subject, or life-stage that lends itself well to the single-gender learning environment? A study that combines qualitative and quantitative research can provide accurate data about achievement and a complete picture of all facets of single-gender learning.

More studies about best practices for the male and female brain need to take place, so that teachers may use this information in their lesson planning and disciplinary methods. The dichotomy that is said to exist, may map out as a continuum and in clusters. Students and teachers can provide this information in studies that target gender pedagogy. Male students can be given the vocabulary to enable them to describe teaching strategies. These discoveries can help all teachers, in single-gender classes or co-educational classes, become more effective. Very little was changed in the classrooms of this study in terms of assignments and testing. Can these be changed to better suit the learning needs of our male and female students?

The topic of male achievement and motivation needs to be further studied. How does the peer orientation of male students affect motivation and consequently achievement? Can this be changed? Do we want it to change?

The study is largely qualitative. It aims at understanding the experience of attending and teaching in a single-gender classroom. As mentioned, this study is done in conjunction with another in which data such as letter grades and test scores are quantitatively studied. The statistics from this year's class at the school need to be analyzed over time to see if a trend

occurs. As this is the first year of implementation at the school, there were adverse reactions to the classroom at first. 20-two students did not understand the class and were afraid of being labeled “gay” in the beginning. The longer this program exists, the more attitudes of students may change. This group in particular may have been a unique set of students given the demographic make-up of the student population (high risk, academically challenged youth). Thus repetition of this study in other settings, as well as years needs to take place.

This school will have yet another grouping of students next year. They are offering an honors program for English and Math at the Grade 9 level. This means future high-achieving students who may not like the single-gender class, as was the experience of the high-achieving students in my study, will more than likely to enroll in the honors class. What will it do to the behavior and learning of students in the single-gender classrooms with the removal of these higher achieving students? The single-gender learning environment appeared to work best for students who struggle academically. Would a class comprised of this population be ideal? Would the presence of high achieving students be missed? These are all questions that could be answered with further research with different male populations.

The girls need to be studied. I did not completely ignore the girls in my quest to find out more about the nature of single-gender classrooms. Although their voices are not recorded in this thesis, the researcher did observe and interview the two all-girls class as a whole. To characterize the class, imagine a likeable group of talkative girls trying to speak over their peers. The idea that the girls will prosper on their own needs to be reexamined. There are some alarming trends that appear during this quick glance: extremely high noise level, bullying through exclusion and gossip. Despite the relative success of single-gender girls’ classes in the

past, they should be revisited. Claims of ten to 20 years ago are not reflective of the girls' culture today. Contrary to existing past literature, these girls are not submissive, compliant and passive.

### Conclusion

Are single-gender classrooms the solution for the gender-gap? As the literature suggests and this study concludes, there is no definitive answer to the question. It is an educational strategy that can effectively serve a portion of the male student population. For the most part, the boys in this study had a positive learning experience that resulted in improved achievement for the majority of the boys. Verbal and physical interactions often distracted the boys from working in their classrooms. High achieving students became frustrated by the noise, and below average students thrived in the environment. A classroom management style that reflects the boys need for a physical and verbal release, yet sets boundaries leads to a classroom that will serve the majority of the male student body. We must rethink classroom management to allow for motion and release for some of our male students.

Further, the culture of being a boy did not change without the female presence, it was merely strengthened. They became more active, talkative and comfortable. The candor and comfort in the single-gender classrooms allowed the male students to speak freely and ask for help when needed. It also led to a strangely friendlier environment. They teased more, yet bullied less.

Gender stereotypes were challenged in one of the single-gender classes, and were maintained in the other. The male teacher catered to the nature of males, and the boys reacted accordingly. However, the female teacher contested the stereotypes, and the boys responded

contrary to expectations in a positive manner. Divergent disciplinary and teaching styles affected the boys' behavior. To ensure gender stereotypes are not perpetuated, it is important to realize the boys in this study were not of all one male type. Eight boys did not enjoy the single-gender learning environment. It would be best to implement single-gender classrooms as an option available to students.

Instructional strategies are a powerful force in improving the achievement of the boys. Some boys flourished with the use of computers, graphic organizers, concrete methods of examining literature, chunking of activities into shorter time frames, games, appealing materials and examples. It is here where the future holds promise for single-gender learning. As more is learned about teaching male students, their academic strengths will be directly improved.

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## APPENDIXES

## Appendix A

*Student-Researcher Agreement*

## Agreement between

Pamella Groves, hereafter called “the researcher” and Student, hereafter called “the student” concerning attending Grade 9 single-gender class and conducting interviews for the researcher’s master’s thesis. The researcher wants to learn about the experience of boys in a single-gender learning environment.

The researcher will begin to collect data in May, 2004. During the interview, the researcher will ask the student to describe his experiences in the single-gender classroom, and from these descriptions, the researcher will generate specific questions aimed at discovering more about his attitudes, opinions and observations about the class. Interviews will be video recorded. From the information that is gathered, the researcher will analyze and code the themes. The results of all analysis will be shared with the student to ensure accuracy. The student will be asked to check the researcher’s notes to make sure his ideas were properly recorded. You will be able to get a copy of the finished research from the front office of your school in December 2004.

In order to ensure anonymity and confidentiality, I will use pseudonyms (false names) in the reporting of the research. After the thesis has been completed, I will destroy all tapes. I will retain research notes and analysis records, which will be kept in a locked, secure location. The information in retained records may be used for further research or reporting, subject to the same guarantee of confidentiality as contained in this agreement. Records will be kept for 1 year then destroyed. Confidentiality will be maintained at all times. Nothing I discover in the interviews will be made available for direct use by the school, such as assigning grades or in disciplinary actions. The exception to this guarantee of confidentiality will occur should the students disclose incidents of sexual or physical abuse or threaten to harm themselves. By law, such disclosures must be reported. The student may withdraw from the interview at any time.

If you have any question about this study, please feel free to contact me at home or my supervisor Dr. Dennis Procter at UNBC The Dean of Graduate Studies may also be contacted at if you have any concerns.

PART 2  
To be completed by the Research Participant

Informed Consent Form

Do you understand that you have been asked to be in a research study?	yes	no
Have you read and received a copy of the attached information sheet?	yes	no
Do you understand that the research interviews will be video recorded?	yes	no
Have you had the opportunity to ask questions and discuss this study?	yes	no
Do you understand that you are free to withdraw from the interview at any time?	yes	no
Has the issue of confidentiality been explained to you?	yes	no
Do you understand how you will have access to the information you provide?	yes	no

I agree to take part in the interview:

\_\_\_\_\_  
Signature of Student

Date: \_\_\_\_\_

\_\_\_\_\_  
Printed name of Student

\_\_\_\_\_  
Signature of Witness

Date: \_\_\_\_\_

\_\_\_\_\_  
Printed name of Witness

I believe that the student signing this form understand what is involved in the study and agrees to participate.

I agree to take part in the interview:

\_\_\_\_\_  
Signature of Researcher

Date: \_\_\_\_\_

*Parental Permission*

To the Parents/Guardian of Student:

I have been a teacher in British Columbia for the past eight years. In completion of the thesis for my master's degree in counseling at the University of Northern British Columbia., I am researching possibilities in addressing the lack of success of boys in our schools.

I will be interviewing your student in May, 2004 to try and form an accurate picture of his experience in the single-gender English 9 or Math 9 class. I will be asking questions that are aimed at discovering the experience of being a part of this class. These questions will cover their attitudes, opinions and beliefs about the class. The results of these questions will be shared with the boys to ensure that I have accurately captured their experience. Ultimately, I want to know if single-sex grouping of males will help to improve their achievement.

In order to ensure anonymity, I will use pseudonyms in the reporting of the research. After the thesis has been completed, I will destroy all videotapes. I will retain research notes and analysis records, which will be kept in a locked, secure location. The information in retained records may be used for further research or reporting, subject to the same guarantee of confidentiality as contained in this agreement. Records will be kept for one year, then will be destroyed. Confidentiality will be maintained at all times. Nothing I discover in the journals, surveys or interviews will be made available for direct use by the school, such as assigning grades or in disciplinary actions. The exception to this guarantee of confidentiality will occur should the students disclose incidents of sexual or physical abuse or threatening to harm themselves. By law, such disclosures must be reported. Your son may withdraw from the interviews at any time. Copies of the finished thesis will be made available at the middle school in Courtenay.

I am attaching a copy of the researcher-student agreement, which your son will be asked to sign, indicating he is giving informed consent to take part.

If you have any question about this study, please feel free to contact me at home ( ) or my supervisor Dr. Dennis Proctor at UNBC ( ). The school district superintendent and school principal have both given me permission to conduct this research, and may be contacted should you have any concerns. You may also contact the Dean of Graduate Studies if any issues arise at ( ).

Signed by the student: \_\_\_\_\_. Date: \_\_\_\_\_

Signed by the researcher: \_\_\_\_\_. Date \_\_\_\_\_

*Teacher-Researcher Agreement*

Agreement between

Pamella Groves, hereafter called “the researcher” and teacher, hereafter called “the teacher” concerning teaching a Grade 9 single-gender class and conducting interviews for the researcher’s master’s thesis. The researcher wants to learn about the experience of teaching boys in a single-gender learning environment.

The researcher will begin to collect data in May, 2004. During the interview, the researcher will ask the teacher to describe his/her experiences in the single-gender classroom, and from these descriptions, the researcher will generate specific questions aimed at discovering more about his/her attitudes, opinions and observations about the class. Interviews will be video recorded. From the information that is gathered, the researcher will analyze and code the themes. The results of all analysis will be shared with the teacher to ensure accuracy.

In order to ensure anonymity, I will use pseudonyms in the reporting of the research. After the thesis has been completed, I will destroy all tapes. I will retain research notes and analysis records, which will be kept in a locked, secure location. The information in retained records may be used for further research or reporting, subject to the same guarantee of confidentiality as contained in this agreement. Confidentiality will be maintained at all times. Nothing I discover in the interviews will be made available for direct use by the school. The teacher may withdraw from the interview at any time.

If you have any question about this study, please feel free to contact me at home \_\_\_\_\_ or my supervisor Dr. Dennis Procter at UNBC \_\_\_\_\_. The Dean of Graduate Studies may also be contacted at \_\_\_\_\_ you have any concerns.

Signed by the teacher: \_\_\_\_\_. Date: \_\_\_\_\_

Signed by the researcher: \_\_\_\_\_. Date: \_\_\_\_\_

## Appendix B

### *Student Interview Questions*

1. Think back to when you first started this single-gender class, what was your attitude to it? Attitude can be described as your thoughts and feelings.
2. What is your attitude about the class now?
3. What does your family say about single-gender classes?
4. What do your friends say about single-gender classes?
5. Did you learn anything about yourself as a result of being in a class without girls? If yes, what?
6. Would you prefer to have a male or a female teach the class?
7. What would make the single-gender class work better?
8. Would you recommend this class to others? Why or why not?
9. Why do you think single-gender classes were created at the school?
10. What is the best thing about single-gender classes?
11. What is the worst thing about single-gender classes?
12. Any other comments?
13. We are going to talk about a typical day in your single-gender class:
  - i) Describe your participation.
  - ii) Describe your behavior.
  - iii) Describe your opinion of yourself.
  - iv) Describe how you treat others.
  - v) Describe your desire to succeed or not to succeed.
  - vi) Describe your achievement in the class.
  - vii) To what do you attribute your achievement in the class? (Why did you do well or poorly?)
  - viii) Describe how your classmates behave.
  - ix) How do you classmates treat others? treat you?

- x) Describe the attitudes of your classmates about single-gender classes?
- xi) Describe how your teacher taught the class.
- xii) Describe the type of activities your teacher would have you do.
- xiii) Describe how your teacher managed the class (discipline).
- xiv) Describe the type of help you received from the teacher.

5. We are going to talk about a typical day in your coeducational classes:

- xv) Describe your participation.
- xvi) Describe your behavior.
- xvii) Describe your opinion of yourself.
- xviii) Describe how you treat others.
- xix) Describe your desire to succeed or not to succeed.
- xx) Describe your achievement in the class.
- xxi) To what do you attribute your achievement in the class? (Why did you do well or poorly?)
- xxii) Describe how your classmates behave.
- xxiii) How do you classmates treat others? treat you?
- xxiv) Describe the attitudes of your classmates to co-educational classes?
- xxv) Describe how your teacher taught the class.
- xxvi) Describe the type of activities your teacher would have you do.
- xxvii) Describe how your teacher managed the class (discipline).
- xxviii) Describe the type of help you received from the teacher.

## Appendix C

### *Teacher Interview Questions*

1. What did you teach?
2. Did you volunteer to teach this class? Why or why not?
3. What is your attitude to teaching a single-gender class?
4. Why do you think single-gender classes were implemented at your school?
5. Describe your overall experience of teaching in a single-gender learning environment?
6. Did you prepare for teaching a single-gender class? If yes, what did you do?
7. I am going to ask you about your typical day teaching in a single-gender class. Please describe the following:
  - 1) teaching style
  - 2) classroom management
  - 3) philosophy of teaching
  - 4) teaching material/resources
  - 5) teaching strategies
  - 6) classroom assignments and activities
  - 7) support to students
  - 8) behavior of the students in your class
  - 9) achievement of the students in your class
  - 10) attitudes of students in the class

*Please comment of initial reactions through to the end of the class.*

8. I am going to ask you about your typical day teaching in a co-educational class. Please describe the following:
  - 1) teaching style
  - 2) classroom management
  - 3) philosophy of teaching
  - 4) teaching material/resources
  - 5) teaching strategies
  - 6) classroom assignments and activities
  - 7) support to students
  - 8) behavior of the students in your class
  - 9) achievement of the students in your class
  - 10) attitudes of students in the class

*Please comment of initial reactions through to the end of the class.*

9. Please evaluate what worked and did not work in a single-gender class?
10. Did you learn anything new about teaching or your self as a teacher?
11. If yes, did these changes transfer to mixed-gender classes?
12. Describe what you believe to be the strengths of a single-gender class?
13. Describe what you believe to be weakness of a single-gender class?
14. If you had the opportunity to teach a single-gender class in the future, would you?
15. Any other comments?

Appendix D

*Student Survey*

1. Did you like being in a single-gender class this year?

Strongly Agree   Agree   Neither Agree or Disagree   Disagree   Strongly Disagree

Could you please explain why you gave this response?

2. If you had a choice, next year, would you enroll in a single-gender class?

Strongly Agree   Agree   Neither Agree or Disagree   Disagree   Strongly Disagree

Could you please explain why you gave this response?

3. Is there anything you would have changed in your single-gender class?

4. What subjects (if any) do you think would be suitable for single-gender classes?

5. Do you feel that being in a single-gender class improved your achievement?

Strongly Agree   Agree   Neither Agree or Disagree   Disagree   Strongly Disagree

Could you please explain why you gave this response?

6. Do you think your teacher liked teaching the single-gender class?

YES                      NO                      NO IDEA

Could you please explain why you gave this response?

7. Would you prefer to be taught by a male or female teacher?

FEMALE                      MALE

Could you please explain why you gave this response?