

A RESEARCH PAPER RELATED TO
THE IMPACT OF SINGLE-SEX EDUCATION ON MALES IN SECONDARY
SCHOOLS

By

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A Project I Research Paper
submitted to the Faculty of D'Youville College
Department of Education
in partial fulfillment of the requirements
for the degree of

Master of Science

In

Education

July 8, 2005

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PROJECT I RESEARCH PAPER APPROVAL

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ABSTRACT

This paper reviews the literature related to the impact of single-sex education on males in secondary schools. Bandura's theory of social learning (1990) is used as the conceptual framework. The literature (Bastick, 2000; Blair, 1999) shows that there are a number of benefits to single-sex schools and classes for boys. Some researchers (Roberts, 1998; Robinson and Smithers, 1999; Younger, 2001) would argue the contrary, that single-sex schooling and classes are detrimental to the development of adolescents. This paper explores both sides of the debate at a few key points. The key points for this discussion are the history, pros and cons, achievement level, psychological impact, and reasons for attendance.

Acknowledgements

I would like to thank my family, especially my wife, without whose love and support this project would not have been possible. I would especially like to thank my mother for help with proofreading and editing this project. I would also like to thank Professor Dunkle for her guidance in the completion of this project.

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INTRODUCTION

The aim of this paper is to discuss the importance of single-sex education for males from a variety of aspects. Historical views will be taken into account, the how's and whys of the development of single sex schools. Differing views on the usefulness of such institutions will be offered. Comparisons of achievement levels in single-sex education will be made to co-educational schools. This paper will examine possible psychological impacts of single-sex schooling. For example, what is the impact on maturity level, and how are social perceptions affected? Finally, this paper will examine the reasons behind single-sex school selection from the standpoint of the parents and the students.

The conceptual framework for this paper is based on Bandura's theory of social learning. The basic premise behind this theory is learning takes place through observation and modeling of the behaviors of others (Boatman, 1998). Education is almost always carried out in a social context; so Bandura's theory fits nicely when examining education in a single-sex environment.

STATEMENT OF PURPOSE

The purpose of this paper is to review the literature related to the impact of single-sex education on males in secondary schools. A second purpose is to use this research to design a project in education related to the topic under investigation in this paper.

CONCEPTUAL FRAMEWORK

Albert Bandura's Social Learning Theory provides the framework for this literature review. This theory was chosen for the framework because it includes several influences on education and learning that are seen in the literature reviewed in this project. Among the influences on education and learning in this theory are social, psychological, and cultural influences. According to Bandura's theory, learning takes place through observation and modeling of the behavior of others (Boatman, 1998). The theory stresses the need for teachers to model the behaviors that they are looking to extract from students.

Bandura's theory began to take shape after he and Richard Walters, one of his doctoral students, began to do research inspired by one of Bandura's colleagues. Based on the previous work of Robert Sears, Bandura and Walters began conducting research related to antisocial aggression in boys. They were fascinated with the unconventional challenge of explaining antisocial aggression in boys who came from intact homes in advantaged residential areas rather than simply demonstrating that multiple adverse conditions tend to spawn behavioral problems (Pajares, 2004). What they discovered was that these aggressive boys usually had parents who modeled hostile attitudes and behaviors. (Pajares, 2004) The research in this study led to Bandura's (1959) writing his first book, Adolescent Aggression.

Bandura and his colleagues are responsible for hundreds of studies. Probably the most prominent of these are the Bobo doll studies. A Bobo doll is an inflatable toy painted like a clown with sand in the bottom. When it gets knocked over, it bounces right back up. Bandura made a film of one of his students beating up the doll. The woman in

the movie would punch, kick, sit on, and yell at the doll. At one point in the movie, the woman even hit the doll with a little hammer. Bandura then showed this movie to a group of kindergartners who thoroughly enjoyed it. After watching the movie, the teachers allowed the students out into a playroom where there was a brand new Bobo doll and several toy hammers. The children began beating up the doll and yelling at it in much the same manner as the woman from the movie had done. Bandura continued this line of research with variations of this original study. In response to critics who said the Bobo doll was supposed to be hit, Bandura made a film in which the woman beat up an actual clown in much the same manner as she did the toy. Again, after viewing the movie, the children were let into the playroom. This time there was a real clown waiting for them. As in the original study the children immediately began to model the behavior they had witnessed and began to assault the clown. In regard to single-sex education for boys, proper behavior modeling is extremely important. Without proper models to follow, the boys would be left to their own devices and according to Bandura (1977):

Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action.

(p. 22)

Bandura's work led him to the notion that there are different steps involved in the modeling process. The first step is attention. For people to learn anything, they must be paying attention. In the same manner, anything that can distract attention is going to

result in less learning. For example, a student who is tired from a late night is less likely to pay attention in class, and therefore be less likely to model the behavior that is being demonstrated. Attention can be, and often is, affected by characteristics of the model itself. Bandura (1977) states: In general, models possessing engaging qualities, such as being attractive, having prestige, or being an expert are sought out, while those lacking in these areas fail to gain our attention or influence our thoughts, attitudes, and behavior. So, as one can see, garnering the attention of one's audience is an important step in getting them to model a behavior.

The second step in the modeling process is retention. The student needs to be able to remember or retain whatever it was he was paying attention to. Boeree (1998) states:

This is where imagery and language come in: we store what we have seen the model doing in the form of mental images or verbal descriptions. When stored, you can later "bring up" the image or description, so that you can reproduce it with your own behavior. (p. 3)

This statement stresses the importance of the first step, attention. As Bandura (1977) noted: "On the other hand, individuals who are distracted while observing behavior fail to remember or learn, which demonstrates the significance of attention in modeling."(p. 2) Practice is also very important in the retention step. Bandura suggests that memory is likely to be enhanced through mental practice or physically performing the behavior that was modeled.

The third step in the social learning theory is motor reproduction. Motor reproduction is taking the mental image of the modeled behavior and actually performing it. This step stresses the importance of the attention and retention steps. Without paying

attention to the modeled behavior or remembering it, there is no way someone would be able to perform the modeled behavior. In the context of this line of thinking, one would also have to have the ability to perform the behavior. For example, Boeree (1998) states:

“I can watch Olympic ice skaters all day long, yet not be able to reproduce their jumps, because I can’t skate at all! On the other hand, if I could skate, my performance would in fact improve if I watch skaters who are better than I am.” (p. 3)

Another important piece of information about motor reproduction is that one’s ability to imitate improves with practice at the behaviors involved (Boeree, 1998). The motor reproduction step serves not only to show that the learner has been paying attention and has retained the information, but also to demonstrate that he can perform the behavior and improve on the performance of it.

The fourth step in the process is motivation. Attention, retention, and motor reproduction mean nothing unless there is some sort of reason to perform the behavior or action that was modeled. Boeree (1998) states: “And yet, with all of this, you’re still not going to do anything unless you are motivated to imitate, i.e. until you have some reason for doing it.”(p. 3) Both positive and negative motivations can provide a reason to imitate someone. Boeree (1998) cites Bandura (1977): positive motive to include: past reinforcement, ala traditional behaviorism; promised reinforcement (incentives) that we can imagine; vicarious reinforcement- seeing and recalling the model being reinforced. Some would say that these are the reasons that people learn. Boeree (1998) states: “Bandura is saying that they don’t so much cause learning as cause us to demonstrate what we have learned.” (Personality Theories, ¶ 20) On the other hand, there are also

reasons or motivations not to imitate an individual. Boeree (1998) states the negative motivations as: past punishment, promised punishment (threats), or vicarious punishment. Boeree (1998) states: “Bandura says that punishment in whatever form does not work as well as reinforcement and, in fact, has a tendency to ‘backfire’ on us” (Personality Theories, ¶ 22)

Detractors may be at odds with some of Bandura’s findings. Some may feel that while learning behaviors may be impacted by his theory, they may have trouble expanding the application of his theory beyond that realm. One criticism Bandura faced in his Bobo the clown study was the idea that these toys were meant to be hit and roughed up and that is why the children behaved the way they did and not because they observed the behavior and attempted to model it. Boeree (1998) states:

Responding to criticism that Bobo dolls were supposed to be hit, he even did a film of the young woman beating up a live clown. When the children went into the other room, what should they find there but—the live clown! They proceeded to punch him, kick him, hit him with little hammers, and so on. (p. 2)

Still other detractors feel that much more is responsible for the learning of behaviors and other information than just modeling and the attempt to reproduce the activity that is modeled. To this argument Bandura (1977) would refer to his previous statement where he spoke of the futility and the hazards of learning without a model to follow.

Almost all education takes place in a social environment. Even education in the context of a single-sex environment is considered to be social. Bandura's theory of social

learning is pertinent to this project because it directly addresses the requirements for social learning to take place. Boatman (2004) states: “Social Learning: Learning takes place through observation and modeling of the behaviors of others. We learn what we see. Therefore, it is important for teachers to model the behaviors that they expect of their students.” (p. 12) Unless people are to begin educating ourselves with no outside help, education will continue to be a social endeavor whether it is in the context of a co-educational school or a single-sex school.

REVIEW OF THE LITERATURE

Historical View

Single-sex education has a long history. Even before the founding of the original colonies here in the United States, single-sex education was a common practice. Many countries in Europe, as well as worldwide, instituted the practice of single-sex education. However, this practice did not necessarily stem from the belief that it was a more beneficial way of disseminating information. The reason single-sex education was so prevalent stems from the fact that many countries and their societies believed that only men were worthy of an education. Many societies held to the belief that the role of the woman in society was to maintain the homestead and to raise children. The aim of this section is to briefly outline the history of single-sex education as it pertains to the impact of single-sex education on males in secondary schools.

Since the inception of public education, there has been much debate about the type and role of schools to be used to educate children. Before the beginning of public education for the masses in the United States, many students were being educated in

single-sex environments. The debate over single-sex or co-educational schools began with the introduction of government directed education in the mid 1800s. The debate began because the more privileged families that were enjoying the benefits of sending their children to single-sex academies were at risk of having to mix with the “common” folk. Some leaders of the day felt that coeducation would be an appropriate way to not only educate but to socialize the children of different backgrounds. Arons (2003) states:

School wars have been fought in the United States since Horace Mann proposed in the 1840s that universal, compulsory education in government-supported common schools could be an effective means to socialize children to the proper social norms. The wars, of course, have almost always been about whose vision of these norms should hold sway. (p. 1)

Arons (2003), reviewing a book by Rosemary Salomone, hits the tip of the iceberg that began the debate over single-sex versus co-educational schools in the United States.

Single-sex education is not a new phenomenon in American education. It predates the founding of the United States itself. Salomone (1999) states: “ In fact, single-sex education has a long history and tradition in the United States (and elsewhere).” (p.234) Salomone (1999) goes on to discuss how single-sex institutions dominated education, especially for the upper class until recent decades. The first single-sex schools in the United States were for male only students. Many of these institutions were developed by, and catered to, only the upper class. Single-sex schools for women arose later. As Salomone (1999) states: “Separate institutions for female students grew out of the exclusionary admissions policies of all-male institutions.”(p. 234) Females were being

excluded from the all-male institutions of education so they created their own single-sex learning institutions.

While single-sex education has been the preferred method of instruction of private and religious institutions, it is coeducation that has been dominant in the public domain since the beginning of education for the masses. Coeducation was especially prevalent in rural areas due to the ease of educating a large number of students in a single setting. This was viewed as a much more practical solution to compulsory education rather than developing separate single-sex academies. Salomone (1999) states: “However, coeducation has been the method preferred in the public sector since the beginning of mass schooling more than a century ago.”(p. 234)

Other researchers feel the reasoning behind the preference for single-sex education is related to individual or family values. As previously mentioned, single-sex education rose out of societies that felt only males were worthy of an education. Many cultures clung to this sentiment for several generations. Even today there are those that would say women are not worthy of being educated. Otto (2004) underscores the commonly held beliefs of the 1800s when he states:

Single-sex education in the United States originated in a society that valued education only for males. The all-girls’ schools that were eventually created were a reaction to the exclusion of females from the halls of learning-and in many cases, also an affirmation of the view that men and women needed different types of education.(p. 353)

Others feel an argument for single-sex education can be made on the basis that male dominance in the classroom does not lead to equal educational opportunities. There

have been numerous studies that demonstrate the success of females in single-sex classes.

Many of these studies attribute this success to the absence of a male population.

Robinson and Smithers (1999) state: "...based on the argument that boys so dominate mixed classes that 'true' equality of opportunity demands that the sexes be educated separately."(p. 24)

As mentioned earlier, coeducation had success in the early stages in rural areas where it was found to be a simple and effective way to educate children in sparsely populated areas. (Salomone, 1999). However, in urban areas where single-sex education was dominant, it was a different story altogether. School officials were in an uproar fearing that this forced mixing of students would result in the loss of their students from more affluent families and thus some of their funding. Solomone (1999) states:

In contrast, large urban centers such as Boston, Chicago, New York, and Philadelphia resisted coeducation for some time. School officials feared losing to the private academies the children of the upper classes whose parents vehemently opposed the intermingling of their children, and their daughters in particular, with lower class boys. (p. 234)

Regardless of its slow beginnings, coeducation eventually became the norm in the United States. Salomone (1999) states: "By the turn of the century, 98 percent of the public high schools across the country were coeducational with only 12 out of 628 reporting that they operated any single-sex high schools."(p. 234) Coeducation was deemed to be the most appropriate and efficient way to educate the masses while satisfying the compulsory education requirements set forth by the government.

The number of single-sex schools began to increase in the early Twentieth Century. Salomone (1999) discusses how reformers, who felt the children of recent immigrants were not capable of academic pursuits, often tracked these children into vocational classes. The large number of these classes made up of mostly children of immigrants eventually led to the development of entire vocational schools. Due to the nature of the course work, the classes and schools were strongly sex-segregated, and were largely dominated by male populations.

Since that time, many single-sex schools have dropped by the wayside in the wake of government legislation that guarantees equal opportunities for students regardless of sex, race, or religion. This legislation stems from the equal protection clause of the Fourteenth Amendment and Title IX legislation passed in 1972. "Title IX regulation 34 CFR 106.34 mandates that no school receiving any federal funds shall 'provide any course or otherwise carry out any of its education program or activity separately on the basis of sex.'" (Bronski, 2002) This legislation meant that any school that did not offer equal opportunity and/or funding for both sexes faced restructuring or being closed. Dalton (2002) states:

Today, however, single-sex education is the exception rather than the rule. In particular, male-only colleges have all but disappeared, and women's colleges comprise only a small percentage of the total colleges and universities in the United States. Despite the laudatory purposes of these programs, many of these programs have ended because they have been determined to discriminate on the basis of gender. (p. 395)

Although difficult under the government guidelines, some private and parochial schools have remained single-sex rather than allow coeducation or disbanding. Otto (2004) delineates the complications and the opportunities:

As with the Equal Education Opportunities Act, federal law under Title IX is complicated but can be accommodated while providing the best possible education for those students who do better in a single-sex environment. Districts would merely have to take advantage of the non-application of Title IX to primary and secondary schools, and ensure that neither sex is barred from a federally supported institution or program. (p. 353)

By following these government guidelines, in this manner many traditional single-sex institutions have been able to continue operating in their traditional capacity. However, the merits and legality of such institutions continue to be questioned and challenged in debates on education throughout the United States.

In recent years there has been a resurgence in the popularity of single-sex educational facilities, and not just in the private sector. In California legislation was introduced to allow for single-sex education. New legislation allowing for change in the educational system is often the result of dissatisfaction with current practices. Datnow, Hubbard, and Conchas (2001) state: "In 1997, amidst a climate of dissatisfaction with public education, California's (now former) Governor Pete Wilson took a prodigious step and drafted legislation providing funding for the establishment of single gender academies."(p. 185)

The study by Datnow et al. (2001) suggested that the public was frustrated with the sub-standard results of co-education and wanted change. Even the Bush

administration decided to get involved in the debate over single-sex education. The Bush administration aims to increase funding for the development of more single-sex public schools in the United States. Bronski (2002) states: “Specifically, Bush wants to spend \$385 million from the *No Child Left Behind Act* of 2001, a reform of the nation’s public schools that calls for more parental choice and teacher/student accountability in education, to create schools for boys and schools for girls.”(p. 1)

It remains to be seen what the impact of the Bush initiative will eventually be. However, the fact is there are more single-sex schools in the United States now than in the past few decades. There are approximately thirty single-sex public schools currently open in the United States with several more slated to begin operation in the next year or the next few years. Due to the merits and renewed popularity of these institutions, the number of single-sex schools and classrooms will continue to rise over the next decade.

The history of single-sex education shows how the practice has been viewed in the past. This history has played heavily into the beliefs of policy makers as they are constantly trying to develop the most beneficial form of education for the masses today. Some reformers feel that the history of single-sex education points out its weaknesses that point to co-education as the more beneficial form of education. Others feel that it is the rich history that points to successes in education that have come from single-sex education.

Pros and Cons

The merits, and drawbacks, of single-sex education have been hot topics in education ever since the beginning of compulsory public education in the United States. There are many studies that demonstrate the positive effects of single-sex education. On

the other hand there are a number of studies that try to show that single-sex education isn't as beneficial as some might think. This section is going to outline some of the pros and cons of single-sex education.

Yates (2001) states: "Over the past three decades the relative merits of single sex and co-education for the educational and socio-emotional development of school-aged students, particularly at the secondary level, have been debated extensively."(p. 317)

Yates (2001) cites Woodward, Fergusson, & Horwood (1999) "Some research evidence has been supportive of co-education, while other studies have cited the benefits of single sex education."(p. 317) Much of the research in the field has been conducted to demonstrate the benefits for women, especially in colleges, but very little has been done to study the impact on younger grades or for men. Bronski (2002) supports the need for further research: "Any number of studies show that single-sex education is beneficial for college-age women. But the work done so far to study the issue for students in kindergarten through 12th grade is, at best, spotty and inconclusive." (p. 1) Reasons for the disparity in the volume of research aren't clear. Perhaps it is due to the sentiment that it is more important currently to level the playing field for women, than it is to study the effectiveness of single-sex education for men.

Datnow et al. (2001) discuss the benefits of single-sex education, citing several researchers when they state:

Some studies suggest that single gender schools benefit both males and females, because they provide a stronger academic climate and reduce distractions (Finn, 1980; Jimenez and Lockheed, 1989; Lee and Bryk, 1986). ...Other research points out that single gender schools are particularly beneficial for boys because

they promote male bonding and optimize male character development (Hawely, 1993; Reisman, 1991) and that males from low income and minority backgrounds especially profit from single gender schools (Ascher, 1992; Hales, 1998; Hudley, 1995; Riordan, 1994). (p. 186)

There are other advantages as well. Researchers suggest that the type of school will have an impact on the courses that boys choose as well. Some researchers feel that in the single-sex environment boys will be more likely to pursue their actual interests, rather than being pressured by stereotypes to pursue “traditional” boys courses. The NASSPE (2005) (National Association For Single Sex Public Education) website states: “Boys in all-boys schools are more than twice as likely to study subjects such as foreign languages, art, music, and drama.”(¶ 1) The NASSPE (2005) website also cites the following research:

In fact, recent research has demonstrated that single gender classrooms benefit boys as well – particularly for subjects such as reading, writing, art, and music. Researchers at Cambridge University (in the UK) examined the effects of single-sex classrooms in schools in four different neighborhoods, including rural, suburban and inner-city schools. They found that ‘using single-sex groups was a significant factor in establishing a school culture that would raise educational achievement.’ For example, at Morely High School on Leeds, only one-third of boys had been earning passing grades in German and French prior to institution of the program. After the change to single-sex classes, 100% of boys earned passing grades. (NASSPE, 2005, ¶ 4)

The NASSPE (2005) website discusses more benefits of single-sex education for boys citing a study done by Graham Able of Dulwich College:

... studied the performance of girls and boys in 30 single-sex and coeducational schools in England. He found that while both girls and boys did better in single-sex schools than they did in coeducational schools, the single-sex advantage was greater for the boys than it was for the girls. (NASSPE 2005, ¶. 5)

There are also instances where schools have taken matters into their own hands performing experiments with single-sex classes in order to solve a number of problems. Some of these schools believe that their experiments with single-sex education show the positive benefits of this method of instruction. These benefits are not limited to academic achievement alone. The National Literacy Trust website provides one example:

For example, the Pingle School, a comprehensive in Swadlincote, Derbyshire, first introduced single sex teaching two years ago because of concerns about a class of 12-year-olds who were behaving badly. The year group was segregated for 70 per cent of their lessons. After a term, 85% of boys and 82% of girls said they preferred being taught this way.

Behaviour improved 'phenomenally' according to Mike Mayers, the headteacher, and 45% of the year group are now expected to achieve five grade A to C's at GCSE, compared to a forecast of only 29% when the monitoring started. ... the school now segregates all its 11-14-year-olds for 80% of lessons and GCSE students are taught in single-sex classes for English, maths and science. (How Effective, 2005, ¶ 17)

The NASSPE (2005) website describes another example of a school that had success experimenting with single-sex education:

Four years ago, Benjamin Wright- Principal of the Thurgood Marshall Elementary School... segregated his school by sex. Nothing else changed: the class sizes remained the same, the teacher salaries remained the same, etc. The only change is that now the classes were single-sex. That simple change had a dramatic effect. As Mr. Wright described it in 2002, 'In the [coed] environment that we had before, we spent most of our time taking care of crises. Now we're actually teaching kids.' (NASSPE, 2005, ¶ 8)

Some researchers suggest that boys feel more comfortable in single-sex schools. The NASSPE (2005, ¶, 12) website cites Andrew Hunter, a school principal, as saying: "There is a subtle pressure toward gender stereotyping in mixed schools. In boys' schools, boys feel free to be themselves, to follow their interests and talents in what might be regarded as non-macho pursuits: music, arts, drama." The comfort level of girls also is a consideration in the single-sex school argument. Some researchers argue that boys are a cause of anxiety in the co-educational classroom. Yates (2001) cites Steinbeck and Gwizdala (1995): "Not only did the girls report feeling intimidated, hesitant, uncomfortable and dumb during mathematics lessons in the mixed sex classrooms, they also perceived that teachers gave more attention to the boys (Steinbeck & Gwizdala, 1995.)" (p. 317)

With benefits that range from better behavior and academic success to a broader selection of scholarly pursuits, it's no wonder that there has been a revitalization in the single-sex school movement in recent years.

Even though many studies have shown single-sex education to be beneficial in any number of ways, there are those researchers that would say the research is skewed or biased and that single-sex education is not as beneficial as coeducational learning environments.

Some researchers feel that study results have been too wide ranging to come to any definite answers on the topic. Yates (2001) cites other researchers stating:

In general, some studies provide support for the benefits of co-education, (Marsh, 1989, Marsh, Smith, Marsh & Owens, 1988), others support single sex education (Austin, 1977, Lee & Bryk, 1986, Riordan, 1985) and yet others report no differences in achievement (Miller & Dale, 1974, Rutter, Maughan, Mortimer & Ouston, 1979). (pp. 317-318)

Researchers have suggested that the socialization benefits of coeducation come at a cost of academic achievement in a single-sex setting. Robinson & Smithers (1999) refute this sentiment when they cite Marsh, et al. (1989):

But other studies have suggested the advantages of co-education, Marsh et al. (1989), in a longitudinal study of single-sex schools becoming co-educational, found from a range of measures, that there were social benefits from co-education and these were not at the expense of academic achievement for either girls or boys. (p. 25)

Robinson & Smithers (1999) continue their argument for co-education on the basis that it is more realistic to everyday life when they state: “It has been suggested that educating the sexes together is more like real life, and the experience of growing up with

the opposite sex makes it easier to move on to the mixed environments of university and employment.” (pp. 25-26)

Another major consideration against single-sex education concerns legal issues. This is especially important with regard to public single-sex education and its implications on the Title IX laws enacted in the early 1970s. Title IX ensures equal allocation of funds for both male and female school programs in public schools, including sports. Bronski (2002) addresses some of the legal issues when he states:

The threat raised by single sex public schools and classes is the rapid erosion of Title IX’s effects. This fear is not unfounded; there’s already a major right-wing effort to reinterpret and redefine Title IX on the grounds that it discriminates against men’s sports by demanding allocation of equal amounts of money for both men’s and women’s sports, even though more men than women try out for teams. (¶ 12)

All in all, a number of studies that tout the benefits of single-sex education over coeducation, and there are a number of studies that aim to demonstrate the ineffectiveness or detrimental aspects of single-sex education. Currently, there is no conclusion as to which is more valuable. It is up to the student and his or her parents to determine which form of education is best for the student. It seems as though the only consensus that can be reached at the present time in regard to single-sex education is that the educational community needs more careful research upon which to offer valid recommendations.

Comparison of Achievement Levels

The achievement levels of students attending single-sex schools compared to that of students attending coeducational schools is often a hotly debated aspect in the debate

of single-sex versus coeducational schools. There are studies that demonstrate that single-sex schools are better at achieving higher academic levels; there are also studies that demonstrate that coeducational schools are better at achieving higher academic levels. Many of the results reported come from studies that were conducted overseas in countries such as England, Sweden and Australia. Very few research studies addressing achievement levels have been carried out in the United States. However, the lack of work in the United States does not decrease the validity of the work elsewhere. The goal of this section is to provide a comparative analysis of the achievement levels in single-sex schools with the achievement levels in co-educational schools.

There is no shortage of studies that report the academic achievement benefits of single-sex schools and classrooms. Many of these studies are comparison type studies that compare the results of single-sex schools or classrooms with the results of coeducational schools or classrooms in regard to a standardized assessment. A typical study reports on the higher achievement of males in single-sex schools as compared to males in co-educational classrooms in regard to science scores. Dhindsa, and Chung (2003) report:

Similarly, the mean achievement scores in science for boys in the single-sex school were significantly better ($p= 0.005$, $ES= 0.30$) than of those in coeducational schools. These results demonstrate that, on an average, the science achievements of male as well as female students in single-sex schools were moderately better than that of students in coeducational schools. (p. 916)

Other researchers report similar findings. Pollard (1999), reviewing studies on

single-sex education, reinforces the benefit of achievement at single-sex schools: “Perry reported that grade point averages were higher for both girls and boys in single-sex math and science classes than in mixed-sex classes.”(p. 1)

The National Association For Single Sex Public Education (NASSPE, 2005) refers to several studies that demonstrate the superior achievement levels of single-sex schools over co-educational schools. A study offered on the NASSPE (2005) website found: “Even after controlling for students’ academic ability and other background factors, both girls and boys did significantly better in single-sex schools than in coed schools.”(¶ 4) The foundation that conducted the study concluded, “It would be possible to infer from the findings that, in order to maximize their performance, [public] schools should [have] about 180 pupils per cohort, or year, and be single-sex.” (NASSPE, ¶ 6)

Another research study reviewed on the NASSPE website came to the same conclusions:

A large Australian study, 2001: The Australian Council for Educational Research compared performances of students at single-sex and coeducational schools. Their analysis, based on six years of study of over 270,000 students, in 53 academic subjects, demonstrated that both boys and girls who were educated in single-sex classrooms scored an average of 15 to 22 percentile ranks higher than did boys and girls in coeducational settings. (NASSPE, ¶ 7)

Citing a study from Jamaica, the NASSPE (2005) website discusses how girls in single-sex schools are the highest achievers, followed by boys at single-sex schools, then boys at coed schools with girls at coed schools rounding out the bottom of the list.

Perhaps the strongest evidence for the higher achievement levels of single-sex schools comes from “before and after” studies. These are studies that look at the effects of a co-educational school transitioning into a single-sex school. The data on achievement levels from before the switch to single-sex education are compared to the data on achievement levels from after the switch to single-sex education. O’Reilly (2000) states:

Critics of single-sex education sometimes object that studies at single-sex schools with students at coed schools are intrinsically untrustworthy, because (they say) one can never control for a lot of confounding variables. “Before and after” studies are done at just one school, before and after its transformation to a single-sex school. Same students, same teachers, same facilities. These studies offer another compelling proof of the superiority of single-sex education. (Sunday Times (London) p. 1, August 20, 2000)

An additional study, involving the Thurgood Marshall Elementary School in Washington, was mentioned earlier. O’Reilly (2000) reports the results detailed by Benjamin Wright, the school principal:

But once we made the switch, the boys were able to focus on academics, and so were the girls. The boys, remarkably, shocked the state with what they did on the Washington State Assessment of Student Learning. Our boys went from being in the 10 to 30 percent listing to 73 percent. They went from a reading average of about 20 percent to 66 percent. Our boys outperformed the entire state in writing. They went from being in a low percentile of 20-something to 53 percent in writing. (Sunday Times (London) p. 1, August 20, 2000)

These results are not limited to elementary level schools. O'Reilly (2000) points to the results of an inner-city school in Montreal after switching to single-sex education: "About 80 percent of students pass their final exams, compared to 65 percent before the switch. And, the rate of students going on to college has nearly doubled." (Sunday Times (London) August 20, 2000) The successes in the switch to single-sex education can also be found overseas. O'Reilly (2000) offers more positive results from a school in the United Kingdom:

...decided to reinvent his school into two single-sex academies under one roof. The students would take the same courses from the same teachers, but boys and girls would attend separate classes. Three years after making the change, the proportion of Shenfield boys achieving high scores on standardized tests has risen by 26%. The girls performance improved only slightly less, by 22%, and they still out performed the boys. (Sunday Times (London) p. 1, August 20, 2000)

The research had shown single-sex classrooms to be so successful that major leaders in education in Britain requested official investigation. Pyke (2000) stated:

The "before and after" experience of schools undertaking this transformation has been so consistent, and so impressive, that British Secretary of Education (then David Blunkett) asked the Office for Standardized Testing in Education (OFSTED) to investigate whether this model should be applied widely throughout Britain, a wholesale conversion of coed to single-sex academies. (The Independent (London) p. 1, August 20, 2000)

Not all researchers support the conclusion that single-sex schools are responsible for higher academic levels. Some researchers would argue that there are factors, other

than that of the sex of the students, which have an impact on the successes of single-sex schools. One frequent hypothesis is that single-sex schools perform better because most are private and can select their students from the cream of the crop. Robinson, & Smithers (1999) state: “The outstanding performance of the single-sex schools in the examination league tables has much more to do with academic selection, socioeconomic background and the standing of the school itself than with the segregation of the sexes.”(p. 23)

Another study, published on the National Literacy Trust (n.d.) website (literacytrust.org.uk/Research/ressinglesex.html) concludes: “Girls’ schools do well in exam league tables because they have clever pupils, not because they are single-sex, according to a new review of research evidence.”(¶ 6) The article concludes with study results stating: “But researchers Janette Elwood and Caroline Gipps found that social class, ability and the history and tradition of the schools had much greater impact on the results girls achieve.” (How Effective, 2005, ¶ 8)

Datnow, et al. (2001) concur when they state: “The conflicting evidence regarding the benefits of single gender schools has led some researchers to suggest that school factors (for example, climate, school size) contribute more to positive outcomes than school type (Lee, 1997).”(p. 186)

Bronski (2002) reinforces this idea that it is not sex separation that is responsible for these successes; he finds:

A survey of several international studies of single-sex schooling from kindergarten through 12th grade published by the Educational Resources Information Center’s Clearinghouse on Elementary and Early Childhood

Education showed that while there were some differences in how girls and boys performed, almost all were explained factors other than gender, such as classroom size, economic discrepancies, and cultural differences. (¶ 2)

The factor that seems to be the most influential according to the researchers is socioeconomic status. Researchers argue that students from families that are affluent are more likely to value a quality education. The fact that these students receive more family support when it comes to education seems to be a more important influence to these researchers than the type of school attended.

In regard to achievement levels, there is no clear-cut winner. For every study that shows single-sex education to be more effective, there is one that shows co-education to be more effective. One thing is clear; much more research is needed, especially to determine the impact of single-sex education on male achievement levels.

Psychological Impact of Single-sex Schools

There is evidence to suggest that single-sex school environments have a significant impact on both boys and girls in secondary schools. The effects can be far reaching and impact the lives of students well after they have left school. One example is the way in which course selections are viewed. Often in coeducational schools boys and girls are steered toward enrolling in classes that are “gender appropriate.” These pressures can come from a variety of sources. Most often however, course selection is decided by the pressure that the student feels from peers. Even though a boy may be interested in pursuing art or drama, in a coeducational setting that boy is more likely to elect to take a more “macho” course in order to fit in with the other boys. Some researchers feel that in a single-sex environment, there is less pressure for boys to pursue

“macho” courses, and they will be more likely to enroll in courses that pique their interest such as art or drama (Jackson and Smith, 2000).

Another source that can psychologically impact a student is the prestige of the school itself. Single-sex schools, rightly or wrongly, are frequently considered more prestigious than coeducational schools. Students who attend institutions that have prestigious histories show more pride and confidence in their abilities. This effect takes place because the student feels if he can succeed in such an environment, he can succeed in any environment.

On the other hand, there are those who would say single-sex education has a negative impact on the development of today’s youth. One argument is that students in single-sex institutions have problems with social interactions with the opposite sex (Robinson and Smithers, 1999). They argue that students coming from a single-sex institution will have trouble adjusting to mixed-sex environments once they leave school for university studies or upon entrance into the work force. Given current emphasis on equal treatment of the sexes, this could be especially detrimental.

Social perceptions can have an impact as well. In today’s society people are often judged on the background of their education. This can have positive as well as negative connotations. On one hand people may be impressed that a student comes from such a highly regarded institution with a reputation for high quality education. On the other hand, a person may be judged negatively. This negative perception could come from the belief of some people that single-sex institutions are elitist facilities, reserved for the children of wealthy snobs. This isn’t necessarily the case. Prestigious single-sex

institutions often enroll lower income students on the basis of their academic or athletic or artistic merits.

Following is a review of some of the research that has been conducted to study the psychological effects of single-sex education.

One of the biggest points of contention in the debate of single-sex versus coeducation is the psychological impact on course selection. Many researchers find that boys in single-sex schools are more likely to take a wider variety of courses. That is to say they are more likely to take courses that aren't traditionally viewed as "boys'" courses. Researchers believe that this may stem from the belief that boys in single-sex schools do not feel as much pressure to appear "macho" in front of girls. Jackson and Smith (2000) state:

There is evidence suggesting that single-sex schools promote greater enjoyment of, and greater uptake of, curriculum subjects traditionally viewed as gender inappropriate....More boys from single-sex schools chose A-level languages, while more boys from co-educational schools chose physics. These results provide evidence to support the argument that there is less polarization of curriculum subjects according to their gender stereotype in single-sex schools than in co-educational schools. (p. 412)

Other researchers support these statements as well. Logsdon (2003) states: "...supporters point to studies showing that boys and girls in single-sex schools enjoy greater academic success and demonstrate more ambition than students in co-educational institutions." (p. 292) Still other researchers back up these findings. Sadker and Zittleman (2005) cite Pollack (1998) when they discuss some of the drawbacks of coeducation:

“Boys are expected to follow a ‘boy Code,’ a kind of swaggering posture that hides their vulnerabilities and suppress dependency while leaving them feeling emotionally isolated.” (p. 22) Datnow et al. (2001) cite several other studies that bolster these findings especially for underprivileged males:

Other research points out that single gender schools are particularly beneficial for boys because they promote male bonding and optimize male character development (Hawley, 1993; Reisman, 1991), and that males from low income and minority backgrounds especially profit from single gender schools (Ascher, 1992; Hales, 1998; Riordan, 1994). (p. 186)

Further research on the psychological impact of single-sex education points to its benefits in terms of self-esteem and locus of control. Haag (2000) cites Cairns (1990) in stating:

For example, Cairns (1990) investigated the self-esteem and locus of control (an individual's sense of how environment hinders or facilitates her or his goals) for students in secondary schools in Northern Ireland. He used a multidimensional measure of “self-esteem” made up of four subcategories—social, cognitive, athletic, and general—and concluded that single-sex schools are associated with benefits in self-esteem and locus of control... (p. 2)

Another area of psychological impact is motivation of the students. Some researchers have found single-sex educational settings to have a positive impact on student motivation. Dhindsa and Chung (2003) report: “The post-hoc analysis... showed that the students from single-sex schools (boys’ schools or girls’ schools) were significantly more motivated towards...as well as enjoyed...science learning compared

with students from coeducational schools.” (p. 913) The same authors in the same study found:

The results of this independent study demonstrated that the scale item mean scores on enjoyment, interest, motivation and confidence scales for boys in a single-sex school were significantly higher (range of $p= 0.001-0.000$ and $ES= 0.34-0.52$) than for the students in coeducational schools. (p. 917)

Possibly the most significant psychological impact comes from the students themselves. While many studies discuss the effects of single-sex education on the socialization or on the locus of control, these studies seem to leave out whether or not the students like this form of education or not. Some researchers have shown that, when asked how they feel, students enjoy learning in a single-sex environment. Parker and Rennie (2002) observe: “Her major finding was that...nearly all students liked the single-sex classes and reported feeling more relaxed and comfortable than in their mixed-sex classes.” (p. 884)

All of this research makes single-sex education sound like the most beneficial. However, several authors offer dissenting views on the psychological benefits of single-sex education. Many feel that separating the sexes for education leads to the deepening of behavioral problems, lack of confidence, increased difficulty with socialization and increased stereotypical behaviors. Jackson and Smith (2000) used interviews and data collected to determine student achievement levels and more importantly, how the students themselves viewed single-sex education. Jackson and Smith (2000) report: “...33% (n= 13) reported feeling less confident in boys only groups...and 31% of boys

(n= 12) cited fighting and roughness as one of the worst features of boys' classes." (p. 416)

In regard to social interaction skills, some researchers argue that single-sex schooling denies students the opportunity to develop social skills needed later in life. Logsdon (2003) relays arguments set forth by the National Organization for Women and the American Civil Liberties Union: "They argued that single-sex education denies girls and boys the interpersonal skills to interact with one another later in life. To these groups, this type of education is a mechanism for reinforcing persistent gender stereotypes." (p. 292) Robinson and Smithers (1999) support these finding: "It has been suggested that educating the sexes together is more like real life. And the experience of growing up with the opposite sex makes it easier to move on to the mixed environments of university and employment." (pp. 25-26) Robinson and Smithers (1999) further state: "There were some comments about boys being a distraction, but many felt that it was good to grow up together and get to know each other." (p. 40)

Arguing that single-sex education has a negative psychological impact, Younger and Warrington (2002) discuss the negative and stereotypical behavior that some students feel represent the majority of single-sex classrooms. They found:

Equally, they argue that many boys resent boys-only classes and complain about the loss of girls' support for their learning and behaviour; they also have the potential to reward macho-behaviour, on the part of both boys and male teachers, to allow more extreme and sexist language to pass unchallenged, to give new opportunities for old-style masculinity and to reinforce sexual stereotypes. (pp. 366-367)

Datnow et al. (2001) reinforce the sentiment that single-sex environments perpetuate stereotypical behavior when they cite previous work: “Some argue that single gender educational settings promote stereotypical attitudes towards the opposite sex (AAUW, 1998; Brutsaert and Bracke, 1994; Foon, 1988; Phillips, 1979) and are generally less happy places (Dale, 1974). (p. 186)

Psychological impact of single-sex education provides one more controversy to the debate over single-sex education versus coeducation for boys schooling. Some of the studies have shown single-sex education to have a positive impact on boys psychologically, while others try to demonstrate that single-sex education is damaging. As with many other factors in the debate, the results of the studies involved indicate that much more research is needed. Are there factors within the single-sex schools themselves that may make one setting more appealing or effective than another in terms of the psychological impact that they have on boys?

Reasons for Attendance

Why attend an all boys' school in the first place? What is it that makes these boys want to attend such institutions? Why do parents feel that these are the schools their boys should attend? The reasons behind attendance of single-sex institutions can vary from a preference on the part of the student to the attachment a parent may have to this type of school from having attended one himself. However, there has not been a lot of research into the reasons for attendance. Most of the information on reasons comes from side notes of studies performed on single-sex education.

From the perspective of the student, single-sex settings can be attractive for a variety of reasons. One reason often noted is a better academic environment free of

distractions. Datnow et al. (2001) note: "...because they provide a stronger academic climate and reduce distractions." (p. 186)

Perhaps the reason is simpler. It may just come down to the student comfort level. Parker and Rennie (2002) were cited earlier as saying that students in single-sex classes were more relaxed and comfortable than they were in their mixed-sex classes.

One of the biggest reasons that boys attend single-sex institutions is the prestige involved. Many of the single-sex academies in the United States and abroad have long prestigious histories, and many young men want to be able to say that they were part of that history.

It is often the parents that select a single-sex institution for their sons' education. Many parents select single-sex institutions for the same reasons that their children do. They feel that their son will be more comfortable, confident, and less distracted in such an environment. One difference from the parental point of view is a legacy at a school. Especially among the affluent, there is a tradition of sending generation after generation to the same institution.

Another important difference in parental selection for single-sex schools is involved when talking about private schools especially. The wealthy will often send their sons to private single-sex institutions. They send them for some of the reasons listed above but also because of an elitist attitude. They often feel that their sons are too good to be "mixing" with the lower classes.

On the other hand, there are those that would argue against sending boys, or girls for that matter, to single-sex institutions. Their arguments come from many of the reasons stated in previous sections. One frequently cited is that single-sex institutions promote

stereotypical attitudes and behaviors (Datnow et al. p. 186). Robinson and Smithers (1999) also state: “The outstanding performance of single-sex schools in the examination league tables has much more to do with academic selection, socioeconomic background and the standing of the school itself than with the segregation of the sexes.” (p. 23)

Today, more and more parents and students are electing single-sex education. The reasons range from sheer preference to the prestige of the institutions they choose to attend. Those not choosing to attend single-sex institutions reason that mixed-sex educational institutions are more like the “real” world and will better equip their child for the transition into life after school. (Logsdon, 2003)

Summary

A great deal of research has been completed in the realm of single-sex education. Unfortunately, for the purposes of this project, there is little specifically written to address the point of single-sex education for males in secondary education. However, much information has been provided in research that targets the impact of single-sex education for women. Additionally, many countries have conducted a wide range of studies in the area of single-sex education, though the United States has only carried out a small number of studies. With the emergence of the drive for single-sex public schools in the United States, through the Bush administration’s influence, the future trend is that much research will be initiated in the coming years; this future research hinges on the provision that the movement for single-sex public schools can overcome legal hurdles such as those presented by the Title IX regulations set forth by the government in the 1970s.

The question of single-sex education has been in debate for decades. The issues of legality, such as separate but equal, have been and will continue to be debated in the decades to come. That is unless there is extensive and detailed research that leads to a conclusion as to which form of education is best for students. In reality, there will always be those that can and will produce studies and research that demonstrates one is more right than the other. Research can be skewed, and research can be biased as to which is best.

In the end what is best for each child, not the masses, is the most important consideration. If there is one thing educators have learned over the years, it is that no two children are the same. What is effective for one student is not effective for all. Determining what types of student will most benefit from single-sex education should be the priority for further research.

DEFINITION OF TERMS

Terms in this paper are defined below.

1. *Achievement Level*- grades earned based on standardized testing.
2. *Bobo Doll*- an inflatable doll with sand in the base. When knocked over it tips upright on it's own.
3. *Legacy*- a student that is the second or third or higher generation of a family that is attending the same institution.
4. *Locus of Control*- an individuals sense of how environment hinders or facilitates her or his goals (Haag, 2000)
5. *Modeling*- demonstrating the behavior that is intended to be repeated or reproduced.
6. *Motor Reproduction*- the act of physically recreating a modeled behavior.
7. *Single-sex Education*- A form of education that involves the instruction of only one sex at a time.
8. *Single-sex school*- A school whose entire student population is either all male or all female.
9. *Student*- any child or young adult enrolled in classes at the school.
10. *Title IX*- United States government legislation that mandates that no school receiving any federal funds shall 'provide any course or otherwise carry out any of its education program or activity separately on the basis of sex.

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Appendix A – IRB Letter Of Approval