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### Single-Sex Versus Coeducation

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# “Single-Sex Versus Coeducation”

by Kaitlyn Morse and Kelsey Gentry



## Instructor’s Notes

Kaitlyn Morse and Kelsey Gentry’s argumentative synthesis demonstrates how effectively freshmen can collaborate on a research project. These students’ paper represents the attentiveness to detail, thoroughness of research, and thoughtful consideration of opposing viewpoints this type of persuasive essay requires. It also meets its intended audience of scholars and sensitively negotiates the complexities educators and their students face in regards to this topic. What do you conclude after reading this essay? Think about what does, or doesn’t, convince you. What do you find to be the most effective part of the paper? The least effective? Why?

## Writers’ Biography

Kaitlyn Morse is a junior early childhood education major from Connecticut. She enjoys academic and non-academic writing and loves to read.

Kelsey Gentry is a sophomore biology major from Virginia. She has enjoyed writing since early elementary school, particularly poems. Her other areas of interest include playing piano, sketching, hiking, and photography.

## Single-Sex Versus Coeducation

If one takes an English phrase and translates it over and over into different languages, by the time one translates the phrase back into English, the result will differ completely from the original. This example is similar to what happens with much of the research behind single-sex education. Prominent scholars publish research, but by the time the research reaches the principal’s desk, the teacher’s hand, and the parent’s newsletter, enthusiasts of single-sex schooling have distorted much of the original information. As a result, those who are in charge of the schools have ideas about

single-sex education that may not be accurate. They hear wonderful things: that single-sex schools raise test scores, close the gender gap, or teach to children's set neurological needs. These ideas, of course, sound fantastic, but before parents, schools, and communities spend time and funds separating their children by gender, it might be wise to question the purported beliefs about single-sex education. In truth, it appears that single-sex educational schools are no more effective than coeducational schools, and since any value added has little to do with set gender or neurological differences between boys and girls, the uncertain legality and high cost of establishing a single-sex school cannot be justified.

A common assumption about single-sex education is that the gender composition of the schools contributes to the academic success of the attending students. However, as researchers delve deeper into the causes of academic success, they are finding that gender may not be one of the major contributors to academic success or failure. Rather, some studies conclude that other factors such as race and peer preferences influence a student's academic ability more than gender does.

One such study, conducted by Amy Roberson Hayes, Erin Pahlke, and Rebecca Bigler, explores the relationship between success in a single-sex school and factors such as peer preferences and selection of students. In the study, researchers compared the standardized test scores of girls attending a public, single-sex school with the scores of those attending a public, coeducational school, and the scores of those who applied to the single-sex school but were not accepted, and therefore ended up attending a public, coeducational school as well (Hayes, Pahlke, and Bigler 694). The results showed that girls attending the single-sex school had higher overall performance than those attending the coeducational school (701). However, when factors of school-driven selection and peer quality are taken into account, a whole new perspective arises.

According to Hayes, Pahlke, and Bigler, selection effects are one factor that researchers largely overlooked in previous studies of this nature (695). In general, it appears that the success rates of students attending single-sex schools are likely to be affected by two kinds of selection preferences (695). Firstly, there may be systematic differences, such as student motivation and scholastic achievement, between students who choose to enroll in a

single-sex school and students who enroll in a coeducational school (695). Secondly, school-driven bias differentiates between students whose applications are accepted by administrators and students whose applications are rejected (695). These selection effects, in turn, greatly contribute to the quality of the students attending each school, whether they show high performance or low performance, which would in turn affect the test score outcomes. This study also takes peer quality into consideration. As noted before with selection effects, peer quality would largely depend on the type of school. In general, private schools have more finances at their disposal and higher academic standards than public schools. As such, comparing coeducational public schools to single-sex private schools is inaccurate, because the quality of the students will be different in each school. Based on the results of their study, which does take selection and peer quality factors into account, Hayes, Pahlke, and Bigler concluded that “it is overall peer quality, rather than the gender composition of the schools, that explains single-sex school students’ outperformance of coeducational school students” (702).

Meagan Patterson and Erin Pahlke conducted a similar study that goes even further by examining the effects of factors such as race, prior academic achievement, and peer preferences. The data gathered during their study indicates that race definitely influences academic success. For instance, Patterson and Pahlke concluded from their study that African American and Latino students were more prone to lower grades than their peers of different ethnicities (746). Previous research has indicated that the academics of minority groups within a school are affected by the percentage of students of that minority in the school (746). Next, Patterson and Pahlke hypothesized that whatever academic achievement a student showed before attending a single-sex school would be an indicator of the student’s achievement in the future (740). In accordance with their hypothesis, their results indicated that prior academic achievement does indeed predict future academic achievement (747).

The study also examines the factor of peer preference. Peer preference differs from peer quality, mentioned in the previous study, in that peer quality concerns the overall performance level of the students, while peer preference concerns the students’ inclination towards male or female friends. Patterson and Pahlke hypothesized that peer preference would be a predictor of academic performance

and persistence at a single-sex school (740). Their results indicated that students' gender preference in friends had an influence on whether or not they would remain at the school (747). However, these preferences did not necessarily have an effect on academic achievement (741). Peer preferences did, however, play a role in whether or not a student would remain at the single-sex school, which may or may not contribute to the school's success (748).

Given the results of these studies, the question remains as to whether single-sex schools are really more beneficial than coeducational schools. In general, the test scores of students attending single-sex schools are higher than those of students attending coeducational schools, so the question remains as to whether the overall success still remains higher when student and school factors are weighed in. According to an article by Diane Halpern et al. when it comes to single-sex schooling any "apparent advantages dissolve when outcomes are corrected for pre-existing differences" (1706). Therefore, simply taking standardized test scores from a single-sex school and comparing them with scores from a coeducational school is not accurate. As seen in previous studies, the scores from a single-sex school are generally higher than those from a coeducational school. However, when factors of selection, peer quality, race, prior academic achievement, and peer preferences are weighed in, the results may even out. Therefore, the results show no real differences between the schools. Also in need of consideration are any neurological differences that may have an effect on learning capabilities of girls versus boys.

Though advocates of single-sex education say that there are distinct differences between boys and girls, much of the research is neither applicable to children nor representative of the field of neuroscience. For example, in *Why Gender Matters*, Dr. Leonard Sax, a well-known advocate of single-sex education, talks about Virginia Technical School's study on 508 boys and girls, who were anywhere from two months to sixteen years in age. In his review and application of the study, Sax says that different areas of the brain, specifically those involved in spatial and verbal tasks, mature at different rates according to gender. According to him, girls are six years ahead of boys in fine motor skills, but boys are four years ahead of girls in spatial abilities (93).

However, as Dr. Lise Eliot points out, Sax probably

misinterpreted the data. To follow Sax's line of reasoning would be to say that one "cannot expect first-grade girls to learn their shapes or boys to begin reading and writing" (366). Not only did the study fail to test the brains while the children were involved in mental tasks, but also the data from the Virginia Tech study actually found "a cyclic pattern of maturation, with spurts of development that appeared to spiral through different brain areas" (366). This means that at the end of sixteen years, which was the oldest age in the study, boys' brains and girls' brains were equally mature in all areas. Also, at every point during the study there were significant differences within the two genders, as well as between them. Furthermore, as Eliot points out, the verbal capacity of two-year-old girls is only about a month ahead of that of two-year-old boys. Therefore, any differences in performance could not be based on brain maturation. This gap in capacity rises throughout preschool, but around age seven the differences become almost nonexistent (366). Sax used Virginia Technical School's study to make generalizations, saying that every boy and every girl will mature in the same way as all of his or her same-gender peers. In reality, children are different, even within their gender, and their minds are just as unique as they are. Some boys may be well ahead in mathematics, but the same could be true for some girls.

Another idea propagated by proponents of single-sex education states that boys and girls use different areas of their brains for similar tasks. For example, Michael Gurian, a prominent author in single-sex circles, and Kathleen Stevens authored *Boys and Girls Learn Differently*; in their book, they say that boys primarily use the right sides of their brains, but girls mainly use the left. Moreover, they state that "[b]oys tend to process emotive information from the limbic system to the brain stem . . . [whereas] girls tend to process it more in the upper brain, where complex thought occurs" (57). One should note that Gurian and Stevens list no citations to back their statements, and therefore the reader has to take their word.

Sax agrees with Gurian and Stevens, and cites a study of verbal IQ to prove his point. In the study, which looked at the brains of men and women after they suffered a stroke, the researchers found that men suffered the greatest drop in verbal IQ, about twenty percent, when the stroke affected their left hemisphere. There was not drop, however, when their right hemisphere suffered a stroke.

Women, on the other hand, had a near equal decrease, no matter which side was affected by the stroke (12). Based on this research, one might think that boys and girls process information differently; after all, the stroke affected the different genders in different ways. This may not be the case, however. As Eliot points out, “children’s brains do not operate like adults: they are works-in-progress, and much of what influences adult neural circuitry is an individual’s social- educational experience from birth until adulthood” (364). Therefore, since the research that Sax cites is based on studies that were done on adults, the research is not necessarily applicable to children or solid evidence in favor of single-sex education. Even if information is processed on different sides, it’s clear that boys do not have “verbal barriers” that necessitate their separation from girls simply because of their gender, as some claim; their brains can process language just as easily as girls’ can.

Moreover, though boys tend to do better in math and girls tend to do better in English, that fact is not necessarily a result of gender or the make-up of their brains. Achievement in different areas may instead be the result of a conglomeration of other factors, including the fact that little girls are encouraged to read for fun, and little boys are more likely to be encouraged to work off energy through sports. The activities they take part in when they are young translate into their interests and abilities once they are old enough to begin school. Furthermore, once children begin school, outside pressures tell them to conform to what society deems as normal for their gender (Jackson 228). Often times, especially during the pre-teen years, boys and girls settle into these patterns in order to fit in or to avoid being bullied because they are different. Therefore, it is not unreasonable to say that one of the reasons that each gender tends to do better in certain areas has at least as much to do with environment as it does with gender. Again, it should be noted that children are all different, and it is not fair to expect them to do well or poorly because of their gender. Such expectations might become self-fulfilling prophecies and keep children from doing their best with their natural talents and inclinations.

On top of the fact that there are no proven differences between boys and girls, the legality of establishing single-sex schools or classrooms is uncertain, and creating a single-sex school, or even single-sex classes, may result in lawsuits. The amendment to

Title IX was designed to “[allow] for single-sex schools if the school can show that the single-sex program was designed to overcome past gender discrimination” (Brown 358); however, many think that separating children based on gender is a form of discrimination. The American Civil Liberties Union (ACLU) has filed many lawsuits on behalf of families and communities that feel wronged or offended by the establishment of single-sex schools or classrooms in their district. Christina Brown, Ph.D., discusses one example, a lawsuit between Beckenridge County Middle School and the ACLU.

Starting in 2003, Beckenridge initiated gender segregation in math and science classes, but by 2004, they had created single-sex classes for almost every relevant subject, including the four core classes: math, history, science, and English (360). The middle school teachers also began teaching boys and girls differently, doing things such as playing reviews games with the boys but only quizzing the girls or letting boys be loud in class while girls were instructed to be quiet (360). The schools probably thought they were inside the boundaries of the law, but they had made several mistakes, including not allowing the parents a choice on single-sex or coeducation. After the classes had been implemented, the school sent a letter to the parents, but not all the parents received it. Parents complained and, together with the ACLU, sued the school (360-361). This short case study shows that implementing single-sex education can be risky for schools because of the large margin for error; if even one person does not know the laws, the entire school can be sued.

In addition to numerous influential outside factors, the lack of neurological differences, and the legal problems that come with establishing single-sex schools, it seems that there is simply not enough solid evidence to claim that gender separation in single-sex schools is the source of student success. In fact, according to Halpern et al. “there is no empirical evidence that [students’] success stems from their [single-sex] organization, as opposed to the quality of the student body, demanding curricula, and many other features also known to promote achievement at coeducational schools” (1706). Without evidence, one cannot justify the costs and effort needed to start and run a single-sex school. To start a public, single-sex school requires more teachers, classrooms, and funds than most school districts have available. Also, in order to offer single-sex education, school districts have to make co-educational schools available. This



means that starting a single-sex school could greatly increase the budget that the district needs in order to keep their schools running. Therefore, as noted by Hayes, Pahlke and Bigler, costs and benefits of separation of students according to gender should be examined carefully before undertaking such a project.

In the end, little scientific evidence favoring single-sex schools actually exists, and the evidence that does exist is often mixed or inconclusive (Hayes, Pahlke, and Bigler 693). Most studies either do not take into account peer quality and other student characteristics, or show little or no difference in the schools once those factors are weighed in. Hayes, Pahlke, and Bigler add that “nearly all reviews cite design flaws, especially the possible presence of selection effects, as significantly hindering the interpretation of existing studies” (693). The article by Halpern et al. talks specifically about the lack of evidence in support of the benefits of single-sex schooling as an alternative to coeducational schooling (1706). In other words, gender itself does not appear to be the main determiner of students’ success; therefore, the logical conclusion is that the high cost of establishing single-sex schools is not worth the uncertainty of the schools’ success. Single-sex education limits self-discovery and forces children to miss out on friendships with, and the insight of, the opposite gender. Coeducation, on the other hand, allows children to start learning how to function in the real world, a world where men and women have to work together every single day.

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