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Separating Equals: Educational Research and the Long Term Consequences of Sex Segregation

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My son is a fourth grader at an elementary school in Kansas. At his school, the coat racks—these are little shelves for coats and backpacks, about a foot deep—for some first and third grade classes, are alphabetical, one closet is A-L and the other is M-Z. But the coat racks for the kindergarten, second, fourth and fifth graders are sex-segregated. One closet is labeled, “Mrs. Fairchild’s Boys” and the other is “Mrs. Fairchild’s Girls.” These are just shelves—it is not as though people would fit inside these cupboards. I’ve always wondered just what the teachers are worried about the coats doing in there.

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Across the country, single sex schools are experiencing a resurgence in popularity. The state of New York opened the Young Women's Leadership School in East Harlem in 1996. Since then, at the urging of Governor Pete Wilson, California appropriated $5 million to offer half a million each to ten public school districts for pilot programs that create separate—but equal—all-boys and all-girls academies; another dozen single sex California schools are planned for 1999. Colorado is following California's lead and plans to open an all-girls middle school.¹ Middle schools from New Jersey to California are experimenting with single sex classes, such as the Math PLUS (Power Learning for Underrepresented Students) class, originally intended for “math phobic” girls, but later, under threat of legal challenge, opened to boys as well.² At Westwood View Elementary School in Johnson County, Kansas, all of the parents of first graders agreed to have their children participate in experimental single sex classes, one for boys and one for girls. The female teacher of the Westwood View boys' class explained the school's reasoning in separating the sexes: “Don't you think unisex education is a social experiment that's

¹ Brian Weber, DPS Eyes All-Girls Middle School, ROCKY MTN. NEWS, June 11, 1998, at 4A. The number of single sex private schools decreased during the 1980s, but has rebounded somewhat during the 1990s. See Lona O'Connor, Throwbacks to the Past, SUN-SENTINEL (FT. LAUDERDALE, FLA.), May 26, 1998, at 1A (17% of private schools are single sex; in the past three years, 16 new private girls' schools have opened across the country).

Some single sex public schools operate without explicitly excluding one sex. See Carrie Corcoran, Comment, Single-sex Education After VMI: Equal Protection and East Harlem's Young Women's Leadership School, 145 U. PA. L. REV. 987, 1033 n.9 (1997) (“Girls High in Philadelphia and Western in Baltimore, have survived by maintaining low profiles and technically being open to both girls and boys (though few boys have expressed interest in applying).”) The California academies have avoided legal challenges with scrupulous equality in the provision of funding and resources. See infra note 12.

² See Jordana Hart, All-Girl School Movement Questioned, BOSTON GLOBE, Mar. 13, 1998, at B03 (“[S]ingle-sex classes are springing up in public schools in most states. Enrollment at the 84 member schools of the National Coalition of Girls' Schools . . . has grown by more than 15 percent since 1991.”).
failed? Boys and girls are very different.\textsuperscript{3}

Coming, as it does, on the heels of the Supreme Court's decision holding unconstitutional Virginia Military Institute's all-male admissions policy,\textsuperscript{4} this return to sex segregated education is a curious phenomenon. The constitutionality of single sex schools with equivalent funding and resources—separate but truly equal education—is still an open question after the intriguing footnote in the VMI opinion: “We do not question the state's prerogative evenhandedly to support diverse educational opportunities.”\textsuperscript{5}

\textsuperscript{3} Kate Beem, \textit{Gentlemen, Show Your Class}, KANSAS CITY STAR, Feb. 18, 1998, at C1 (quoting Pat Antonopoulos).


\textsuperscript{5} \textit{Id.} at 534 n.7. The Court's language limiting the scope of its holding continued: “We address specifically and only an educational opportunity recognized by the District Court and the Court of Appeals as 'unique,' an opportunity available only at Virginia's premier military institute, the State's sole single sex public university or college.” \textit{Id.}
The justification for the development of all-girls schools or single sex classrooms is based on a mix of arguments about affirmative action and special needs. Supporters argue that girls have been disadvantaged historically in education, and presently in coeducational classrooms experience neglect, participate less, and suffer lowered self-esteem.\(^6\) The solution: a friendly, all-girl environment, away from the domination of boys, where girls can excel and become leaders. Although little empirical research supports it, the parallel argument is made that boys benefit from segregated schooling, free from the gonadal challenge of distracting girl classmates.\(^7\) For both sexes, the provision of a single sex option offers a “diversity” of academic choices in the educational system.\(^8\)

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\(^7\) See, e.g., Nanette Asimov, *Single-sex Schools in S.F.*, S.F. CHRON., Sept. 12, 1997, at A19; Maureen M. Smith, *Math: Separate But Successful*, MINNEAPOLIS STAR TRIB., Mar. 13, 1998, at A1. One 12 year old boy reported that “[w]e get more work done. When [the girls] are here we get distracted.” *Id.* The author, absent any study, states that boys’ success in this experimental math class is “because the boys aren’t studying the girls.” *Id.*

\(^8\) This was one argument Virginia made to support the continued existence of the Virginia Military Institute. *See* United States v. Virginia, 518 U.S. at 534. *See also* Mississippi
Supporters of single sex education can be found on both sides of the political spectrum, from conservative columnists and politicians holding fast to traditional sex roles and essential differences between the sexes to liberal feminists wanting to create a safe and supportive educational haven for girls. Both sides in this debate have used educational research to defend their positions. Courts have deemed social science evidence important to their decisions regarding the constitutional validity of single sex education. Ultimately, since the Supreme Court has held that gender classifications must be defended by an “exceedingly persuasive

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justification,"¹¹ the constitutionality of these programs may depend on research in sociology, psychology, and economics regarding the benefits and detriments of sex exclusive education.

¹¹ United States v. Virginia, 518 U.S. at 534.
Cases challenging single sex classes and schools are beginning to percolate through state administrative processes and into the federal trial courts.\textsuperscript{12} Litigants are culling studies from the available educational research to support their positions.\textsuperscript{13} Interpretation of the existing research in the litigation context is, unsurprisingly, highly politicized. Further, the research examined often is only that slice of sociological data specific to single sex schools, their actual or perceived academic efficacy and reported measures of student satisfaction.\textsuperscript{14} Assessments of single sex education usually limit their focus to simple comparisons of single sex with coeducational environments, while ignoring the broader array of evidence regarding institutions, structures, and processes that construct views on gender and equality. Omitted from consideration is the wider body of social science data concerning the role of sex segregation itself in the formation of gender role attitudes.

This article places the issue of single sex education in a larger social perspective. It first considers the legal decisions concerning the constitutionality of single sex classes and schools. It then reviews all of the major single sex school studies—at elementary, secondary, and college

\textsuperscript{12} The initial “legal” arguments typically are heard at the school board level when those educators consider the implementation of single sex programs or classes. Kirsten Scharnberg, \textit{Despite Successes, Same-Sex Classes Generate Debate}, \textit{Baltimore Sun}, July 19, 1998, at 1B. To date, the California program has not been challenged, according to one of Governor Wilson’s spokespersons, because “[e]verything is exactly the same, ‘down to the number of pencils in the classroom.” Connie Leslie, \textit{Separate and Unequal?}, \textit{Newsweek}, Mar. 23, 1998, at 55. The New York Civil Rights Coalition and the New York chapter of the National Organization for Women have filed a complaint against the Young Women’s Leadership School in East Harlem with the Department of Education’s Civil Rights Division, which issued preliminary findings suggesting that the school was operating in violation of federal law. Wendy Kaminer, \textit{The Trouble with Single Sex Schools}, \textit{Atlantic Monthly}, Apr. 1, 1998, at 22.

\textsuperscript{13} \textit{See infra} text at notes 319-20.

\textsuperscript{14} \textit{See infra} text at note 321.
levels—and their critiques, and considers cross-cultural evidence regarding school type, academic performance, and attitudinal or satisfaction measures. Whether single sex classes and schools ultimately are upheld as constitutional probably will turn on the social science evidence justifying their efficacy.

The article views the empirical evidence about single sex schools in the larger context of sociological evidence regarding the construction of gender roles. The legal debate about the constitutionality and the debate in educational sociology about the propriety of single sex education both have omitted a vital piece of the social science evidence from consideration. In determining whether sex-exclusive education will remedy existing educational disparities for girls or aggravate a system of sex role stereotyping, courts must consider the historical and social meaning of sex segregation in American education.

The American tradition of sex-exclusivity in public education is a legacy that is inextricably tied to the exclusion of women from public and professional life. Supporters assume that we can vest single sex education with new social meaning. What they overlook, though, is the cultural significance that attaches to the relentless sex segregation in all other areas of life.

Courts and commentators have neglected the larger reconstructive effects of state sponsorship of sex segregation. While the educational research regarding the efficacy of single sex schools is mixed at best, the social research is absolutely clear that separation on the basis of identity characteristics creates feelings of individual inadequacy and instills beliefs about group hierarchy. Government separation of equals sends the message that something is contaminative about the presence of the “opposite” sex.
One additional piece of the single sex schools debate is the argument that equally equipped and funded sex exclusive schools offer a diversity of educational choices. Rarely do proponents consider what educational and social effects sex-exclusive schooling will have on boys. Rarer still is any effort to unpack what is meant by “diversity” in this context. Single sex education adds to diversity only in the sense that it increases the educational options in a school system. But then diversity simply means something other than coeducation within the classroom—in other words, sameness on the basis of sex. If diversity is sameness, and if sex segregated education is a temporary remedy for educational inequities visited on girls, how will we make the transition from teaching and training toward sex-exclusivity to preparation of students for coeducational lives?

I. CONSTITUTIONALITY OF SINGLE SEX CLASSES AND SCHOOLS

Decisions from the Supreme Court and lower federal courts over the past quarter of a century offer no clear guidance on the constitutionality of single sex education in its current forms: voluntary single sex classes or schools, with parallel programs for the other sex equipped with substantially (or precisely) equal resources. Some of the early decisions were issued

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15 Federal statutory law seems to compel coeducation. Title IX of the Education Reform Amendments of 1972, 20 U.S.C. § 1681(a)(5) (1990), exempts admissions policies of public colleges that have traditionally enrolled only students of one sex, but otherwise seems to require coeducational admissions policies of graduate, professional or vocational schools. See id. at § 1681(a)(1) (1990). Title IX may not explicitly prohibit single sex schools within a district. See Linda L. Peter, Note, What Remains of Public Choice and Parental Rights: Does the VMI Decision Preclude Exclusive Schools or Classes Based on Gender?, 33 CAL. W. L. REV. 249, 260 (1997). The implementing regulations, however, seem to prohibit single sex classes within schools. They explicitly require coeducation within elementary and secondary schools, since
before the advent of modern equal protection jurisprudence, while the later cases were clear
equal protection violations, involving fact patterns of sex segregation designed to continue
traditional, stereotyped occupational images. Two themes emerge from the modern line of cases:
Those defending single sex programs will be faced with a stringent burden of constitutional
justification. And in evaluating whether that justification is persuasive, the Court is beginning to
consider the images of males and females that the program is likely to promote.

The earliest federal decision was *Kirstein v. University of Virginia* in 1970 where a
Virginia federal district court found the male-only University of Virginia at Charlottesville in
violation of the Fourteenth Amendment. The court decided the case without the benefit of
heightened scrutiny, and noted the “relatively new idea that there must be no discrimination by

participants receiving federal funds, “shall not provide any course or otherwise carry out any of
its education program or activity separately on the basis of sex,” but make specific allowances
for segregation in sex education courses, contact sports, and choral groups. 34 C.F.R. § 106.34
(1997). A school may be able to justify single sex classes as remedial affirmative action
programs. See Monica J. Stamm, Note, *A Skeleton in the Closet: Single Sex Schools for Pregnant

* 309 F. Supp. 184 (E.D. Va. 1970). In the two decades before it decided *Mississippi
University for Women v. Hogan*, 458 U.S. 718 (1982), the United States Supreme Court had
denied certiorari or summarily affirmed lower court rulings in three cases approving single-sex
basis for rejecting male plaintiffs challenge to admissions policy of South Carolina “girls”
517 (1960) (holding that exclusion of female plaintiffs from the Agricultural and Mechanical
College of Texas for men was not unconstitutional; noting that “sex, as a basis for legislative
classification” is widespread, covering subjects including jury service, voting rights, property
359 U.S. 230 (1959) (since many classifications by sex exist, it was reasonable to allow school
board discretion in determining what sex to admit). These cases were decided at a time when
constitutional law had not yet emerged from the separate spheres ideology, and they relied on a
host of antiquated precedents.
sex in offering educational opportunity.\textsuperscript{17} Although urged to go further and rule all Virginia schools could not be separated according to sex, the court declined to do so. A primary concern was what effect such a broad ruling would have on Virginia's military institution.\textsuperscript{18} This question had to wait twenty-six years for an answer in the VMI litigation.

\textsuperscript{17} 309 F. Supp. at 186.

\textsuperscript{18} Id. at 187.
In the same year as the Kirstein decision, a South Carolina federal district court used the rational basis test to uphold the all-women admission policy of Winthrop College. The court in Williams v. McNair\textsuperscript{19} noted that while the trend of education was toward coeducation, single sex education was supported by a long “history and tradition” and thus was not “wholly wanting in reason.”\textsuperscript{20}

The precedential value of Williams may be limited not only by the court's use of the lightest standard of constitutional review, but also by the court's reasoning. The Williams court explicitly approved the legislature's construction of separate educational institutions for women and men, reflecting their traditional social roles: men could attend the state's all-male military school, the Citadel, while Winthrop “was designed as a school for young ladies,” offering “courses thought to be specially helpful to female students,” such as “sewing, dressmaking, millinery, art, needlework, cooking, housekeeping and such other industrial arts as may be suitable to their sex”\textsuperscript{21}


\textsuperscript{20} Id. at 137.

\textsuperscript{21} Id. at 136 n.3.
Philadelphia maintained single sex male and female academies which became the subject of litigation in both 1976 and 1984. The school district had constructed two sex-segregated senior high schools for academically gifted students: Philadelphia High School for Girls (“Girls”) and Central High School for boys (“Central”). In the earlier case, *Vorchheimer v. School District of Philadelphia*, the federal district court upheld the challenge of a female student seeking admission to the all-male school. Despite its finding that the educational opportunities at Girls were “comparable” to those at Central, the district court focused on evidence of educational inequities between the two schools—disparities in resources, educational offerings, and prestige. The district court concluded that the exclusion of young women from Central denied them “the opportunity to attend a coeducational academically superior high school” and had adverse educational effects on the named plaintiff. Using an early incarnation of heightened scrutiny, the court rejected the school board's justification that in creating the separate academies, it was trying to protect girls from the adverse effects of coeducation: “if coeducation

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23 Id. at 329 (“the number of Girls High graduates who have become influential in business, professional, or academic affairs does not approach the number who have graduated from Central", Central has “superior” science facilities; “Central High is the only high school in Philadelphia with a substantial private endowment”). The district court opinion contains conflicting factual findings regarding the quality of educational opportunities—“the education available at Girls is substantially equal to that available at Central,” id. at 333, and “there is no evidence that as a result of this endowment Central's facilities, faculty, or course of instruction is superior to Girls,” id. at 329; Central is “academically superior,” id. at 342—that permitted the appellate court to reverse.

24 Id. at 342. The court, though, specifically rejected the notion that the segregation itself created “a sense of inferiority in Philadelphia's female students which rises to the level of a constitutional deprivation.” Id. at 343 n.1.
is detrimental to girls, all the public schools should be sex-segregated; if it is not, then there is no
‘fair and substantial’ relationship between sex-segregation and the educational goals of the
School Board."^25

\[^25\text{Id. at 342.}\]
The appellate court in *Vorchheimer* reversed, focusing on the district court's language of “comparable” educational offerings, and determining that despite the resource differences, “the educational opportunities offered to girls and boys are essentially equal.” Very important to the appellate court was that the practice of sex segregated instruction was a “time honored educational alternative” with “a long history of ‘world-wide acceptance.’” The *Vorchheimer* court determined that the “controverted, but respected theory that adolescents may study more effectively in single sex schools” bore a substantial relationship to the objective of a quality education.

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26 532 F.2d at 881. Indeed, the educational disparities between the schools diminish as the opinion progresses. The court initially acknowledged that Central's science facilities were superior: “The academic facilities are comparable, with the exception of those in the scientific field, where Central's are superior.” *Id.* at 882. “The school for boys and girls are comparable in quality, academic standing and prestige” *Id.* at 883. Two pages later, the appellate court found “no inequality in opportunity for education between Central and Girls High Schools” *Id.* at 885.

27 *Id.* at 882, 881.

28 “A legitimate educational policy may be served by utilizing single sex high schools. The primary aim of any school system must be to furnish an education of as high a quality as is feasible. Measures which would allow innovation in methods and techniques to achieve that goal have a high degree of relevance.” *Id.* at 887-8.
Critical to the court was that the plaintiff was offered the choice of an opportunity to enroll in a single sex high school, that choice was “voluntary, not mandatory,” and it was the same choice available to boys.\textsuperscript{29} In dissent, Judge John Gibbons chided the majority's cramped definition of Susan Vorchheimer's choice as “voluntary”:

\textsuperscript{29} \textit{Id.} at 886, 881, 882.
It was “voluntary,” but only in the same sense that Mr. Plessy voluntarily chose to ride the train in Louisiana. The train Vorchheimer wants to ride is that of a rigorous academic program among her intellectual peers. Philadelphia, like the state of Louisiana in 1896, offers the service but only if Vorchheimer is willing to submit to segregation. Her choice, like Plessy’s, is to submit to that segregation or refrain from availing herself of the service.\(^{30}\)

The Philadelphia schools remained segregated by sex until the successful challenge with the 1984 decision in *Newberg v. Board of Public Education*.\(^{31}\) In the years between these two decisions the Supreme Court decided to use a higher “intermediate” scrutiny for gender classifications in *Craig v. Boren*\(^{32}\) which it then applied in *Mississippi University for Women v. Hogan*.\(^{33}\) With this change in legal backdrop, the second time around the court found the gender-based exclusion of female students from Central High violated the Fourteenth Amendment.\(^{34}\)

\(^{30}\) *Id.* at 889 (Gibbons, J., dissenting).


\(^{32}\) 429 U.S. 190 (1976).

\(^{33}\) 458 U.S. 718 (1982).

\(^{34}\) 478 A.2d at 1354. The lower court found insufficient support in educational theory to
justify sex segregation, given the “vague, unsubstantiated theory of single-gender schooling.”
The Supreme Court has twice considered the constitutionality of single sex schools. The 1982 *Hogan* decision involved the female-only admission policy of the Mississippi University for Women’s School of Nursing (MUW). In 1979, Joe Hogan was denied admission to the School of Nursing’s baccalaureate program because he was male. MUW’s primary justification for maintaining a single sex admission policy was to compensate for past discrimination against women.\(^{35}\) The Court found this argument unpersuasive when applied to MUW’s School of Nursing, since the nursing field is dominated by women, and because the defendants produced no evidence of a compensatory legislative purpose.\(^{36}\) In the absence of evidence that admitting only women into the nursing school was necessary to redress past burdens, the Court held that a single sex policy “tends to perpetuate the stereotyped view of nursing as an exclusively women's job.”\(^{37}\)

The *Hogan* Court expressly declined to determine whether single sex education itself was unconstitutional,\(^{38}\) and limited its holding to the narrow context of whether an all-female admissions policy could operate as an affirmative action program at a nursing school.\(^{39}\) It emphasized that gender-based classifications may be justified for the compensatory purpose

\(^{35}\) 458 U.S. at 727.

\(^{36}\) *Id.* at 729-30.

\(^{37}\) *Id.* at 729.

\(^{38}\) *Id.* at 720 n.1 (“Mississippi maintains no other single-sex public university or college. Thus, we are not faced with the question of whether States can provide 'separate but equal' undergraduate institutions for males and females.”).

\(^{39}\) *Id.* at 727.
MUW claimed, but only in a setting where discrimination actually exists.\textsuperscript{40} The MUW policy also failed the second part of the equal protection test which requires that the means employed be substantially related to the State's objectives.\textsuperscript{41} MUW permitted men to attend and participate fully in classes as auditors. Men also were allowed to take part in the continuing education courses. The Court found these facts fatal to the claim that women would be affected adversely by the presence of men.\textsuperscript{42}

\textsuperscript{40} \textit{Id.} at 728-9 (“a State might well be justified in maintaining, for example, the option of an all-women's business school or liberal arts program.”).

\textsuperscript{41} \textit{Id.} at 724.

\textsuperscript{42} \textit{Id.} at 730.
The specific question in Hogan was not the wisdom of sex segregated education, but the constitutionality of excluding one sex without providing comparable educational alternatives. No other nursing programs, coeducational or single sex, were available in the vicinity to Joe Hogan. In that sense, Hogan was a formal equality case, concerned with resources being made available to one sex but not the other. But the Hogan Court was concerned with antisubordination as well as antidiscrimination values. The majority in Hogan was sensitive that decisions not be based on “fixed notions concerning the roles and abilities of males and females.”43 A women-only nursing school reflected “archaic and stereotypic notions” that only women could be nurses, and “[b]y assuring that Mississippi allots more openings in its state-supported nursing schools to women than it does to men,” the State turned those assumptions into “a self-fulfilling prophecy.”44 Justice Powell, dissenting in Hogan, first applied the diversity argument in the single sex education context, charging the majority with ignoring the “diversity” element of sex exclusive schools, bowing to the “conformity” of coeducation, and leaving young women without the “choice” of a single sex program.45

43 Id. at 724-25.
44 Id. at 724, 729-30.
45 Id. at 735(Powell, J., dissenting).
Parties continued to challenge the constitutionality of sex segregated schools in the years between *Hogan* and the second single sex education case to reach the Supreme Court, *United States v. Virginia*.\(^{46}\) For instance, in the 1986 case *Jones v. Board of Education of New York*\(^{47}\) the single sex issue was presented from a slightly different perspective. Rather than focusing on whether to open a school to both sexes, the case centered around efforts to stop conversion of an all-girl public high school to a coeducational institution. Unlike the typical gender case, *Jones* entailed the undoing of a previous sex based classification.\(^{48}\) The United States District Court for the Eastern District of New York seemed incredulous that the plaintiffs would even argue constitutional and statutory violations in the move from single sex to coeducation,\(^{49}\) and rejected the plaintiff’s theory that they had a right to the educational environment of their choosing.\(^{50}\)

The *Jones* court interpreted diversity in education differently than Justice Powell, finding that


\(^{48}\) *Id.* at 1325.

\(^{49}\) *Id.* at 1322 (“For plaintiffs to argue that [Title IX] forbids coeducational schools turns the statute on its head.”).

\(^{50}\) *Id.* at 1324.
coeducation was supported by the rationale of "providing an educational environment that mirrors the diversity of modern society." \(^{51}\)

\(^{51}\) *Id.*, citing Bakke v. Regents of Univ. of California, 438 U.S. 265, 311 (1978).
In 1991 a Michigan federal district court in *Garrett v. Board of Education of the School District of Detroit*\(^{52}\) struck down a plan to open all-male academies with Afrocentric curricula for preschool through fifth grade. Justification for constructing the schools was the crisis facing African-American males in unemployment, dropout and homicide rates. Female students enrolled in the Detroit public schools argued that the schools unconstitutionally excluded at-risk girls, and that the school board was improperly using gender as a proxy for urban dangers that affected both sexes.\(^{53}\)

Sex-exclusivity was the constitutional problem in *Garrett*. First, the board failed to justify the contamination theory of coeducation. Using the *Hogan* analysis, the court found an important governmental objective in assisting at-risk urban males, but concluded that “[t]he Board proffered no evidence that the presence of girls in the classroom bears a substantial relationship to the difficulties facing urban males.”\(^{54}\) Second, the Detroit school board singled out African-American males for special, remedial treatment to address educational disadvantages, but paid little attention to African-American girls, “one of the most marginalized and disempowered groups in our society.”\(^{55}\) The court pointed out that the educational system was failing females in addition to the males.\(^{56}\)


\(^{53}\) *Id.* at 1007.

\(^{54}\) *Id.* at 1007.


\(^{56}\) “No case has ever upheld the existence of a sex-segregated public school that has the effect of favoring one sex over another.” 775 F. Supp. at 1008.
While a school district that equally funded separate male and female academies might overcome the latter of these constitutional difficulties, the former would remain. Like the Supreme Court in *Hogan*, the *Garrett* court considered the social message that would be sent by the sex exclusive curriculum, which “suggests a false dichotomy between the roles and responsibilities of boys and girls.”  

It is difficult to imagine a sex segregated program that would not reinforce traditional notions of separate spheres for males and females.

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57 *Id.* at 1007.
The second single sex education case to reach the Supreme Court was *United States v. Virginia*. This 1996 decision concerned the opportunities for women to attend the public-supported all-male Virginia Military Institute (VMI). In 1990, after VMI refused a female high school applicant's admission, the Justice Department sued the school. Virginia defended the single sex environment of "rigorous military training" as inappropriate for females and effective for males only in a sex segregated environment. This "adversative" training included spartan barracks living, a class system, mental stress, shaved heads, a stringently enforced honor code, a complete absence of privacy, upperclass hazing and harsh physical training.

The federal district court found in favor of VMI, holding that the school actually added a "measure of diversity" to the educational system by providing this unique adversative training. The district court also determined that "substantial educational benefits flow from a single-gender environment, be it male or female, that cannot be replicated in a coeducational setting."  

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60 976 F.2d 890, 893-4 (4th Cir. 1992).

61 766 F. Supp. at 1413.

62 518 U.S. at 523.
The Fourth Circuit Court of Appeals reversed, holding that while VMI's program of single sex training was “justified by its institutional mission,” Virginia failed to explain why it “offers the unique benefits of a VMI type of education to men and not to women.” It remanded the case to the district court for construction of a plan to remedy the equal protection violation. Virginia responded by creating a separate, parallel program for women, the Virginia Women's Institute for Leadership (VWIL).

Located on the campus of nearby Mary Baldwin College, the VWIL program offered nothing similar to the rigors of VMI. A task force headed by the dean of Mary Baldwin determined that “a military model and, especially VMI's adversative method, would be wholly inappropriate for educating and training most women for leadership roles.” Instead, the VWIL program deemphasized military education and used a cooperative method of education which reinforced self-esteem.

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63 976 F.2d at 899.

The admissions standards, financial resources, physical facilities, academic program, faculty qualifications, educational offerings, and curriculum at VWIL differed dramatically from that of VMI. Apart from participation in an ROTC program the “largely ceremonial” Corps of Cadets, VWIL students would not experience a military education. VWIL students, whose entering SAT scores would average a full hundred points lower than those of VMI students, would not live in barracks, eat together, or wear uniforms. VWIL offered no bachelor of science or engineering degrees. Faculty at Mary Baldwin College held fewer Ph.D’s (68%) than VMI's faculty (86%), and received substantially lower salaries. The initial $5.4 million endowment for VWIL, even when added to the $19 million endowment at Mary Baldwin, could not compare with the VMI's $131 million endowment. The physical facilities at Mary Baldwin contained “two multi-purpose fields’ and ‘one gymnasium,'” while VMI offered “an NCAA competition level indoor track and field facility; a number of multi-purpose fields; baseball, soccer and lacrosse fields; an obstacle course; large boxing, wrestling and martial arts facilities; an 11-laps-to-the-mile indoor running course; an indoor pool; indoor and outdoor rifle ranges; and a football stadium.” VWIL would lack the alumni network, history, reputation, and prestige of VMI. The district court upheld this plan, declaring that Virginia was not required to provide a mirror image VMI for women. The Fourth Circuit approved the VWIL program as “substantively

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65 518 U.S. at 527.

66 Id. at 528.
comparable\textsuperscript{67} to VMI. The government petitioned the Supreme Court for certiorari.

\textsuperscript{67} United States v. Virginia, 44 F. 3d 1229, 1237 (4th Cir. 1995).
During the years spanning the Virginia Military Institute case, Shannon Faulkner was attempting to gain admission to South Carolina's all-male Citadel. The 1995 decision in *Faulkner v. Jones* came from the Fourth Circuit Court of Appeals, the same court that heard VMI. In fact, *Faulkner* was argued on January 30, 1995, just four days after the Fourth Circuit affirmed the district court's approval of VMI's remedial plan. In April of 1995, the Fourth Circuit approved the district court order mandating Faulkner's admission to the Citadel, unless South Carolina provided a parallel program for women by August 1995. Employing the same principles used in its VMI decision, the Fourth Circuit found South Carolina and the Citadel in violation of the equal protection clause by “offering, without sufficient justification, single gender education only to males.” Unlike Virginia, South Carolina did not attempt to establish a parallel university for women and the Citadel's Board of Visitors decided two days after the Supreme Court's ruling in VMI to admit women “voluntarily.”

The Supreme Court found VMI's male-only admission policy unconstitutional and held that the parallel program at VWIL was an inadequate remedy. Virginia failed to demonstrate an “exceedingly persuasive justification" for segregating students by sex for purposes of a military

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69 44 F.3d at 1242.


71 51 F.3d at 450.

72 *Id.*

education. The decision to exclude women “rel[ied] on overbroad generalizations about the different talents, capacities, or preferences of males and females.” Virginia's asserted policy of promoting educational diversity was a post hoc rationalization for historically affording unique educational benefits only to males. The Court noted that “however ‘liberally' this plan serves the State's sons, it makes no provision whatsoever for her daughters.”

74 518 U.S. at 546.

75 Id. at 533.

76 Id.

77 Id. at 540.
Justice Scalia’s dissent declares that with the VMI decision “single sex public education is functionally dead.”78 Justice Ginsburg’s majority opinion, however, does not completely preclude single sex education. The specific holding is that with VWIL as a “pale shadow” of VMI, Virginia failed to show “substantial equality in the separate educational opportunities.”79 In fact, in a footnote, the majority left open the possibility of a state “evenhandedly” supporting “diverse educational opportunities.”80 The open question after United States v. Virginia is whether a separate but truly equal VMI counterpart would have been constitutional.

Ultimately the resolution of the constitutional questions regarding sex-exclusive education may depend on the social science evidence supporting it. The Supreme Court will be forced to inquire whether the asserted pedagogical benefits of single sex schools and classes provide an “exceedingly persuasive justification” for state-sponsored segregation of the sexes.

II. REVIEW OF SINGLE SEX AND COEDUCATION SOCIAL SCIENCE RESEARCH

A. The “Chilly” Climate of Coeducation

1. Original research

78 Id. at 596 (Scalia, J., dissenting).
79 Id. at 553–4.
80 Id. at 533.
In 1982, Roberta Hall and Bernice Sandler published the first report on the “chilly climate” experienced by women in coeducational college classrooms.81 Based on empirical surveys of postsecondary students and responses of individuals, researchers and campus groups, the report described an educational atmosphere that was inhospitable to women. Some behaviors of faculty (of both sexes) and fellow students consisted of blatantly differential treatment, such as the use of sexist humor, direct sexual overtures, or disparaging comments about women’s abilities. The majority of “micro-inequities” experienced by women, though, were subtle differences in treatment:

- Making eye contact more often with men than with women.
- Nodding and gesturing more often in response to men’s questions and comments than to women’s.
- Assuming a posture of attentiveness (for example, leaning forward) when men speak, but the opposite (such as looking at the clock) when women make comments.
- Grouping students according to sex.
- Ignoring women students while recognizing men students, even when women clearly volunteer to participate in class.
- Calling men students by name more often than women students.82

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82 Id. at 7-9.
While the behaviors do not happen daily or in every classroom, the cumulative effect creates an educational atmosphere that is hostile to women.

In a later report, Hall and Sandler documented that differential treatment persists outside the classroom, where women students receive less time, attention, and informal feedback than do men, are excluded from study group and project teams, segregated in social settings and expected to perform traditionally feminine roles, are treated as less valuable students by admissions, financial aid, and career counseling officers, and are discouraged from participating in lab and field work, seeking student leadership positions, or participating in sports. In a 1986 report, the authors demonstrated that the patterns discovered during education replicate when women enter the workforce in universities and colleges: women faculty, administrators, and graduate students suffer professional and social isolation, fewer opportunities to make professional contributions, lack of accomplishment recognition, and more uncomfortable interactions with colleagues.

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84 Bernice R. Sandler & Roberta M. Hall, The Campus Climate Revisited: Chilly for Women Faculty, Administrators, and Graduate Students (1986).
A 1996 follow-up study revisited the differences in classroom treatment, with an expanded research base — bolstering the surveys, interviews and observational data with examination of quantitative and qualitative classroom studies, analysis of videos, electronic mail, and reports of campus committees.\textsuperscript{85} This last report specifically delineates gendered behaviors that communicate different expectations for women and men,\textsuperscript{86} and offers a number of suggested

\begin{flushright}
\textsuperscript{85}\textsc{Bernice Resnick Sandler, Lisa A. Silverberg} \& \textsc{Roberta M. Hall}, \textit{The Chilly Classroom Climate: A Guide To Improve the Education of Women} (1996).
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\textsuperscript{86} Asking women students easier questions, primarily factual ones, while asking men harder, higher-order, more open-ended questions that demand personal evaluation and critical thinking. . . Focusing on a woman's personal appearance and relationships, rather than on her accomplishments. . . Assigning classroom tasks according to stereotyped roles. . . Interrupting women students, or allowing their peers to interrupt them. . . Both male and female faculty and students may frown more when women students speak . . . Discouraging women through politeness. Faculty members may be excessively kind, paternalistic, or maternalistic as they try to be helpful and hold women to a lower standard.
\end{flushright}
changes in pedagogy toward neutrality, inclusion, and student empowerment.\textsuperscript{87}

2. The temperature for girls in contemporary classrooms

\textit{Id.} at 10-14.

\textsuperscript{87} \textit{Id.} at 37-64.
A few hopeful indicators suggest that the classroom climate at the turn of the twenty-first century may be mildly warmer than even a decade earlier. Schools are beginning to pay attention to the ways gender bias infects the curriculum and the classroom.88 Some researchers have found that active discrimination on the parts of professors may be waning, although some of these studies still confirm that female students are less participatory and assertive than male students.89 Other research indicates that the effects of instructor behavior (in encouraging the involvement of nonparticipants) or the curriculum in a particular class may be stronger influences on student participation than is the sex of one's classmates.90 A 1998 nationwide survey of 2,600 high school students and teachers by Louis Harris & Associates offers several indications that girls are engaged more positively in school than boys and possess more confidence in their academic prospects: “Some 74% of girls say they are very likely to go to college, compared with just 61% of boys.”91 This survey showed that minority girls have the

88 See, e.g., Pamela Dittmer McKuen, Schools Try to Remove Gender Bias from Classrooms, CHI. TRIB., July 19, 1998, at 7(describing teacher training seminars, textbook selection with attention to gender content, and evaluations of teachers based on their attentiveness to gender equity).

89 See Mary Crawford & Margo MacLeod, Gender in the College Classroom: An Assessment of the "Chilly Climate" for Women, 23 SEX ROLES 101, 121 (1990). But see Anne Constantinople, Randolph Cornelius & Janet Gray, Women's Colleges and Women Achievers — An Update — Comment, 14 SIGNS 726, 726 (1989). Anne Constantinople, Randolph Cornelius, and Janet Gray conducted observational studies of student participation and gender in more than 90 classes at Vassar, Trinity College, and Central Connecticut State University, concluding that “male students do not participate significantly more than their female colleagues in classes at Vassar” and finding “the same pattern of relative equality of participation at Trinity, a historically male institution, and at Central Connecticut.”

90 See Anne Constantinople et al., The Chilly Climate: Fact or Artifact?, 59 J. HIGHER EDUC. 527, 527-50 (1988).

91 Gene Koretz, School Is Now Kinder to Girls, BUS. WK., Mar. 2, 1998, at 32 (“Further,
highest confidence rating, but minority boys the lowest expectations for themselves.

more girls than boys feel they get positive feedback from teachers for answering correctly, and more girls (76% vs. 67%) report getting helpful comments when they answer incorrectly. Similarly, about a third fewer girls than boys (19% vs. 31%) complain that teachers don't listen to them. For their part, teachers see girls as more confident, more focused on education, and more likely to graduate from college."
While part of the picture for girls may be changing, in-class incidents of gendered behavior recur. Despite the promising attention to gender bias, coeducational schools are still “male-dominated and male-controlled cultural institutions.” Numerous researchers continue to document that females at all education levels experience “microinequities”—behaviors and actions on the part of teachers and peers so small they may individually be difficult to discern, yet which cumulatively exclude females from equal participation in the classroom. An extensive body of research supports the original conclusions of Hall and Sandler that a “chilly climate” continues to exist in classrooms from preschool to post-graduate school. Many of these behaviors devaluing and excluding females begin in the elementary years.

While females are closing the gender gap in most subjects, they still lag behind in science, enjoy math less than boys, and are more likely to blame themselves for any performance


94 David Sadker & Myra Sadker, *Sexism in the Classroom: From Grade School to Graduate School*, 67 PHI DELTA KAPPAN 512 (1986).
deficiencies. Women and men are roughly at parity in graduate school attendance, although women receive fewer Ph.Ds, are more likely to attend school part-time, and are overrepresented in less elite schools.

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95 See Debra Viadero, *For Better or Worse, Girls Catching Up To Boys*, 17 EDUC. WK., June 24, 1998, at 5 (“Slight differences remained [on the National Assessment of Educational Progress] among top-achieving students in science, where 12th grade boys continued to outperform their female classmates.”).

Other studies have documented disrespect by male classmates and a continued lack of strong female characters in books or other bias in curriculum materials or class coverage, where females are often ignored or stereotyped. Many standardized tests still contain some elements of sex bias. Data show women are being shortchanged in graduate and professional schools. For instance, a solid body of nuanced work is accumulating in legal academic literature regarding the ways women are alienated in law school: intimidation by teaching methods, patterns of classroom discourse, lack of informal support and mentoring for women but available to men law students, less voluntary participation due to gender based hazing by male students, and

97 “Even today’s ‘improved textbooks’ are little better than the texts we read in school decades ago, typically describing the role and experiences of women in only 2 percent or 3 percent of their pages.” David Sadker & Jacqueline Sadker, Separate--But Still Short-Changed, WASH. POST, Nov. 1, 1995, at A19. See also Nancy S. Erickson, Sex Bias in Law School Courses: Some Common Issues, 38 J. LEGAL EDUC. 101 (1988); Reeve Love, Gender Bias: Inequities in the Classroom, 20 INTERCULTURAL DEVEL. RES. ASS’N 11 (1993).
gender bias in tests and other evaluative measures. These studies are supported by collections of anecdotal stories of individual experiences.

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99 Anecdotal evidence brings the point home dramatically. A law professor friend of mine, Linda Lacey, tells a story of the way in which a first grade teacher in Oklahoma was trying to make presidential history come alive for her students on President's Day in 1997. She told the boys to come to school dressed as any President they chose, while the girls' assignment was to dress as the First Lady of their choice.
Reports of sexual harassment against girls are increasing. An American Association of University Women survey of 1,600 high school students found that 80% of the students had experienced sexual harassment at school.\textsuperscript{100} Despite school education programs regarding unwelcome sexual contact and legal decisions holding schools liable under Title IX for failing to take appropriate steps to eliminate peer harassment,\textsuperscript{101} 65% of the girls had been physically touched, grabbed, or pinched in a sexual manner. That statistic on peer harassment omits the more prevalent behaviors of sexual comments, catcalls, obscene graffiti, sexist remarks, unwelcome advances, and solicitation of sexual activity. At an elementary school in Montana, Friday was “Flip-Up Day” during which boys would chase girls to try to flip up their skirts.\textsuperscript{102}

Hall and Sandler hypothesized that the classroom atmosphere reduces women's self-

\textsuperscript{100} Hostile Hallways: The AAUW Survey on Sexual Harassment in America’s Schools (1993). See also Maureen O. Nash, Student on Student Sexual Harassment: If Schools Are Liable, What About the Parents?, 31 Creighton L. Rev. 1131, 1137-39 (1998)(citing other surveys reaching conclusions similar to the AAUW report).


\textsuperscript{102} See Jerry Adler & Debra Rosenberg, Must Boys Always Be Boys?, Newsweek, Oct. 19, 1992, at 77.
esteem, silences women in class, and dampens their professional aspirations. The research regarding whether the classroom climate affects cognitive growth or career aspirations is mixed.

103 "Faculty behaviors which express different expectations for women than for men students or which lead women to feel their academic and career ambitions are not as important as those of men students may play a major role in limiting women students' development." Hall & Sandler, supra note 81, at 2.
Ernest Pascarella and others surveyed 1,636 female first-year students at 23 colleges and universities in 16 states and related that to the students' scores on the Collegiate Assessment of Academic Proficiency, a test of general intellectual skills typically acquired during college, and self-reporting of academic preparedness for careers. They found “modest support” for the proposition that women who perceived a chilly climate had less intellectual growth during college, but found the effect pronounced only for women in two-year colleges.  

Thus, classroom inequalities may not only create an uncomfortable environment, but they may also impede learning.

Additional research has been forthcoming in the middle to late 1990s which demonstrates that the slights, exclusions, and inequities based on gender are also explicitly racialized. Minority females may be doubly excluded from participation, humiliated, and dismissed based not only on their sex, but also on their race. Some evidence does exist that the microinequities may be diminishing—but only slightly—or becoming less blatant. Thus, the “climate” studies do not appear to be dated: the inequalities experienced by female students persist, perhaps shifting in shape or increasing in subtlety, but recurring at all levels of education.

104 Ernest T. Pascarella, et al., The “Chilly Climate” for Women and Cognitive Outcomes During the First Year of College, paper presented at ASHE Annual Meeting (Jan. 21, 1996). “The chilly climate in four-year colleges had a significant negative effect only on self-reported gains in academic preparation for a career.” Id. at 23. The authors suggest a possible explanation for differences in the experiences of women in two- and four-year colleges may relate to the scale used to reflect the climate and whether the women lived on or off-campus. They also caution that the study results were limited to tracing students only during their first year of college.

3. What about the boys?

Researchers in educational sociology have paid somewhat less attention to the negatives in the academic and social experiences of boys and men. While girls historically have experienced lower esteem and less challenging and supportive teacher interactions, boys suffer a distinct set of problems.

Boys may volunteer more actively in class and receive more teacher attention;\(^\text{106}\) that attention, however, is often far from positive. The Wellesley College Center for Research on Women notes that “[b]oys, particularly low-achieving boys, receive eight to 10 times as many reprimands as do their female classmates. . . . When both girls and boys are misbehaving equally, boys still receive more frequent discipline.”\(^\text{107}\) The expectation seems to be that boys can tolerate harsher emotional and physical discipline. U.S. Department of Justice statistics show that “high school boys are four times more likely than girls to be murdered; they are more prone to abuse alcohol or drugs; boys 12 to 15 run double the risk faced by girls of becoming victims of a violent crime, and 82% of the nation's incarcerated youths 18 and under are male — a percentage that increases to an estimated 95% for adult men.”\(^\text{108}\) Recent research reveals the


The fragility of boys' self-esteem. While girls attempt suicide at a rate six times that of boys, the rates reverse for successful suicides, with boys accounting for approximately 86% of adolescent suicides.


Heather Vogel Frederick, Bringing Up Baby, Publishers Weekly, June 8, 1998, at 33 (comments of psychiatry professor Dan Kindlon) See also Sherry Stripling, Rescuing Our Lost Boys, Seattle Times, June 25, 1998, at E1 (“boys are four to six times more likely than girls to commit suicide.”).
Boys are much more likely than girls to be truant, have disciplinary problems, repeat grades, drop out, flunk out, or be suspended.\footnote{111} They are twice as likely to be labeled as “learning disabled”\footnote{112} and account for 70 to 90% of attention deficit disorder diagnoses, although no biological basis exists for this.\footnote{113} Nationwide, two-thirds of special education students are male.\footnote{114} Minority boys are at much greater risk than whites to be classified as having “behavioral problems.”\footnote{115} One study of the Florida school system found that with a student body

\footnote{111} “Nationally, 7.2% of boys, compared to 6.5% of girls, will drop out of school prior to the tenth grade.” Levit, \textit{supra} note 106, at 46, citing Jeff Jacoby, \textit{supra} note 107, at 15.

\footnote{112} Pollack, \textit{supra} note 109, at 234.

\footnote{113} Joan Ryan, \textit{Boys To Men}, S. F. CHRON., Mar. 22, 1998, at 51. Pollack, \textit{supra} note 109, at 257 (more than 9 out of 10 children diagnosed with attention deficit disorder are boys).

\footnote{114} Levit, \textit{supra} note 106, at 46, citing the U.S. Department of Education’s National Longitudinal Study of Special Education).

\footnote{115} Russell Bradshaw, \textit{All-Black Schools Provide Role Models: Is This the Solution?}, 68 CLEARINGHOUSE REV. 146, 146 (Jan. 1995).
of equal numbers of boys and girls, boys constituted 78% of those expelled for misbehavior.\textsuperscript{116}

That study, conducted by the Department of Education, also found that male students who are economically disadvantaged members of racial minorities are particularly likely to be disciplined.

\textsuperscript{116} Diane Rado, \textit{Race, Gender Tied to School Discipline}, \textit{St. Petersburg Times}, Jan. 20, 1995, at 1B.
Some gaps between the sexes on standardized tests—which, for decades had favored boys—are both small and closing. The 1996 National Assessment of Educational Progress test administered by the United States Department of Education found “no significant differences between average scores for eighth- and 12th-grade girls and boys” in math. The Educational Testing Service’s 1997 study of 15 million students’ scores on standardized tests in fourth, eighth and 12th grades and college entrance exams found that “[t]here is not a dominant picture of one gender excelling over the other and, in fact, the average performance difference across all subjects is essentially zero.” Some disparities in standardized test performance still exist, particularly on the high ends of the scale, but those differences have been steadily diminishing. While boys outperform girls on college placement tests, “boys and girls are evenly matched in most important skills, including verbal reasoning, abstract reasoning, math computation and the

117 Barbara Vobejda & Linda Perlstein, Girls Close Gender Gap in Ways Welcome and Worrying, WASH. POST, June 17, 1998, at A01. See also supra note 95.


119 “Fifty-six percent of the National Merit Scholars last year were boys, compared with an average of 61 percent in the late 1980s and early 1990s.” Gap Narrows on Standardized Test, BOSTON GLOBE, Jan. 15, 1998, at A18. The heavy emphasis of the PSAT on multiple choice questions “favors a test-taking style in which boys do better because they are more apt to risk a guess after narrowing down the possible answers.” Id. See also ACT Scores Hold Steady in Record Student Sample, BOSTON GLOBE, Aug. 19, 1998, at A15 (reporting that the 1998 ACT “composite score averaged 21.2 for boys and 20.9 for girls,” with a report by the American College Testing service suggesting that the gender gap had narrowed “in part because more girls took advanced math and science courses.”); Jordana Hart, State SAT Scores Hold Steady, But Verbal Tests Show Gender Gap, BOSTON GLOBE, Sept. 2, 1998, at B2 (noting that nationally girls averaged 7 points lower than boys on the verbal section of the SAT and 35 points lower on math).
social sciences.  

Id. Test performance correlates more with socioeconomic status (SES) than gender or race. Valorie K. Vojdik, Girls' Schools After VMI: Do They Make The Grade?, 4 DUKE J. GENDER L. & POL’Y 69, 90 (1997) (“The AAUW concluded that SES was the best predictor of both grades and test scores. Gender may favor either boys or girls, depending on the race and SES of the sample tested.”). This corresponds with cross-cultural data, from Australia, Canada, and Northern Ireland showing that “girls now outperform boys in all aspects of the curriculum, with the exception of physics.” Alex McEwen et al., The Impact of Single-sex and Coeducational Schooling on Participation and Achievement in Science: A 10-Year Perspective, 15 RES. SCI. & TECHNOLOGICAL EDUC. 223, 229 (Nov. 1997).
Evidence is mounting of significant academic underperformance by boys. Except for mathematics and science, boys are at the bottom of almost every list measuring performance in secondary education. Across the nation, boys trail girls in reading, writing, spelling, comprehension, and logical relations. United States Department of Education statistics show that females have outscored their male counterparts at all grade levels in average writing proficiency since 1988 and in average reading proficiency since 1971.

Girls nationwide generally earn higher grades than boys “throughout their school careers.” In a study by the United States Department of Education examining the percentage of high school sophomores who went on to college as a full-time student, 24.8% of females


123 AMERICAN ASS’N OF UNIV. WOMEN, HOW SCHOOLS SHORTCHANGE GIRLS 22 (1992) .
were enrolled compared to 22% of males enrolled in the same type of institution.\textsuperscript{124} Now more women both begin (56%) and graduate from (55%) college than men.\textsuperscript{125} This margin is projected to increase: by the year 2000, the number of women enrolled in college is expected to reach 8.6 million, compared to only 6.9 million men.\textsuperscript{126}

It seems demonstrably clear that both males and females experience differential treatment on the basis of gender in coeducational classrooms, although some more recent evidence attests to the possibility that the frequency and pervasiveness of these gendered experiences are diminishing. Apart from anecdotal reports that some students in single sex classrooms like the sex-exclusive grouping, what is not addressed by these studies is whether single sex education would provide a cure for pervasive and basic inequities in daily interactions, grading, testing, esteem, and discipline.

\textbf{B. The Single Sex Solution}

\textsuperscript{124} U.S. Department of Education, National Center for Educational Statistics, High Schools and Beyond (HS&B) Study 1980 Sophomore Cohort ___ (19__). 


In the late 1980s, the chilly climate data sparked renewed interest in all girls classes and women-only colleges as a means to redress the daily inequities experienced by females. Proponents argue that single sex schools, especially girls- or women-only schools, outperform coeducational schools in a number of dimensions. Among the claimed advantages are that girls schooled in a single sex environment have more self-confidence and higher achievement, develop leadership skills, and move into male-dominated fields in larger proportions. Much of the research cited in support of single sex education is studies demonstrating a variety of deficiencies in coeducational classrooms: relative attention paid to males and females, classroom climate, and performance indicators. Based principally on anecdotal evidence, supporters also claim that at the elementary and secondary levels girls and boys simply prefer education without the distracting presence of the opposite sex. Single sex education, proponents maintain, should be a choice among educational options.

Opponents have responded that single sex education reinforces gender stereotypes and inadequately trains students for the coeducational world they will inhabit the rest of their lives.

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127 Caplice, supra note 6, at 243, 244-45 (1994); Mann, supra note 8, at C1.


129 See, e.g., LynNell Hancock & Claudia Kalb, supra note 2, at 76 (“Boys say they'd rather recite Shakespeare without girls around to make them feel 'like geeks.'”); Jacques Steinberg, Just Girls, and That's Fine with Them, N.Y. TIMES, Feb. 1, 1997, Metro at 21 (“A 14 year old female student stated, ‘Last year, I was afraid to ask questions because the guys would make fun of everything. It's a more cheerful environment with the girls because you can talk about everything.’”).

130 See, e.g., Despina C. Tartinis, Note, Fourteenth Amendment—Equal Protection
Separation programs for the sexes will in practice likely manifest funding and resource disparities and, in any event, are inherently unequal, opponents maintain, since the fact of segregation itself stigmatizes. Opponents also challenge the studies relied on to support single sex schooling, noting that they generally lacked adequate controls, were conducted by proponents of single sex schools, were based on self-selected study populations and thus not extrapolatable, and often demonstrate inconclusive results.

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Clause—Virginia’s Categorical Exclusion of Women from the Educational Opportunities at VMI Denies Equal Protection to Women—United States v. Virginia, 8 SETON HALL CONST. L.J. 253, 274 (1997), citing Frank Green, Coed Schools Reflect Real World, RICHMOND TIMES-DISPATCH, Mar. 11, 1997, at B4 (“If you go to work for a bank, or go to work for an insurance firm, or go to work for a steel company, or an automobile company, it's coeducational.”).


Unfortunately the use of social science evidence in the single sex schools debate usually consists of each side referring to one or two selected studies (or worse, noting generally the existence of “studies”) to support pre-existing positions, rather than comprehensively reviewing the available literature.\textsuperscript{133} What follows is an attempt to catalog the principal quantitative and qualitative studies, from elementary through postsecondary education, regarding the benefits and detriments of single sex education. The collection may not be completely exhaustive (for fear of being exhausting), but does contain the primary studies on which most of the debate centers and the most recent studies not yet included in the discussion. Unquestionably, the social science evidence is mixed, but some clear and consistent thematic patterns emerge.

1. Early studies of women's colleges and career achievement

Women's colleges maintain that their graduates are more likely to have nontraditional college majors, enter male dominated fields, and achieve later career successes. Many of the claimed advantages of single sex schools rest on comparison studies of women's colleges and coeducational colleges undertaken in the 1970s. The earliest of these highly influential studies were conducted by M. Elizabeth Tidball, now an emeritus professor of physiology at George Washington University, and herself a Mount Holyoke graduate. Tidball's initial study in 1973 was based on data of women's experiences during 1910-1960.134 Examining a random sample of 500 women cited for career achievements in Who's Who of American Women, she found that women's colleges produced twice as many "achievers" compared to coeducational institutions.135


135 The following year, Tidball again examined a 2% sample of college graduates from Who's Who of American Women. She reaffirmed her previous findings that women's colleges produce twice as many achievers as coeducational institutions. M. Elizabeth Tidball, *The Search for Talented Women*, 6 CHANGE 51 (1974).
In later studies, Tidball identified the baccalaureate backgrounds of American scientists and scholars, entrants into American medical schools, and recipients of doctorates in natural sciences and other areas. She found that small, private liberal arts colleges, particularly women's colleges, were the most productive sources of students who received their bachelor's degrees, entered medical school, or obtained later doctorates. Specifically, graduates of women's colleges were twice as likely as women graduates of coeducational institutions to attend medical school, twice as likely to receive natural science Ph.D.'s, and almost four times as likely to receive doctorates in the arts and humanities. Tidball also showed a correlation between the proportion of women faculty members and women students' success, although she stated that "the number of men faculty neither enhanced nor detracted from the output of women

136 M. Elizabeth Tidball & Vera Kistiakowsky, *Baccalaureate Origins of American Scientists and Scholars*, 193 SCIENCE 646 (Aug. 20, 1976)(reviewing a list of 137 post-secondary schools that contained either all women or large percentages of women graduates, and finding that women's colleges were more likely than coeducational schools to produce doctorate recipients); M. Elizabeth Tidball, *Women's Colleges and Women Achievers Revisited*, 5 SIGNS 504 (1980)(attributing successes of women's college graduates to the higher proportion of female faculty members at these schools); M. Elizabeth Tidball, *Baccalaureate Origins of Entrants into American Medical Schools*, 56 J. HIGHER EDUC. 385 (1985)(finding that women's colleges graduated twice the number of medical school entrants as coeducational schools); M. Elizabeth Tidball *Baccalaureate Origins of Recent Natural Science Doctorates*, 57 J. HIGHER EDUC. 606 (1986)(reviewing baccalaureate schools that, during the period 1970-1980, “graduated at least 10 women or 40 men who later received science doctorates”).

137 M. Elizabeth Tidball, *Baccalaureate Origins of Entrants into American Medical Schools*, *supra* note 136, at 389.

138 M. Elizabeth Tidball *Baccalaureate Origins of Recent Natural Science Doctorates*, *supra* note 136, at 614.

achievers.\textsuperscript{140} M. Elizabeth Tidball, \textit{Perspective on Academic Women and Affirmative Action}, supra note 134, at 133.
Proponents of single sex education have repeatedly used Tidball's studies to show that women-only environments promote women's later career achievement. Yet the critiques of these studies raise serious questions. First, these studies failed to control for a host of confounding factors demonstrably related to career accomplishments, such as institutional selectivity (reputation or admissions criteria), institutional recruitment efforts, and individual students' pre-college or background characteristics (socio-economic status, test scores, grade point average, motivation and career orientation). In 1978, Mary Oates and Susan Williamson replicated Tidball's findings for the decade of the 1930s, but documented that a significant proportion of the women achievers attended the Seven Sisters schools — Barnard, Bryn Mawr, Mount Holyoke, Radcliffe, Smith, Vassar, and Wellesley.141 These were women who “came from privileged backgrounds, had tremendous resources, and . . . were going to succeed no matter where they went. Yet, these studies did not control for socio-economic status.”142 One of the most important findings of the Oates and Williamson study was that once they controlled for the skewing effect of the Seven Sisters schools, the differences in producing achievers between non-

141 Mary J. Oates & Susan Williamson, Women's Colleges and Women Achievers, 3 SIGNS 795, 799, 800, 803 (1978)(using WHO'S WHO IN AMERICA instead of WHO'S WHO OF AMERICAN WOMEN as a data base). Tidball maintained in response that Oates and Williamson improperly created groups for comparison by placing selective women's colleges in one group, less selective women's colleges in another group, and all coeducational colleges with varying levels of selectivity in a third; this methodology, Tidball argues, does not permit “a comparison of achiever production by women's colleges and coeducational institutions of similar selectivity.” See also Joy K. Rice & Annette Hemmings, Women's Colleges and Women Achievers: An Update, 13 SIGNS 546, 555 (1988)(“In our study from 1940 to 1979, a consistent 30 to 40 percent per decade of women's college achievers graduated from Seven Sisters colleges”).

Seven Sisters women's colleges and coeducational schools literally disappeared.\textsuperscript{143} Oates and Williamson concluded that institutional selectivity and socio-economic advantages, rather than gender composition of the school, accounted for the achievement rates of graduates from women's colleges.

\textsuperscript{143} Oates and Williamson found that the Seven Sisters colleges “produced achievers at the rate of sixty-one per 10,000 graduates” while the other small women's college and small coeducational colleges each “produced at a rate of eighteen achievers per 10,000 women graduates.” Oates & Williamson, \textit{supra} note 141, at 799-800.
Second, since women were not admitted to many men's colleges until the 1970s, women's college, particularly the Seven Sisters schools, had the most highly qualified and competitive applicant pool from which to draw. Generally, the literature on student academic credentials and later professional achievements demonstrates that "the percentage of professionally successful graduates a college has is more a function of the type of student body that enrolls than of the college experience itself."\textsuperscript{144} One study, for example, compared a sample of first year women at 30 women's colleges with first year women at all coeducational schools in 1979. The researchers found sharp demographic differences between the study populations, with women's college students having higher grade point averages in high school, more highly educated parents, and pre-existing plans to attain an advanced degree.\textsuperscript{145}

These factors mean that the simple positive correlations Tidball discovered should not be mistaken for causal relationships. Since the results are conflated by economic and class factors, even the correlations are of questionable extensibility. The results of single measure achievement studies—"it remains unclear whether being listed in WHO'S WHO is more a function of family SES and social involvements than of the impact of attending a women's college"\textsuperscript{146}—conducted at elite, private schools in the decades before the civil rights movement should not be extrapolated to public schools or public school classrooms in particular contexts.


\textsuperscript{145} \textit{Id.} at 550, citing \textit{WOMEN'S COLLEGE COALITION, A SECOND PROFILE OF WOMEN'S COLLEGES} 6-7 (1981).

2. Contemporary studies of women's colleges: career and academic achievements

Studies conducted in the 1980s and 1990s have both critiqued and illuminated facets of earlier women's colleges and achievement studies. Some of the contemporary studies have tried to measure more direct educational impacts on students, as well as longer term career attainment effects.

One indication of educational success is women's ability to enter occupations traditionally dominated by men. Sara Solnick investigated whether 1700 women at eight women's colleges and 818 females at seven coeducational colleges who entered traditionally female- or male-dominated majors remained in those majors.147 Based on students' prior anticipated majors, she found no statistically significant differences between the types of colleges regarding which students were likely to persist in male-dominated majors.148 Solnick determined for the narrowest definition of a “male-dominated major” (focusing only on computer science, architecture, and engineering) no significant differences, and for the broadest definition (an array of “subjects with somewhat greater percentages of women”) that “women's college students may be less likely to persist in male-dominated fields than their counterparts at coed schools.”149 She did find, though, that women at coeducational schools who chose traditionally female-dominated majors were more likely to remain in those majors than their counterparts at


148 *Id.* at 511 (“Seventy-eight percent of students at women's colleges who anticipated majoring in these fields carried out their intention, compared to 80% of women at coed schools with the same plans.”).

149 *Id.*
women's colleges.\textsuperscript{150}

\textsuperscript{150} \textit{Id.} at 509.
In 1988 Joy Rice and Annette Hemmings replicated Tidball's methodology, using samples of graduates identified in *WHO'S WHO OF AMERICAN WOMEN* in 1979-80, 1980-81, and 1983-84. While graduates of women's colleges appeared in *WHO'S WHO* 1.55 times more often than women graduates of coeducational institutions for the overall period 1940 to 1979, that ratio dropped to 4:3 for the decade of the fifties, and Rice and Hemmings found “no significant differences in the proportion of women achievers who graduated from the two types of colleges for the decades of the sixties and seventies.”

Other studies confirm Rice and Hemmings' conclusions. Janet Zollinger Giele surveyed 2,902 women who attended Wellesley and Oberlin, and were graduated between 1934 and 1979. Giele found a host of factors were more important than institutional gender type in later role choices of the women graduates: generational age group differences, marriage, motherhood, graduate education, employment patterns, background differences in the occupations and education of the students' parents, and preexisting goals and value differences. Giele concluded:

> These age comparisons across the colleges do indeed suggest that coeducation versus single sex education is a subsidiary issue in a much larger and more powerful current: the changing roles of college-educated women. Whether

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151 Rice & Hemmings, *supra* note 141.

152 *Id.* at 556. Although the differences were not statistically significant for the two most recent decades, for the 1970-79 period, “women's colleges had one and one-half times the number of achievers to number of graduates as did coeducational colleges in this period—the same comparative advantage enjoyed by the women's college graduates of the earlier decades.” *Id.*

women are educated alone or with men apparently gives few differential
advantages to women who attend one type of college or another.¹⁵⁴

¹⁵⁴ *Id.* at 109.
In 1994 Faye Crosby and colleagues at Smith College re-analyzed Tidball's data regarding whether women's colleges produce more women who enter medical school than coeducational schools, while controlling for selectivity of the school, other educational indicia, and economic factors.\(^{155}\) Using multiple regression analysis,\(^{156}\) the Crosby researchers were able to assess the relative importance of the gender composition of the undergraduate institution in predicting success as measured by medical school entrance. They concluded that for similarly selective schools, “gender composition of the student body — whether the school is a women's college or a coed college — does not matter enough to result in a reliable difference between the two types of schools.”\(^{157}\) In other words, although gender composition of the school does show a correlation with productivity of medical school entrants, “the amount of variance accounted for by the other variables is much larger.”\(^{158}\) Their results, as well as those of other researchers who have demonstrated that “coeducational schools are as likely to produce women scientists as are women's colleges,”\(^{159}\) directly contravene Tidball's conclusions.


\(^{156}\) Examining the variables of gender composition of the school, selectivity rating of the undergraduate institution according to BARRON'S PROFILES OF AMERICAN COLLEGES, whether the institution was affiliated with a medical school, tuition, size of the institution, and mean math and verbal SAT scores.

\(^{157}\) Crosby, supra note 155, at 114.

\(^{158}\) Id. at 115.

\(^{159}\) Crosby, supra note 155, at 115, citing Steve Rieger, Time Has Run Out, BOSTON SUNDAY GLOBE, Apr. 7, 1991, at B1, B5. See also Pyle, supra note 133, at 253 n.172, citing Memorandum from Mike Robinson, Professor, Mount Holyoke College (“Professor Robinson conducted a study of the distribution of majors of female students at five women's colleges and 11 coeducational colleges in 1991-92 and 1992-93, which showed no significant differences in science majors among women. Robinson found that physics accounted for only 0.9% of majors...
among women at women's colleges and 0.5% among women at coeducational colleges. . . . Mathematics accounted for 2.2% of majors at women's colleges and 1.9% at coeducational schools.")
Recognizing that studies of career attainment must adequately control for environmental factors, Judith Stoecker and Ernest Pascarella reviewed longitudinal data from a national sample of women. They examined a host of variables, including: student background characteristics, student precollege degree and career aspirations, college experiences (major, academic achievement, and social involvement), and post-college career, income, and occupational status attainments, as well as institutional prestige, size, and gender type. When Stoecker and Pascarella controlled for student background characteristics (family socioeconomic status, secondary school academic and social achievements, student marital status), they found “little to indicate that attending a women's college has more than a trivial net influence on women's postcollege educational, occupational, and economic attainments.”

In attempting to explain how their findings comported with prior research, Stoecker and Pascarella suggest that “the career attainments previously linked to attendance at a women's college may be attributable more to differential student recruitment than to the socialization occurring in a distinctive

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160 Judith L. Stoecker & Ernest T. Pascarella, *Women's Colleges and Women's Career Attainments Revisited*, 62 J. HIGHER EDUC. 394 (1991)(using data from the 1971-80 longitudinal study of the Cooperative Institutional Research Program, from an overall sample size of 10,326 students, approximately half of whom were women; the 2,485 women who were studied attended a four-year institution; of those, 273 attended a woman's college).

161 *Id.* at 400-403.
institutional environment.\textsuperscript{162}

\textsuperscript{162} Id. at 403.
Cornelius Riordan reached a slightly different conclusion. His research demonstrated no short term educational attainment advantages, but some long term occupational prestige advantages from women's college education. In a longitudinal (covering the years 1972-86) study of 92 women who attended a single sex college for at least two years (39 of whom pursued a degree to graduation at a women's college) and 2,225 women who attended a coeducational college, Riordan surveyed whether college type mattered in terms of later educational and occupational attainment.163 Controlling for a variety of student background characteristics of students and institutional selectivity, Riordan found that “the ultimate educational attainment of women's college graduates is slightly lower than women graduates of mixed-gender colleges. It appears that once having attained the baccalaureate degree, women's college graduates are less likely to pursue an advanced degree than are graduates of coeducational schools.”164 Despite their lower levels of educational achievement, women's college graduates were “more likely to

163 Cornelius Riordan, Single-and Mixed-Gender Colleges for Women: Educational, Attitudinal, and Occupational Outcomes, 15 REV. HIGHER EDUC. 327 (1992). Riordan found that while “[o]ver 90 percent of the women who attended a single-gender college had graduated from college, compared to 50 percent of women from mixed-gender colleges,” id. at 334, —a statistic for which his work is often cited — only 39 of the 92 women “actually graduated from a single-gender college.” Id. at 339.

164 Id. at 339(emphasis in original).
hold higher-prestige jobs than their counterparts from mixed-gender colleges."^{165}
One of the most comprehensive studies of college impact was conducted by UCLA psychology professor Alexander Astin, using data from the National Cooperative Institutional Research Program survey of freshmen entering college in 1985, with follow-up questionnaires administered in the fall of 1989 and winter of 1990. The final longitudinal sample included almost 25,000 freshmen at 309 colleges and universities who completed the initial and follow-up surveys.

Astin's negative findings regarding institutional type and career plans and cognitive development are striking. He found that whether students attended a coeducational, single sex female, or predominantly (more than 80%) male school was not a factor influencing students' choices of entering the fields of business, college teaching, engineering, law, medicine, nursing, school teaching, or scientific research. While choosing particular careers (such as law, school teaching, or nursing) was positively associated with being male or female or being a member of a social fraternity or sorority, the institution type was not a significant variable. However, one of a number of factors that was positively associated with the aspiration to a postgraduate degree was the percentage of a student's peers who are women.

On self-evaluations of growth in knowledge and skills during college, two environmental gender variables mattered. The percentage of women on the faculty showed a weak positive correlation with self-reported growth in knowledge, and attending a women's college was

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167 Id. at 245-71.

168 Id. at 271.
positively associated with self-reported growth in leadership abilities. Yet empirical measures did not bear out the self-reported advantages.

169 Id. at 225, 232.
Regarding measures of academic and cognitive development, Astin found that an institution's gender type (coeducation, single sex female, or predominantly male) was unrelated to academic performance or student performance on standardized tests (the Graduate Record Exam, the LSAT, and the MCAT).\footnote{Id. at 186-244.} Astin did find modest effects between several institutional gender characteristics and rates of student retention: “having more than 80 percent men in the student body” was negatively related to student retention, attending a women’s college was positively associated with degree completion, and the percentage of women on the faculty and offering a women's or gender studies course had positive effects on retention.\footnote{Id. at 195.} But on the numeric measures of academic achievement including students' college grades, graduate or professional school admissions, and standardized test performance, institutional type did not translate at all into performance. Astin's results are echoed by the findings of a number of researchers, in this country and others.\footnote{See Reginald R. Dale & P. McM. Miller, *The Academic Progress of University Students from Co-Educational and Single-sex Schools*, 42 BRIT. J. EDUC. PSYCH. 317 (1972)(matched pairs, University of Wales, virtual equality of results in the Arts, but slight advantage for coeducated students in the Sciences); P. McM. Miller & Reginald R. Dale, *A Comparison of the Degree Results of University Students from Co-educational and Single-sex Schools*, 44 BRIT. J. EDUC. PSYCH. 307 (1974)(comparing university degree results of paired Welsh students in coeducational and single sex schools, and finding no significant differences in examination results, but discerning that more first year students dropped out of single sex than
3. Women's colleges: experiential and aspirational studies
Other methods of assessing the value of single sex education include examination of experiential and environmental effects. A claimed advantage of single sex schooling is that the environment offers a “favorable climate” which promotes women’s achievement: a greater proportion of women faculty role models; more opportunities for women students to serve in academic and campus leadership positions; a supportive and nurturing academic environment which promotes self-confidence; the absence of sexual distractions of opposite sex classmates; and the avoidance of male behaviors of domination. The studies regarding the experiences in single sex schools and classrooms principally consist of anecdotal evidence and self-reporting of attitudes.

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A number of studies have shown beneficial effects from single sex educational experiences regarding student satisfaction, self-esteem, educational and career aspirations, and perceived development in abilities.\textsuperscript{174} Using results of a Cooperative Institutional Research Program (CIRP) survey in 1982 with a follow-up in 1986 of 705 women at coeducational schools and 175 at women's colleges, Daryl Smith found that while no differences existed in overall satisfaction with their college experiences, students at women's colleges were more satisfied with the strength of the academic program, while students at coed schools were more satisfied with the social life.\textsuperscript{175} The students' evaluations of the strength of the schools' academic programs was more detailed than simply an academic life at a single sex school and a life of parties at coeducational schools:

Of sixteen goals, women's college students rated their institutions significantly higher on eight of them. There were no differences on the other eight. Women's college students rated their institutions higher on the importance placed on conveying an appreciation of the liberal arts, increasing self-directed learning, developing clear thinking, developing creative capacities, gaining a deeper level of understanding, providing for emotional development, developing responsible citizens, and providing tools for living. There were no differences in the perceived importance of mastering the knowledge of the discipline, conducting research, preparing students for employment, preparing students for graduate


school, developing moral character, developing religious convictions, providing skilled workers for business, and preparing students for family living.\textsuperscript{176} Smith cautioned, though, that on most of the scales of analysis, “the percent of variance accounted for by institutional type was quite small.”\textsuperscript{177}

\textsuperscript{176} \textit{Id.} at 191.

\textsuperscript{177} \textit{Id.} at 193.
An empirical finding of Smith's study was that 65% of the students at women's colleges earned a degree, while only 50% of women students at the coed schools did so. However, in the tallying of degrees received by institutional gender type, Smith offers no indication that he controlled for institutional selectivity or prior academic reputation of the school.

Smith and colleagues conducted a second study with more recent CIRP data (1986 entry and 1990 follow-up questionnaires), surveying 160 women from 30 women's colleges and 764 women attending 173 coeducational institutions. Controlling for student background characteristics, the researchers found that students at women's colleges were more likely than coeducational students to perceive that their school valued student learning, civic involvement, and multiculturalism. These perceptions related to student satisfaction and extracurricular involvement. The Smith researchers candidly noted that they “did not find the same magnitude of direct effects as uncovered in other studies,” but that their research confirm a consistent pattern of student satisfaction and involvement in campus activities at women's colleges.

178 Id. at 191-92.
179 Daryl G. Smith, et al., Paths To Success: Factors Related to the Impact of Women's Colleges, 66 J. HIGHER EDUC. 245 (1995)(noting that “[d]emographic information on the entire sample demonstrates that their socioeconomic status was relatively high. The median family income was between $40,000 and $45,000 per year" and the sample was “quite accomplished" academically with a mean grade point average of B+).
180 Id. at 263.
Using two national student data surveys (from 1987 and 1991), Mikyong Kim and Rodolfo Alvarez compared self-reports of academic ability at entry and exit, social self-confidence, and career preparation in from students at 34 women-only colleges and women students at 274 coeducational schools. Based on these surveys, they concluded that students at women-only colleges were more likely than students at coeducational schools to view their academic abilities and social self-confidence in a positive way, but less likely to perceive they have acquired job or career preparation skills. An additional finding of their study related to the hypothesis about the efficacy of female role models at women's colleges. Kim and Alvarez found “zero correlation between the percent of female faculty at an institution and preparation of women students for graduate or professional school.” Importantly, the Kim and Alvarez findings also dispute the notion that women's colleges better prepare students academically, showing “no statistically significant difference between women-only colleges and coeducational institutions in preparing female students for graduate or professional school.”

The studies evaluating the experiences of current women students are far from

181 Kim & Alvarez, supra note 146.
182 Id. at 657-58 (emphasis in original).
183 Id. at 655.
unanimous. Even within single studies, the experiential responses can point in both directions.184

These are principally surveys providing collections of students' reports about their academic and social lives.

184 See, e.g., Smith, Women's Colleges and Coed Colleges, supra note 175 (students at women-only colleges have report greater satisfaction regarding eight of sixteen academic measures—with no differences based institutional type regarding the other eight measures—but less satisfaction with their social life).
In 1982, Leslie Miller-Bernal used questionnaires to survey women students at two small, private liberal arts colleges in New York, one women's college and one coeducational college.\textsuperscript{185} The study measured students' college experiences (by assessing participation in college activities, and relations with peers and faculty), sex role attitudes, and family backgrounds (religion, prior academic goals, parents' education and employment status, role in family decision-making, and support for the students' careers). One difference in student experiences, according to the self-reports, was that a "slightly greater" percentage of women's college students reported that academic success was "very important" to their peers, while students at the coed college reported that "having an active social life is considered 'very important.'"\textsuperscript{186} Miller-Bernal drew from this that "without the presence of men students, women students are able to take their studies more seriously."\textsuperscript{187}

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\textsuperscript{185} The survey return rate for the women's college was 72\% (244 students), while the return rate for the coeducational school was 43\% (222 students). Miller-Bernal suggests that relatively low response rate for the coeducational school may be due to the inconvenience of the timing of the study in its academic calendar. Miller-Bernal, \textit{supra} note 173, at 367-68.

\textsuperscript{186} \textit{Id.} at 371.

\textsuperscript{187} \textit{Id.}
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The only statistically significant difference was that students at the coed colleges were more likely to have joined clubs. Controlling for family background characteristics, she found that “it is not students at the women’s college who are more active participants in college but rather it is students at the coed college who are slightly more likely to be active.”\textsuperscript{188} Contrary to her expectations, Miller-Bernal found that the students' experiences at the women's college did not cause them to have significantly more liberal sex role attitudes.\textsuperscript{189} Ultimately, Miller-Bernal concluded, though, that her study found “some, but not unqualified, support for the argument that women's colleges provide a favorable climate for the development of women's abilities.”\textsuperscript{190}

\textsuperscript{188} \textit{Id.} at 374. However, she found that academic goals were related to women students' participation levels in college activities at the women's college, but not at the coed college.

\textsuperscript{189} \textit{Id.} at 383.

\textsuperscript{190} \textit{Id.} at 370. While a higher percentage of students at women's colleges were more likely to have contact with faculty members, this may in part be attributable to the smaller size of the women's college (500 students) than the coeducational college (800 women and 1100 men).
Miller-Bernal conducted a later study of 260 women at four colleges — two women's colleges and two coeducational schools — surveying the students on entry in 1984, during their sophomore year and on exit in 1988 regarding several measures of their college experiences: the importance of female faculty role models, college activities and leadership roles, and the supportiveness of the college environment to women students.\textsuperscript{191} Controlling for several individual student background characteristics (students' families social class, religion, goals upon entering college, and academic skills), Miller-Bernal found generally that students at the two women's colleges had more positive experiences than women students at the two coeducational schools on the dimensions of participating more in classes, holding more leadership positions, and perceiving that the administration and faculty were supportive.\textsuperscript{192} She found no differences among the schools in seniors' gender role attitudes, seniors' plans to enter nontraditional fields, students' participation in sports, or faculty encouragement of academic work. While Miller-Bernal again found support for the view that women's colleges encouraged greater student participation and attended more to the women student's concerns, she found that the presence of women faculty role models was not an important college experience: “This suggests that students' identification with women faculty is not sufficient to produce beneficial outcomes, but what is important is for students to study a curriculum that makes women a central concern.”\textsuperscript{193}


\textsuperscript{192} \textit{Id.} at 39.

\textsuperscript{193} \textit{Id.} at 48.
The inference of a cause and effect relationship between exposure to female faculty at women's colleges and female students' career successes is disputed. Kim and Alvarez found no correlation between the variables, while Donna Rothstein found a positive correlation between the percentage of female faculty and the probability of women students attaining an advanced degree: “An increase in the percentage of female faculty by about 10%, all else equal, increased the probability of attaining an advanced degree by about 4%.”

Rothstein suggested, though, that the presence of females on a given faculty may be indicative of an otherwise supportive environment for women at a given institution, and those effects could not be disentangled. She also determined that the percentage of female faculty had no statistically significant effect on later labor market earnings.

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194 Donna S. Rothstein, Do Female Faculty Influence Female Students’ Educational and Labor Market Attainments?, 49 INDUS. & LABOR REL. REV. 515, 521 (April 1, 1995).

195 Id. at 521.

196 Id. at 526.
Other research also calls into question whether the sex of classmates or instructor influences student participation more than other variables. Based on a collection of surveys from 1,375 students at one coeducational university and one previously all-male college, Mary Crawford and Marge MacLeod tested the interaction of class size, gender, teacher behavior, and student participation. They concluded first that while participation depended on the atmosphere of the individual classroom, class size was the most important determinant of student participation and “[s]mall classes enhance participation for all students regardless of gender.”\(^{197}\) Their surveys confirmed earlier studies that showed greater participation and assertiveness by male students.\(^{198}\) Crawford and MacLeod, however, disputed previous findings that teacher discrimination caused women students to participate less, but did find that “female teachers are more effective than male teachers at creating the kind of classroom where student questions and discussions are valued regardless of the gender of the student.”\(^{199}\) Crawford and MacLeod suggest that teachers in any classroom setting try to create “student-friendly” classrooms by considering the factors they examined: class size, use of humor, attention to humor that might be perceived as offensive, and valuing student questions and participation. They ultimately conclude that “[c]reating a better classroom climate for female students, then, is not radically

\(^{197}\) Mary Crawford & Margaret MacLeod, supra note 89, at 120.

\(^{198}\) Id. at 121 (citing Hall & Sandler 1982).

\(^{199}\) Id. This finding is supported by Constantinople et al., supra note 90, at 547.
different from creating a better classroom climate for male students.²⁰⁰

The contemporary studies comparing educational and social environments at women's colleges and coeducational colleges offer mixed reviews. Students attending single sex schools do provide positive responses regarding their academic experiences. Certainly some experiential differences exist between single sex and coeducation, but the extent to which the gender composition of the educational environment promotes later career success is still unknown. Women's colleges may develop women's self-esteem or leadership abilities and researchers speculate that this personal growth may have implications for later career success, but the evidence demonstrating this correlation is largely absent, once confounding variables, such as prior individual background characteristics and school selectivity, are controlled.

4. Elementary and secondary single sex classes and schools
   a. Educational quality studies"
A number of early studies from the late 1970s to the late 1980s, both in this country and others, found academic advantages to single sex education for girls. Research in the mid to late 1990s calls these findings regarding performance advantages into question. The more recent data suggests that variables other than sex explain the performance differences, and that once appropriate controls are introduced for these other variables, measurable differences disappear.

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201 See, e.g., CORNELIUS RIORDAN, GIRLS AND BOYS IN SCHOOL: TOGETHER OR SEPARATE? 111 tbl.5.7 (1990)(showing that both boys and girls in single sex schools outperform their coeducational counterparts, scoring about seven-tenths and eight-tenths of a grade higher, respectively); Emmanuel Jimenez & Marlaine Lockheed, Enhancing Girls' Learning Through Single-Sex Education: Evidence and a Policy Conundrum, 11 EDUC. EVAL. & POL'Y ANALYSIS 117, 121 (1989)(examining a population of eighth graders in Thailand and finding that girls in single sex schools achieved higher scores than girls in coeducational schools on a mathematics test, but finding that boys in coeducational environments scored higher than boys in single sex schools). Anecdotal evidence supports this conclusion. “At the Young Women’s Leadership School in East Harlem . . . 90 percent of the students score at or above grade level in math, compared to 50 percent citywide.” Susan Estrich, Time to Give Single sex Education a Chance, HOUS. CHRON., May 21, 1998, at 46.
Some of these early studies demonstrated the effectiveness of private schools, particularly Catholic schools. In a study intending to assess the relative efficacy of Catholic and public school education, Cornelius Riordan compared SAT and cognitive test scores for a set of 899 Catholic school students (in single sex and coeducational environments) and 9,526 public coeducational students and examined longitudinal educational attainment data for these

students. He found a generally stronger academic program in Catholic single sex schools.

Catholic single sex schools were “nearly twice as effective as Catholic mixed sex schools,” but “females in Catholic single sex schools do not turn their high school cognitive advantage into greater educational attainment.”

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204 *Id.* at 536. Riordan found, however, that while the cognitive tests favored the Catholic schools, with respect to SAT scores, “public schools are nearly equal to Catholic single sex schools in the verbal test and clearly superior in the math test.” *Id.* at 528.
Using data from a 1982 national survey database, Valerie Lee and Anthony Bryk studied a random sample of 1,807 high school students in 75 Catholic high schools (45 single sex and 30 coeducational). Lee and Bryk controlled for some student background differences — ethnicity, socioeconomic status, college plans, religion, and school socioeconomic status and ethnic composition. The results showed that the Catholic girls’ school students outperformed those in coeducational Catholic schools in the categories of academic achievement, educational aspirations, and sex role stereotypes. Lee and Bryk concluded that “single sex schools deliver specific advantages to their students, especially female students.”

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206 Id. at 381.
Lee and Bryk initially viewed the advantages as school-type effects, although cautioning that the advantages might be attributable to lower student-to-teacher ratios enjoyed at the single sex institutions and faculties at the single sex schools who held more advanced degrees and had a lower turnover rate. Lee and Bryk also noted that parental involvement was a salient factor: families “specifically choose single sex schooling because of presumed benefits for their children.” Thus, single sex schools tend to enroll more students whose parents have higher academic expectations than do coeducational schools. Also the High School and Beyond data base used by Lee and Bryk did not contain initial measures of student abilities. Thus, Lee and Bryk did not control for “possible preexisting differences in academic achievement, prior course work, locus of control or other school-related behaviors and attitudes that were considered as outcomes.”

Reviewing her own body of research in 1998, Lee observed that she found positive effects from single sex schools “only in Catholic schools. The findings there were consistent: positive effects for girls but no difference for boys.” She emphasized the same results did not occur outside the Catholic school context: “We found no consistent pattern of effects for attending either single sex or coeducational independent schools for either boys or girls in

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207 Id. at 391.

208 Richard Harker & Roy Nash, School Type and the Education of Girls: Co-ed or Girls Only? at 3 Paper delivered at the American Educational Research Association Annual Meeting (March 24-28, 1997)(“the High School and Beyond data-set has no clear cut and agreed measure of initial ability, and resort has to be made to a variety of proxy variables”).


210 Valerie E. Lee, Is Single-sex Secondary Schooling a Solution to the Problem of
Lee explained that some of the Catholic school studies, based on data collected in 1980 and 1982, might be dated, compared to the independent school data which was collected in 1989 and 1990. She also noted that Catholic schools occupy a particular "social location," serving more minority and economically disadvantaged students, where single sex education may be more effective. Her previous work had indicated significant self-selection effects in students' choices of whether to attend single sex or coeducational schools: religious affiliations, socioeconomic class, and family traditions of private education "characterize students who select the single sex school option."
Other researchers echoed Lee's concerns that the relative performance advantages of Catholic students in single sex environments were attributable to family background, prior student achievements, and heavy academic and disciplinary emphases at Catholic schools.\textsuperscript{214} Herbert Marsh suggested that many early studies failed to control for pre-existing influences, and concluded: "Because single sex schools are more likely to be private selective schools, their students are typically brighter, come from higher socioeconomic backgrounds, may be more highly motivated, and differ from coed students on a variety of other preexisting variables that probably invalidate the interpretation of single sex/coed comparisons."\textsuperscript{215} Lee ultimately offered her opinion, based on over a decade of research, that "separating adolescents for secondary schooling is not an appropriate solution to the problem of gender inequity in educational outcomes, either in the short or the long run."\textsuperscript{216}

\textsuperscript{214} See, e.g., Karl L. Alexander & Aaron M. Pallas, \textit{supra} note 202, at 171("69 percent of Catholic school students in the [High School and Beyond] study report they are in a college preparatory track, compared to 34 percent of public school youngsters"); James S. Coleman, et al., \textit{Cognitive Outcomes in Public and Private Schools}, 55 SOC. EDUC. 65 (1982); Christopher Jencks, \textit{How Much Do High School Students Learn?}, 58 SOC. EDUC. 128 (1985).


\textsuperscript{216} \textit{Id.} at 46.
Recent studies suggest that no differences exist between Catholic coeducational and single sex secondary schools. In 1996, Paul Lepore and John Warren investigated whether any institutional differences advantaged girls in single sex Catholic secondary schools. Unlike Bryk and colleagues, who conducted studies of students after they entered high school, Lepore and Warren began observing students before they entered high school. Thus, they were able to control for pre-enrollment differences. After pre-enrollment differences were taken into account, Lepore and Warren noted that the only differences favored the coeducational schools. With respect to girls, they concluded “Nowhere did we find statistically significant positive effects of single sex school enrollment for girls.” In short, they found no advantages to Catholic single sex schooling.

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218 Id.
The American Association of University Women (AAUW) noted a paradox that consistently emerged in the studies of students' perceptions of single sex classes and empirical measures of student achievement: “Whereas girls perceive the classrooms in many cases to be superior, and may register gains in confidence, these benefits have not translated into measured improvements in achievement." A variety of studies both in this country and others show that girls attain boosts in confidence from single sex settings, but show no corresponding increase in performance abilities. Researchers have expressed concerns that this disparity between perception of abilities and their reality may lead to a “false sense of security.”

Numerous studies, both in the United States and abroad, find no significant differences between coeducational and single sex schools regarding their impact on student performance and achievement. A five year longitudinal study tracked student performance as two single sex

219 Separated by Sex, supra note 92, at 22.

220 See, e.g., Gilah C. Leder & Helen J. Forgasz, Single-sex Mathematics Classes in a Co-educational Setting: A Case Study, paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, Louisiana, 1994, (copy on file with author). A high school in Melbourne, Australia, experimented with single sex math classes for all tenth graders. While boys and girls thought they had benefitted from single sex classes, test results showed that “performance levels for males and females were not significantly different throughout the project year.” Id. at 22. See also Kenneth J. Rowe, Single Sex and Mixed Sex Classes: The Effects of Class Type on Student Achievement, Confidence and Participation in Mathematics, 32 AUSTRALIAN J. EDUC. 183 (1988).

221 Leder & Forgasz, supra note 220, at 2.

222 See, e.g., T.J. Harvey, Science in Single-sex and Mixed Teaching Groups, 27 EDUC. RES. 179 (1985)(mastery tests of 2,900 children in England showed “no advantage in teaching children in single sex science groups in mixed schools,” “girls in mixed schools perform better in science than girls in all-girls schools,” and “no difference was observed between boys in mixed schools and boys in all-boys schools.”).
high schools reorganized into two coeducational high schools. Surveys of the 2,250 students showed that both boys and girls experienced an increase in self-concept after the schools made the transition from single sex to coeducational. Academic performance, measured in mathematics and English, registered no significant differences, suggesting that “the transition benefitted both boys and girls in terms of multiple dimensions of self-concept and that these benefits were not at the expense of academic achievement for either boys or girls.”

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224 Id. at 237.
Another nationwide sample of students in Great Britain examined their academic achievements in coeducational and single sex environments at age 16. After controlling for family background variables as well as for prior individual student achievements at ages 7 and 11, Jane Steedman found “a very small advantage to girls in girls’ schools overall in general examination performance, an advantage not only over other girls but also over boys,” but also found “no disadvantage to girls in mixed schools relative to boys.”

Steedman concluded, though, once individual ability differences were controlled, the advantages dissipated, stating that “very little in these examination results is explained by whether schools are mixed or single sex once allowance has been made for differences at intake.”

Reginald Dale conducted extensive studies of schools in England and Wales, comparing coeducational and single sex schools for sets of 11 and 15 year old boys and girls. His principal conclusions related to social situation and academic performance. He concluded: “it has been demonstrated that the average coeducational grammar school is a happier community for both

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226 Id. at 98.
staff and pupils than the average single sex school.²²⁷ He also found no evidence showing all-
girls schools outperform coeducational schools and some evidence that coeducational schools
provided academic advantages over single sex schools for boys.²²⁸


²²⁸ “Throughout the researches there is a clear superiority of coeducated boys over boys
in boys' schools [in mathematics] . . . Similar superiority may exist for the coeducated girls over
girls in girls' schools, though . . . its amount is sometimes hidden by the operation of other
Some international studies have found single sex classes effective in boosting academic performance, at least for girls.\textsuperscript{229} Valerie E. Lee and Marlaine Lockheed studied a sample of 1,012 ninth grade Nigerian students in 40 single sex and coeducational classes, controlling for student background variables.\textsuperscript{230} They assessed educational aspirations, attitudes (such as self-perceptions of ability, motivation, perceived parental support, and gender-stereotypic views about mathematics) and achievement. They found that single sex schooling was beneficial for girls, but detrimental to boys: “Girls who attend single sex schools evidenced higher achievement in mathematics than their female counterparts attending coeducational schools. Conversely, boys who attend single sex schools score significantly below their male coeducational school counterparts.”\textsuperscript{231}

Even studies finding positive effects from an all-girl environment may come to mixed conclusions, indicating that the relationships among sex, institutional type, and academic achievement are complex. For example, Peter Carpenter and Martin Hayden's samples of 579 twelfth grade girls in Victoria, and 460 twelfth grade girls in Queensland, Australia, found that in

\begin{footnotesize}
\begin{enumerate}
\item See Marlene Hamilton, \textit{Performance Levels in Science and Other Subjects for Jamaican Adolescents Attending Single-sex and Co-educational High Schools}, 69 SCI. EDUC. 535, 541 (1985)(finding in a sample of 1,146 Jamaican high school students (529 boys and 617 girls), that students from single sex institutions demonstrated superior achievement to students from coeducational schools in geography, chemistry, and biology, but finding no statistically significant differences by institutional type in 19 other subject areas for which comparative data exists).
\item Id. at 225. Lee and Lockheed did note that the relatively larger class size in boys' school classes, and consequently poorer student/teacher ratios might have influenced these results.
\end{enumerate}
\end{footnotesize}
the Victoria attendance at an all-girls school was a statistically significant predictor of academic success, but not in Queensland.232

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While some of these studies have found differences favoring all girls schools, many if not most have consistently concluded that any differences are not statistically significant once background factors are controlled. In other words, variables other than school type actually account for the differences: “Once preexisting characteristics such as intelligence, prior academic achievement, motivation, and social class are controlled, however, the differences tend to be much smaller or nonsignificant.”  

Richard Harker and Roy Nash conducted a longitudinal study of over 5,000 students in 37 secondary schools in New Zealand, to assess the effect of school type (single sex or coeducational) on academic achievement, as measured by curriculum coverage tests of English, math, and science and national standardized examinations. While the girls at single sex schools scored higher than girls at coeducational schools, “when adequate control is exercised for the different ability levels and the social and ethnic mix of the two types of school, the initial significant differences between them disappear.”

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233 Marsh, supra note 209, at 71.

234 Harker & Nash, supra note 208, at 17 (using hierarchical linear modeling, which permitted simultaneous control of individual and school type variables, and finding that performance differences in all subject areas were accounted for). Harker and Nash noted that the New Zealand single sex schools are more socially exclusive and screen for students with high ability levels.
Several researchers have assessed the impact of the gender type of schools relative to other factors. Research from Australia, for example, showed that a student’s prior socio-economic status was a more important predictor of the student’s later performance in science than was the gender composition of the school.\textsuperscript{235} Herbert Marsh used data collected from across the United States by the National Center for Educational Statistics as part of its High School and Beyond project. Marsh assessed 75 outcome variables (measures of academic performance, course choices, and attitudes) for 2,332 Catholic high school students who attended 21 single sex boys’ schools, 26 single sex girls’ schools, and 33 coed schools.\textsuperscript{236} While he found a pattern of school type differences that favored single sex schools, such as higher educational aspirations,\textsuperscript{237} once he controlled for 13 background variables (preexisting social and academic influences), those differences disappeared. He stated that the differences found in his study “cannot legitimately be interpreted as school-type effects” because they are attributable to background differences, and concluded: “when appropriate controls were introduced, almost no differences in 1982 and 1984 outcomes could reasonably be attributed to the effect of school type and there was no tendency for the few differences that did exist to consistently favor students from single sex or coed schools.”\textsuperscript{238} The findings are consistent: whether a school is single sex or coeducation is insignificant relative to other variables, such as prior abilities of the


\textsuperscript{236} Marsh, \textit{supra} note 209.

\textsuperscript{237} \textit{Id.} at 78.
pupils, the students' economic and cultural backgrounds, and the traditions and reputations of the schools. 239

b. Environment studies

238 *Id.* at 80.

Researchers have compared experiences and attitudes of students in coeducational and single sex schools and classes. Several studies attest to differences in the classroom and extracurricular environment, with students perceiving, according to some studies, that single sex schools have a heavier academic emphasis (by this, they meant that students spend more time doing homework and less time in free play or extracurricular activities), while coeducational schools offer a more satisfying social environment.\(^{240}\) This value climate research is far from uniform, however, with a number of studies demonstrating either no differences or a superior academic emphasis at coeducational schools.\(^{241}\) The reported academic emphasis at single sex

\(^{240}\) Edison J. Trickett, et al., *The Independent School Experience: Aspects of the Normative Environments of Single-sex and Coed Secondary Schools*, 74 J. EDUC. PSYCHOL. 374 (1982)(finding also that single sex schools rated lower than public schools on rule clarity and teacher control, and noting no differences between single sex and coeducational schools in competition and innovation). *See also* N. T. Feather, *Coeducation, Values, and Satisfaction with School*, 66 J. EDUC. PSYCHOL. 9 (1974)(survey of 3,000 Australian secondary students showed greater satisfaction with coeducation than single sex education); Riordan, *Public and Catholic Schooling*, *supra* note 203, at 534-35 (“Students in Catholic single sex schools, both males and females, are more likely to be in a college track, more likely to spend five hours or more on homework per week, and more likely to report that their school had a good to excellent quality of academic instruction than either Catholic mixed sex or public schools.”); Frank W. Schneider & Larry M. Coutts, *The High School Environment: A Comparison of Coeducational and Single-sex Schools*, 74 J. EDUC. PSYCHOL. 899, 906 (1982) (“Coeducational schools are perceived by most students as having more pleasant atmospheres--both in terms of attending to the social-emotional desires of their students and minimizing the necessity of control and discipline.”). *But see* J. Charles Jones, et al., *Coeducation and Adolescent Values*, 63 J. EDUC. PSYCHOL. 334 (1972)(survey of 1,255 secondary students in Wellington, New Zealand finding a greater academic focus at single sex schools and some evidence that a single sex environment provided more student satisfaction).

\(^{241}\) See Schneider & Coutts, *The High School Environment*, *supra* note 240, at 903(finding “a marked similarity between the amount of intellectual emphasis in the two types of institutions”); Frank W. Schneider & Larry M. Coutts, *Teacher Orientation Toward Masculine and Feminine: Role of Sex of Teacher and Sex Composition of School*, 11 CANADIAN J. BEHAV. SCI. 99 (1979)(finding coeducational school teachers possessed stronger beliefs than teachers at single sex schools in students achieving specific content mastery).
schools may have more to do with an institution's academic reputation than its gender type, as well as with demographic characteristics of its students other than gender, since private school students “tend to come from affluent professional families.”

Single sex environments undeniably offer one sex more opportunities for leadership positions. Surveys and anecdotal reports attest that in single sex classes, girls are more willing to ask questions and volunteer answers. Yet the studies are far from uniform regarding the environmental and attitudinal benefits of single sex classes.

242 Trickett, et al., supra note 240, at 380.


Attitudinal studies have covered esteem, gender role fixity and sex stereotyping, student preferences for single sex environments, and student openness to gender-atypical subject matter areas. Some of the research results in the last of these areas tip toward finding some benefit of single sex schools. Several researchers have found that more students in all girls’ schools than coeducational schools have a positive attitude toward or preferences for typically masculine subjects, such as math or science.245 One researcher stated that “students attending single sex schools ‘seem to be less rigidly attached to traditional views about the appropriateness of subject areas by sex.’”246 More recent studies cast doubt on these earlier conclusions. A 1997 10 year longitudinal study of 1600 twelfth graders in Northern Ireland disputes this, finding that the “main difference” between single sex and coeducational schools was the “higher number of science subjects taken by girls in coeducational schools when compared with those from all girls' schools.”247


247 Alex McEwen et al., The Impact of Single-sex and Coeducational Schooling on Participation and Achievement in Science: A 10-Year Perspective, 15 RES. SCI. & TECHNOLOGICAL EDUC. 223 (Nov. 1997). See also Peter Daly, Science Course Participation and Science Achievement in Single Sex and Coeducational Schools, 9 EVAL. & RES. EDUC. 91 (1995)(conducting two surveys of students from Northern Ireland in the 1980s, and finding in one survey no appreciable difference by school type in students' participation in science, while in the other an advantage for coeducational schools in science participation).
A number of studies have found that single sex schools and classes may encourage female students to view subjects such as mathematics and science less stereotypically — not as simply “a male domain” — than do coeducational classes. But these same researchers note that the effect does not hold for all-male classes and schools: boys come away with “more stereotypic views of mathematics” as a male discipline.


\[249\] Id. at 227.
And, once again, studies disagree on the basic premise that sex segregation boosts girls’ affinity for nontraditional fields. One Canadian pilot program specifically designed to improve female students’ attitudes toward and participation level in mathematics segregated tenth graders by sex in mathematics courses, continued that segregation through twelfth grade, and then measured students’ attitudes, achievements, participation rates, and reactions. The study found “very little evidence that segregated classes have had a beneficial effect on female students’ attitudes toward mathematics.”

Any association that may exist between single sex education and openness to studying gender nontraditional subject matter areas does not necessarily translate into less rigidity in sex stereotyping generally. Perhaps some of the best evidence of whether single sex education will promote gender equity is research specific to measuring the incidence of sexist behaviors in single sex and coeducational classes and research regarding sex role attitude formation and

250 Sandra Sangster, Effect of Sex-Segregated Mathematics Classes on Student Attitudes, Achievement and Enrollment in Mathematics: A.Y. Jackson Secondary School, Year III 32 (unpublished paper on file with author, Mar. 1988). For one of the two cohorts, contrary to the expectations of the researcher, students of both sexes in the single sex classes “were significantly more anxious about math and less confident of their abilities as learners of mathematics” than were students in the mixed sex classes. Id. The study also found a lack of significant differences with respect to enrollment in upper level math courses and conflicting results on grades (advantages toward the single sex classes for one cohort, advantages in the mixed sex classes for the other).
gender stereotyping.

Valerie Lee and colleagues focused on whether single sex educational groupings affected the type or frequency of sexist incidents.\textsuperscript{251} The Lee group gathered data — observations, interviews and survey questionnaires of students, teachers, and administrators, and school records — from 60 private (20 each of boys', girls', and coeducational) schools. They concluded that sexist behaviors occurred in all types of schools:

In the boys' schools, problematic events, almost all of which were initiated by the teachers, occurred in 37 percent of the 29 classrooms. In coeducational schools, instances of sexism were observed in 54 percent of the classes, with about two-thirds of the events initiated by the teachers. And in the girls' schools, incidents of sexism were seen in 45 percent of the 29 classes — initiated mainly by the teachers.\textsuperscript{252}

The forms sexism took varied by school type. Single sex schools typically reinforced gender (perpetuated the idea of "conventional behaviors or styles typically associated with being male or female") and promoted "embedded discrimination — the residual sexism of a gender-stratified society that persists in such forms as linguistic usages, historical records, literary texts, or visual displays."\textsuperscript{253} In coeducational schools, "gender domination and active discrimination against females — which can occur only in environments in which both sexes are present — were


\textsuperscript{252} Id. at 103.

\textsuperscript{253} Id. at 104, 102.
Sexism thus arises in single sex as well as mixed sex groupings, although the forms of manifestation may differ.

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254 Id. at 104.
Studies have come to contradictory results with respect to effects of institutional type on gender role attitudes. Some researchers have found that women's colleges seem to promote greater liberalism with respect to gender issues.\textsuperscript{255} For instance, Valerie Lee and Helen Marks examined longitudinal data for 1,533 college students who had attended single sex Catholic high schools to evaluate the long-term effect of single sex education on attitudes and values.\textsuperscript{256} They found that compared to their coeducated counterparts, women who had attended single sex secondary schools were more likely to hold "significantly less stereotypic attitudes about the role of women in the workplace" and were more likely to be politically active by the end of college.\textsuperscript{257} These women were also more likely to attend more selective colleges, but this phenomenon may have related to the students' prior educational aspirations or specific academic

\textsuperscript{255} See, e.g., Lee & Bryk, supra note 205, at 389 ("Girls' school students were considerably less likely to evidence stereotyped role attitudes than were comparable girls in coeducational schools"); Trickett, et al., supra note 240, at 379 (students at coeducational schools reported less interest in the women's movement than students at single sex schools).


\textsuperscript{257} Id. at 584-85.
encouragement of the high school staff.\textsuperscript{258} 

\textsuperscript{258} \textit{Id.} at 588.
The majority of researchers, though, have found results indicating that coeducation will better prepare students for adult occupational and interpersonal roles, including the understanding of how to maintain long-term relationships with members of the opposite sex and how to avoid falling unthinkingly into traditional or stereotypic roles.\footnote{See, e.g., Giele, \textit{supra} note 153, at 100 (comparing survey responses of almost 3,000 graduates of Oberlin and Wellesley, with respect to the division of labor in the home, and finding that “75 percent of the Oberlin graduates chose the egalitarian solution compared with 66 percent of women’s college graduates.”); Miller-Bernal, \textit{supra} note 173; Cornelius Riordan, \textit{Single and Mixed-Gender Colleges, supra} note 163, at 342, 341 (finding that “women's college graduates are significantly more positive or enthusiastic about the changing role of women than graduates of mixed-gender colleges,” but that they were also more likely than their coeducational counterparts to embrace traditional domestic roles—marrying early and concentrating on full-time motherhood.). \textit{See also} B. F. Atherton, \textit{Coeducational and Single-sex Schooling and Happiness of Marriage}, 15 \textit{EDUC. RES.} 221 (1973); Schneider & Coutts, \textit{supra} note 240.} One study that randomly assigned boys and girls to either single sex or mixed sex math classes illustrates the point. The researchers concluded that “both boys and girls changed their attitudes more in the direction of gender equality when they were actually in mixed sex classes where they were forced to confront their preconceptions than when they were in single sex classes.”\footnote{Herbert W. Marsh & Kenneth J. Rowe, \textit{The Effects of Single-sex and Mixed-sex Mathematics Classes Within a Coeducational School: A Reanalysis and Comment}, 40 \textit{AUSTRALIAN J. EDUC.} 147, 153 (1996).} These results are consistent with those in Margaret Signorella, Irene Frieze and Susanne Hershey's longitudinal study comparing sex role stereotyping in single sex and mixed sex classes. The Signorella researchers found that “[g]irls in single sex classrooms showed some tendency to be more stereotyped in their perceptions of mixed sex classrooms than did the girls who were actually in that setting,” and otherwise showing “no consistent tendency for students in single sex...
classrooms to display less gender stereotyping.\textsuperscript{261}

\textsuperscript{261} Margaret L. Signorella, Irene H. Frieze & Susanne W. Hershey, \textit{Single sex Versus Mixed sex Classes and Gender Schemata in Children and Adolescents: A Longitudinal Comparison}, 20 PSYCH. WOMEN Q. 599, 599, 606 (1996)(studying transition of private all girls school to coeducational). Accord Mary Harris, \textit{Coeducation and Sex Roles}, 30 AUSTRALIAN J. EDUC. 117, 127 (1986)(surveying 538 Australian first year university students and finding that neither single sex nor mixed sex high school experience is “more likely to foster traditional sex role stereotypes, either with respect to self-description or in terms of what is desirable for men and women.”); Marsh, \textit{supra} note 209.
Several studies have found associations between single sex schooling and measures of self-esteem. Anne Foon's study of 1,675 Australian tenth grade students showed correlations between high self-esteem and single sex schools for males, but the results were inconclusive for females.262 One study of 2,295 students in 76 elementary and secondary schools in Northern Ireland, looked at self-esteem in four areas (athletic, cognitive, social, and general). The study found an association between esteem and single sex education, but noted that the greater self-esteem found among those attending single sex high schools was limited to the dimension of cognitive self-concept.263 Jacqueline Granleese and Stephen Joseph examined a study population of 169 girls from Northern Ireland and found similar scores on a self-reported scale of global self-worth between girls in single sex and mixed sex schools, but found differences in the determinants of self-worth.264 Girls at the single sex school were less self-critical of their behavior, while girls at the mixed sex school reported greater satisfaction with their physical appearance. Granleese and Joseph then speculated from these results that girls in single sex

262 Foon, supra note 248, at 53 (“The female sample did not produce consistent differences between school type and patterns of self-esteem”).


environments might allow themselves more freedom with behavioral role experimentation and thus might “become more flexible in their adult gender roles than girls from mixed sex schools.”

265 Id. at 529.
Other studies find that school type has little or no effect on self-concept. A four year study of a private Catholic school as it made the transition from single sex female to coeducational found “no significant differences” in self-concept for males or females after integration.266 Another similar longitudinal study that examined two single sex high schools that transitioned into two coeducational high schools reached even more favorable results: gains in self-esteem for both sexes, and no educational achievement differences following the reorganization.267

Single sex environments may encourage girls to be more open to traditionally masculine subjects, although the evidence on this point is mixed. Ultimately, the attitudinal studies show that sexist incidents occur in both single sex and mixed sex classrooms. They also demonstrate that separation of the sexes does not lead to less gender stereotypic views nor does it translate


into greater self-esteem.

5. Boys' schools and men's colleges

Most of the single sex research has focused on whether institutional gender has influenced girls' and women's educational experiences and career achievements. And at the collegiate level, so few all-male programs exist that it is extraordinarily difficult to evaluate them. Yet, the research that does exist regarding boys' schools and men's colleges is almost uniform in its conclusions: for white males, single sex educational programs demonstrate either no statistically significant benefits or some small, but significant, negative effects. The evidence

claiming advantages to all-male schools is principally anecdotal. Some research, however, shows benefits for disadvantaged boys.

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269  See, e.g., Caplice, supra note 6, at 246-47, citing Anthony DePalma, Picture a Men's College Circa '56: That's Wabash, N.Y. TIMES, Apr. 22, 1992, at B8 (“[M]en's schools have enviable records of producing a substantial percentage of students who pursue post-graduate degrees. For example, 13 percent of the all-male Wabash College graduates go on to receive a Ph.D., a higher percentage than at Harvard, Yale, or Princeton.”).

270  See Cornelius Riordan, Single-Gender Schools: Outcomes for African and Hispanic Americans, 10 RES. SOCIOLOGY EDUC. & SOCIALIZATION 177 (1994). See also Riordan, The Future of Single-sex Schools, supra note 92, at 53 (“The academic and developmental consequences of attending one type of school versus another type of school are virtually zero for middle-class or otherwise advantaged students; by contrast, the consequences are significant for students who are or have been historically or traditionally disadvantaged—minorities, low- and working-class youth, and females (so long as the females are not affluent.”).
The Lee and Bryk study, comparing performance of coeducational and single sex Catholic high school students, found advantages to single sex schools particularly for girls, but no statistically significant academic or achievement advantages for boys.\textsuperscript{271} Those students attending boys high schools, though, spent more time each week on homework. A follow up study by Valerie Lee and Helen Marks using the same data base, demonstrated that boys who attended single sex high schools experienced "no statistically significant effects, either positive or negative, on college attitudes and values."\textsuperscript{272} Lee and Marks did note, however, "two substantively important effects, both negative": "boys' school graduates are less likely to show concerns for social justice" and they are "less satisfied with the nonacademic aspects of their colleges," which the researchers' suggest "may reflect such students' relative discomfort in a coeducational social environment."\textsuperscript{273}

Other studies attest to performance advantages for boys in coeducational environments relative to boys in single sex schools.\textsuperscript{274} And some studies simply show no academic benefits or detriments to boys schooling. For instance, the 1996 study by Lepore and Warren, which traced Catholic boys' school students through high school, found that "across the high school years,\

\textsuperscript{271} Lee & Bryk, \textit{supra} note 205.

\textsuperscript{272} Lee & Marks, \textit{supra} note 239, at 585.

\textsuperscript{273} \textit{Id.} at 585-86.

\textsuperscript{274} CORNELIUS RIORDAN, \textsc{Girls and Boys in School: Together or Separate?} 111 tbl.5.7 (1990)(showing that boys in single sex schools performed more poorly on a series of academic ability tests than boys in coeducational schools); \textsc{Learning to Lose: Sexism and Education, \textit{supra} note 93, at ___ (concluding that “boys do better in mixed schools”); Lee & Lockheed, \textit{supra} note 230, at 225 (observing that in Nigeria “boys who attend single-sex schools score significantly below their male coeducational school counterparts. These results hold after differences in background, attitudes, schools, and teaching have been statistically equated across
boys in single sex schools do not increase their test scores any more than boys in coeducational schools."}^{275}

275 Lepore & Warren, supra note 217, at 505. Accord Lee, supra note 210, at 43 (cumulatively assessing the results of private, independent school research as finding “no consistent pattern of effects for attending either single sex or coeducational independent schools for either boys or girls.”). See also Steedman, supra note 225, at 96-97 (finding either no performance differences or the advantage tipping toward coeducation: “Boys in boys' schools did not differ from boys in mixed schools, on average” in general overall measures, although boys did perform better in single sex French classes by not “having to talk French in front of the opposite sex”).
Another fairly uniform outcome of experiential studies is that while females are generally favorable about their experiences, males are not. The findings of Leder and Forgasz are typical: “While most boys did not want to be in a single sex class the following year, most of the girls interviewed did.” General agreement also exists that girls in the classroom exert a positive influence on the behavior of boys. Boys, it seems, are benefitted by the presence of girls; all-boys classes may present greater managerial difficulties for teachers.

276 Leder and Forgasz, supra note 220, at 8. See also Sangster, supra note 250, at 34 (“Males provided negative comments more frequently than females, tending to feel that segregated classes are less challenging and competitive, and that students do not work as hard. Others found segregated classes to be less enjoyable, reporting that the atmosphere of regular classes is better. A sizeable proportion of students of both sexes commented that the program made no different to their attitudes, achievement or future plans.”).

277 See, e.g., Jimenez & Lockheed, supra note 201, at 120, 125 Schneider & Coutts, supra note 240, at 905.

One significant drawback to all-male educational programs is that they may promote sexism through teaching that explicitly countenances incidents of sexism. An observational study, including calculation and categorization of sexist incidents, at single sex boys and girls and coeducational schools, showed that “the severest form of sexism was found in boys' schools,” encompassing explicitly sexual and demeaning references to females. An expert witness observing interactions at the Citadel noted the all-male esprit de corps created a “hypermasculine ethos”: “It produces men who feel that they are superior to women, and it encourages racist and homophobic attitudes.” Students in boys' schools may “hold more stereotypic views” regarding innate abilities in particular subjects or later job possibilities. Even if sexism is not expressly permitted, the institutional structure or curriculum in an all-boys school may encourage the view of male exclusivity and dominance. Observational studies of other all-male groups, such as sports teams and fraternities, suggest that when male identities are constructed in a process that excludes women, masculinity becomes defined by misogyny and


280 Willinger, supra note 142, at 270. See also Cynthia Fuchs Epstein, The Myths and Justifications of Sex Segregation in Higher Education: VMI and the Citadel, 4 Duke J. Gender L. & Pol'y 101, 118 n.117 (noting the misogyny of students at the Citadel, who “frequently refer to females as 'pigs' and ‘slut.’”).

281 Lee & Lockheed, supra note 230, at 227.

282 Lucinda M. Finley, Sex-Blind, Separate But Equal, or Anti-Subordination? The Uneasy Legacy of Plessy v. Ferguson for Sex and Gender Discrimination, 12 Ga. St. U. L. Rev. 1089, 1118 (1996) (quoting professor David Reisman that “all-male educational institutions are 'likely to be a witting or unwitting device for preserving tacit assumptions of male superiority.'”).
male supremacy. In short, the majority of research suggests that boys are academically and socially best served in coeducational environments. The effects of single sex education for boys are thus, at best neutral, and at worst negative.

C. Summarizing the Studies: Conflicting Results, Confounding Variables, and Extrapolation Difficulties

1. Single sex research methodology

The two principal areas of agreement in single sex schools research are that researchers know less about the effects of single sex education for boys than for girls and otherwise a general consensus that many of the studies at different levels, whether measuring experiential or performance indicators, have come to conflicting results.

283 PEGGY REEVES SANDAY, FRATERNITY GANG RAPE: SEX, BROTHERHOOD, AND PRIVILEGE ON CAMPUS 154-92 (1990)(discussing the misogyny of fraternity rituals, initiation, and bonding); Walteen Grady Truley & Martha F. Davis, Public Education Programs For African-American Males: A Gender Equity Perspective, 21 N.Y.U. REV. L. & SOC. CHANGE 725, 739 (1994) (arguing that all-male sports teams often "support attitudes of male supremacy and actions hostile to women").

284 See Finley, supra note 282, at 1119.
Controlling for student demographic variables (such as family socio-economic status, prior educational attainments and predictors (grade point average and educational test scores), pre-existing career aspirations and beliefs is crucial in single sex research. One of the larger patterns that emerges from a review of the research over the past several decades is that studies in the late 1970s and early 1980s showing educational achievement and attitude effects favoring single sex schools and classes are being revised and disputed by more sophisticated studies in the late 1990s that include better controls for confounding variables. Earlier studies, those conducted in the 1970s and 1980s, are more likely to find correlations between a single sex environment for girls and positive achievement results. Later studies, from the mid 1980s to the present, and those with more sophisticated methodology (controlling for conflating variables), are more likely to find the effects of institutional gender type are insignificant and to show that other variables, such as prior individual student factors or institutional selectivity factors, matter much more to student satisfaction and performance. These later studies demonstrate effects that favor mixed sex over single sex education.

a. Studying non-random populations

Results from some of the early studies, particularly those of women's colleges, may be historically anomalous and not extrapolatable to present educational circumstances. The early single sex college research was conducted on study populations at a time when women were not admitted to Ivy League schools. Even today, single sex schools at all levels are a rarity, and most that do exist are private, which means that socioeconomic status may skew results of

285 See supra text at notes 134-39, elementary).

286 See supra text at notes 254, .
studies conducted at them. The number of women choosing to attend women's colleges has dropped dramatically. This means that the self-selection biases of people who choose single sex environments—these presumably are people who have some pre-existing affinity for surrounding themselves with members of their same sex—may be magnified.

Prominent Australian researcher, Kenneth Rowe recognized that truly experimental, or randomly assigned, populations are difficult to find in education. Over a ten year period, he conducted a series of three studies that concerned a sample population of students in the Australian Government's Participation and Equity Program. The program — unique in its experimental design — illustrates the difficulties of shifting populations and of the ways missing data on a host of variables can confound those under study.

See Separated by Sex, supra note 92, at 15.
In the Australian experiment, students were randomly assigned to single sex or coeducational middle school mathematics classes within a coeducational school. A 1986 study by Kenneth Rowe and colleagues indicated support for single sex classes, particularly all-girls classes, noting that “both boys and girls allocated to single sex classes gained higher levels of mathematics ‘achievement,’ and demonstrated more positive shifts in attitudes, than those of their counterparts in mixed sex classes.” In 1988 Rowe revisited performance data for 261 of the original 398 students, and while finding no statistically significant gender differences in either mathematics achievement or confidence for girls, he did find that boys in single sex math classes made significantly larger gains than boys in coeducational math classes, and he determined that students in single sex classes were more likely to demonstrate math confidence and to take upper level math courses.


289 Kenneth J. Rowe, *Single sex and Mixed sex Classes: The Effects of Class Type on Student Achievement, Confidence and Participation in Mathematics*, 32 AUSTRALIAN J. EDUC. 180, 196 (1988)(proclaiming that “by any criterion, the overall findings from the present study indicate that the institution of single sex mathematics classes at the school studied has been a success.”).
In 1996, Herbert Marsh and Kenneth Rowe reevaluated the earlier results of the random assignment studies.\textsuperscript{290} On reanalysis, which accounted for students shifting from one class type to another, and which took into account missing data, the results provided “no support for the advantages of single sex mathematics classes for either boys or girls.”\textsuperscript{291} In fact, the only outcome variable that remained statistically significant was “belief in the equality of sexes . . . and this outcome was negatively influenced by attending single sex classes.”\textsuperscript{292}

b. Study limitations and controls

\textsuperscript{290} Marsh & Rowe, supra note 256.

\textsuperscript{291} Id. at 153.

\textsuperscript{292} Id. The earlier study “implied that the results were particularly supportive of single sex classes for girls, but girls in mixed sex classes actually experienced larger gains for most outcomes and the only statistically significant difference (for equality of the sexes) was in favour of girls in mixed sex classes.” Id. at 159.
Many of the single sex education studies fail to control for variables that may account for the successes attributed to the gender type of an institution. Some of the better studies attempt to control for the effects of family resources or parental education. Yet these efforts involve using only one or two variables (like parental education or income level) to depict the larger patterns of family socialization. Indeed, many of the single sex education researchers disregard studies on career attainment or parental educational and career expectations that were not conducted in the single sex schooling context. And those studies show overwhelmingly that “familial socialization and resource allocation are key ingredients in maintaining sex stereotypes and norms that keep the gender stratification system intact.” They also demonstrate that parents tend to encourage mathematical achievements in boys more than they do in girls and accept lesser levels of performance from their girls. Parents have “different educational and career expectations for sons and daughters and these expectations influence those of their children.”

Even with appropriate controls for some important variables, so many factors remain uncontrolled. Some of the perceived academic advantages of single sex education may have more to do with factors such as parental involvement, class size, resources, the experimental nature of a single sex venture, or a greater wealth of assignments and feedback at a single sex

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295 Hanson, *supra* note 293, at 87.
In short, contaminating all of the research on single sex schools and classes is the inability to control for variables, and the disregard of a web of beliefs and influences, that may have much more profound impact on educational experiences and career attainments than does the gender composition of a class or school.

2. Reviewing the research

The touted “general consensus” about positive education and socialization effects of single sex education simply does not exist. Those who want to build a case for single sex education usually draw on the earlier collection of uncontrolled studies, small samples, and anecdotal evidence; the positive findings are repeated, but not analyzed. The early studies have been followed by less-anecdotal and more comprehensive studies with better controls and more sophisticated regression techniques, but those are not the studies cited by proponents.

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296 Sara Mandelbaum, supra note 132, at 84-85 (“There have been studies that are cited from other countries, such as Australia and New Zealand, but these improved outcomes cited from those studies appear to be attributable to other factors, such as the small class size, the commitment of the educators to quality education and the commitment of substantial resources.”).

297 Harker & Nash, supra note 208, at 2.
Regarding women's college achievement, the early Tidball studies showing strong correlations between the gender composition of schools and later career achievements have been directly disputed by later researchers using multiple regression techniques.298 The early studies failed to control for the critical factors of student academic and socioeconomic background and institutional selectivity and recruitment. Later studies re-examining the same data and other independent studies demonstrate that when those important variables were controlled, the differences between single sex and coeducational institutions disappear.

At both secondary school and college levels, female students will self-report that single sex educational environments are academically advantageous, but performance measures do not corroborate the self-perceptions.299 Two fairly well accepted advantages of single sex education are the effect of an all-girl environment on self-esteem and student satisfaction with their academic—but not social—life.300 This, of course, may be the point where self-selection matters the most. Some evidence exists that all-female educational environments may socialize women in ways that promote self-esteem or leadership abilities, but the link between this affective

298 See supra text at notes

299 See supra text at notes

300 See supra text at notes
response and later career prominence remains unproven. An equally well-accepted result of single sex education for males is the negative effective on student satisfaction and quality of educational experience.

301 Stoecker & Pascarella, supra note 160, at 403.

302 See supra text at notes
The studies regarding possible academic benefits of sex-exclusive environments come to widely divergent results. Again, the non-random study population issue resurfaces, because at the elementary level in the United States, virtually the only studies testing the efficacy of single sex schools have been of Catholic and private schools. Both Catholic and private school education possess features that make them unrepresentative of public education.\(^{303}\) What is missing from the data base is not just information on single sex public education generally, but also information on how single sex education affects males and females of color, of different socioeconomic backgrounds, religions, and sexual orientations.\(^{304}\)

\(^{303}\) Patricia A. Bauch, *Single-sex Schooling and Women’s Education* 5-6 (Paper presented at the Annual Meeting of the National catholic Educational Association March 1989)(noting that Catholic girls schools possess unique organizational characteristics, emphasize religious teachings, involve teachers in administration, attract more disadvantaged students, and “demonstrate a more caring atmosphere”). *See also* Separated by Sex, *supra* note 92, at 15 (discussing the influence of socioeconomic advantages of private school education and the ways these benefits affect outcomes of tests purporting to measure single sex advantages).

\(^{304}\) *See, e.g.,* Jacqueline Fleming, *Blacks in College: A Comparative Study of Students’ Success in Black and White Institutions* 52 (1984), cited in Smith, *supra* note 179, at ___ (comparing experiences of black women at coeducational, historically black colleges with single sex, historically black colleges, and finding that black women reported more self-confidence at the coeducational schools, while single sex schools encouraged “social passivity”).
It may seem that the accumulation of studies demonstrating positive effects to single sex education for girls make a compelling case that sex-exclusivity offers at least some benefits. Interpreting the accumulated research as a net benefit may be a mistake because of what education researcher Valerie Lee calls “the file drawer problem.” Research results showing statistically significant results commands publication opportunities. Research results confirming the null hypothesis resides in file drawers around the country. The imbalance between published studies showing benefits to single sex education and the unpublished studies showing no benefits may be enormous: “[T]he journals are filled with the 5 percent of studies that show Type I errors [in which differences are statistically significant at probabilities below .05], while the file drawers back at the lab are filled with the 95 percent of the studies that show nonsignificant (p > .05) results.”

Several respected experts in the field have suggested that achievements in single sex elementary and secondary environments should be attributed to variables other than sex-exclusivity, such as the academic focus of the school, the pro-academic choices made by students and parents, socioeconomic status of the students' families, small class size, the educational environment, curriculum, empathic teaching, strong female role models, and strict discipline, sometimes in a traditional religious context. The American Association of

305 Lee, supra note 210, at 42.


307 University of Michigan education professor Valerie Lee “credited the organizational and administrative characteristics common in single sex Catholic schools for their 'success,'” while Cornelius Riordan, who teaches sociology at Providence College, suggested that student characteristics made the difference: disadvantaged students who made a “pro-academic choice"
University Women Educational Foundation made this conclusion in its report, which reviewed the existing body of research on single sex education: single sex education per se was not generally better than coeducation.\textsuperscript{308}

3. The rarity effect

\textsuperscript{308} See infra text at note 336.
One factor that may explain why single sex education is touted to have advantages over coeducation is that since single sex schools in the United States comprise such a small percentage of schools, they tend to receive the most academically-oriented students.\textsuperscript{309} Since the 1970s, the coeducation movement forced many single sex schools to either close or enroll both sexes.\textsuperscript{310} The single sex schools that weathered the storm reaped the rewards of selecting the most gifted students along with increasing their prestige ratings.\textsuperscript{311} Thus, an increase in the number of single sex schools might result in less selectivity, depriving those schools of any measurable academic advantages.

\textsuperscript{309} Single sex schools comprise only 1.5\% of secondary educational institutions. David P. Baker et al., \textit{The Effects of Sex-Grouped Schooling on Achievement: The Role on National Context}, 39 COMP. EDUC. REV. 468, 469 n.5 (1995). \textit{See also} Mark Mueller, \textit{Students Rally Against Lasell Plan To Go Coed}, BOSTON HERALD, Oct. 15, 1997, at 006 ("Since 1960, . . . the number of U.S. women's colleges has dropped from 300 to 77."); Diane Ravitch, \textit{Things Go Better in Single-Sex Schools}, WASH. POST, Aug. 31, 1995, at A23("Today, only one percent of American students attend single-sex schools, and all but a handful of those youngsters are in Catholic or independent schools.")


In 1995, David Baker, Cornelius Riordan, and Mary Ellen Schaub examined this rarity phenomenon in their study of whether achievement differences in single sex schools could be linked to a country’s proportion of single sex schools.\textsuperscript{312} Their research included data from two countries with high percentages of single sex schools and two countries with low percentages of single sex schools — Japan and Thailand. Their findings revealed virtually no differences between single sex and coeducational schools in Belgium and New Zealand, where single sex enrollment comprised 68% and 48% respectively.\textsuperscript{313} In Japan and Thailand, however, with single sex enrollment of 19% and 14% respectively, they discovered significantly different achievement levels in single sex schools.\textsuperscript{314} They concluded that “[w]hen sex grouping is a unique characteristic, its effect on achievement may be larger than in systems in which different sex groupings are not connected to a special set of schools but rather are a large part of the

\textsuperscript{312} Baker et al., \textit{supra} note 309.

\textsuperscript{313} Their study population consisted of 102 classes and 2,714 students in Belgium, 77 classes and 1,152 students in New Zealand, 105 classes and 3,651 students in Thailand, and 203 classes and 7,605 students in Japan. “Only for Belgian makes is there a statistically significant difference between single- and mixed-sex schooling, favoring single sex schools.” \textit{Id.} at 474.

\textsuperscript{314} In Thailand, single sex schools were more beneficial for females than males, while in Japan single sex schools “yielded lower achievement for both sexes.” \textit{Id.} at 478.
national system.\textsuperscript{315}

\textsuperscript{315} Id. at 469.
Riordan explains that the advantages of sex-exclusive schooling may be related to their scarcity: “The more that [single sex schools] remain rare and special, the more effective they will be for the minority of students who select them.”\(^{316}\) This rarity effect may be the educational equivalent of the Hawthorne effect—the effect of observers on the observed phenomenon—and it may explain in part how to reconcile research showing advantages for girls in single sex environments with research showing an absence of advantages or disadvantages relative to coeducation. This rarity effect—and the consequent advantages to single sex education—may dissipate if single sex education becomes more prevalent.\(^{317}\) Similarly, as the AAUW’s 1998 report points out, “coed schools' attention to gender equity since the early 1990s may diminish the relative advantages of single sex education observed today, compared to those observed in the 1970s or early 1980s.”\(^{318}\)

**D. Educational Research as Political Ammunition**

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\(^{317}\) Richard Rothstein, *Single-Sex School Experimentation* (last modified Jan. 17, 1996) <http://epn.org/rothst/ro960117.html> (“At Baltimore's Coleman Elementary School, test scores jumped when genders were first separated, but then scores fell. Undaunted, the principal attributes reversals to many untrained teachers who joined Coleman's faculty that year.”).

\(^{318}\) *Id.*
Some of the support for single sex education rests on misinterpretations and misapplications of the works of educational theorists. Litigants will cite only selected studies that support their positions and discount or ignore the wealth of contrary data.\textsuperscript{319} Of course, who can blame lawyers for being advocates? Yet courts, too, rush to embrace studies that comport with their social visions.\textsuperscript{320} Scholars endorsing single sex schools emphasize the educational literature that favors their stance,\textsuperscript{321} while commentators accept as a virtual truism that

\textsuperscript{319} See, e.g., United States v. Virginia (Nos. 94-1941, 94-2107), Cross-Petitioner's Brief, 1995 WL 681099, at 14-16, 26-27.

\textsuperscript{320} The lower court decision in United States v. Virginia, 766 F. Supp. 1407, 1412 (W.D. Va. 1991), vacated, 976 F.2d 890 (4th Cir. 1992), aff'd, 518 U.S. 515 (1996), is an example of the point. Federal district court judge Jackson Kiser, a Reagan appointee and former United States attorney and Army Reserve captain, who elsewhere in the decision made clear his opinion of the dramatic and ineluctable physical and emotional differences between females and males, applauded the value of single sex education, stating that “[o]ne empirical study in evidence, not questioned by any expert, demonstrates that single-sex colleges provide better educational experiences than coeducational institutions.” Referring to this study and the early work of Alexander Astin — who testified as a witness for the government based on updated research — Kiser concluded that VMI was justified in maintaining in all-male school based on “very substantial authority favoring single-sex education.” Id. at 1412. For an excellent treatment of the use and reception of studies in the VMI case, see Dianne Avery, Institutional Myths, Historical Narratives, and Social Science Evidence: Reading the "Record" in the Virginia Military Institute Case, 5 S. CAL. REV. L. & WOMEN'S STUD. 189, 198-99, 278-79 (1996)(“While [Judge Kiser] found the clear and concise testimony of several key plaintiff's experts to be contradictory and unreliable, he generally adopted wholesale the expert opinions of the defense witnesses and, surprisingly, relied extensively on the vague, speculative and anecdotal testimony of their feminist historian.”).

“single-sex education benefits women.”\textsuperscript{322}

Consider several examples of the ways gender research is being taken out of context, given a political spin, and used for purposes for which it was not intended. The 1994 book of American University professors David and Myra Sadker, \textit{Failing at Fairness: How America's Schools Cheat Girls} confirmed that girls in coed classes were being neglected and ignored. Girls received less constructive feedback, and were asked fewer challenging questions; they were both rewarded and punished less. Textbooks omitted women's contributions to history. In a powerful and well-documented compendium, the Sadkers linked the textual gender bias and the subliminal messages in the curriculum and pedagogy to adolescent girls' diminished self-esteem:


Each time a girl opens a book and reads a womanless history, she learns that she is worth less. Each time a teacher passes over a girl to elicit the ideas and opinions of boys, that girl is conditioned to be silent and defer. As teachers use their expertise to question, praise and probe, clarify and correct boys, they help these male students sharpen ideas, refine their thinking, gain their voice and achieve more. When female students are offered the leftovers of teacher time and attention, morsels of amorphous feedback, they achieve less.\(^{323}\)

The Sadkers' works have been used repeatedly in varying contexts to support single sex instruction.\(^{324}\) But David Sadker spoke on National Public Radio in November of 1997, explaining that his and his late wife's work is being misinterpreted. Sadker said he often receives letters saying, “I read your book and we are starting a single-sex school.' That wasn't the point.”\(^{325}\) The Sadkers had hoped their research would prompt the survival and improvement of

\(^{323}\) Sadker & Sadker, \textit{supra} note 279, at ___.


Proponents of single sex education also draw on the work of Harvard educational psychologist Carol Gilligan to argue that “girls suffer when they study with boys.” Gilligan’s pioneering work in 1988 showed that when adolescent girls receive messages that nice girls value social conformity over individuality and confrontation, they lose intellectual confidence and begin to silence themselves. Defenders of both the Citadel and the Virginia Military Institute seized on her work as justification for their all-male admissions policy. Gilligan filed an affidavit in the Citadel litigation and, along with other academics, took the unusual step of filing an amicus brief in the VMI litigation to argue that her research was being seriously misused.


327 *Brief Amici Curiae*: United States v. Virginia, 14 N.Y.L.S. J. HUM. RTS. 237 (1997)(“Her research and theories were cited extensively by witnesses for VMI in support of its efforts to maintain its single-sex status. This use of her research distorts its findings, and she repudiates the conclusions drawn by VMI in this case.”).
In the affidavit, Gilligan said she was not describing naturally occurring traits of men and women, nor should her conclusions be used to justify sex-segregated education. Rather than curing them, single sex schooling would re-create stereotypic patterns of men's and women's learned and gendered behavior. Gilligan was deeply concerned that her research was being misapplied to justify Virginia's construction of a separate military academies for men and women, which Gilligan called "an embodiment of stereotypical thinking."  

In the VMI litigation, the federal district court embraced the 1977 work of Alexander Astin, in which he had concluded that "single sex colleges show a pattern of effects that is almost universally positive." Dr. Astin, however, testified on behalf of the United States in the VMI litigation and for Shannon Faulkner in the Citadel case, based on his updated research, that it was "not single sex status per se that yielded the positive effects observed for single sex colleges for men," since the advantages remained after the all-male schools he studied admitted

328 "[M]y observations about psychological development patterns that are generally associated with gender are not based on any premise of inherent differences between the sexes, but solely on the different nature of their experiences . . . . [M]y observations in no way support defendants' conclusions that an educational program for men designed to maximize certain ostensibly "masculine" characteristics is necessary, effective or beneficial, or that men necessarily profit from an all-male college setting. My research leads me to conclude that this is not the case." Affidavit of Carol Gilligan at 3-4, Johnson v. Jones, Civ. No. 2:92-1674-2 (D.S.C. filed Jan. 7, 1993), cited in Katherine Franke, The Central Mistake of Sex Discrimination Law: The Disaggregation of Sex from Gender, 144 U. PA. L. REV. 1, 85 (1995).

329 Brief Amici Curiae, supra note 327, at 260.

330 Astin, supra note 310, at 41.

331 That research was published in ALEXANDER ASTIN, WHAT MATTERS IN COLLEGE?: FOUR CRITICAL YEARS REVISITED (1993).

women.

In 1992, the American Association of University Women released the results of the study it commissioned the Wellesley College Center for Research on Women to undertake, which included a meta-analysis of over 1,300 studies. The findings, published in HOW SCHOOLS SHORTCHANGE GIRLS, demonstrate that both male and female teachers treat boys and girls differently. Teachers in coed classrooms challenge, encourage and praise boys more than girls, direct more attention to boys, and offer them more constructive criticism. Classroom lessons feature male characters; class texts show females in stereotypic roles. The AAUW report concluded that “boys are rewarded for aggressive behavior and girls become spectators at learning.”

The AAUW Report is frequently cited as support for the construction of single sex classes and schools. It was one of the pieces of research that provided the impetus for construction of the California single sex academies. Few were willing to listen to the cautions in the original report, which was never intended as a prescription for single sex schools. Some of the more modest conclusions in the report were ignored by proponents of single sex


335 Gale Holland, All-Girl Classrooms Don’t Help, Women’s Group Says, USA TODAY, Mar. 12, 1998, at 1A.
education: that insufficient research exists to demonstrate that self-esteem problems among adolescent girls are traceable either to pedagogy or to coeducation per se; that while small disparities still exist between boys and girls on standardized verbal and math test performance, those differences have been diminishing steadily for years; and that not all of the tilt favors boys.\footnote{336 How Schools Shortchange Girls, \textit{supra} note 123, at 16, 22-25, 34-36, 47-48, 54-56, 60.}
The AAUW's 1992 report has been interpreted in ways never intended by the authors. The AAUW's executive director, Janice Weinman, says, while the organization is not opposed to experimentation with single sex classes, “Our position is, we would like to see gender equity in coeducational schools.”\textsuperscript{337} The California chapter of the AAUW sent a memorandum to Governor opposing the “separate but equal” academies, and calling the pilot “a grave misuse of public funds.”\textsuperscript{338} The memo further states that “[t]he ultimate goal should be to create gender-fair learning environments in all co-ed public school classrooms.”\textsuperscript{339}

In 1998, the AAUW's Educational Foundation issued a report specific to single sex education, \textit{Separated by Sex: A Critical Look at Single Sex Education for Girls}, which included dialogue and papers from a roundtable discussion sponsored by the Foundation, as well as an assessment of the cumulative research on single sex classes and schools. The roundtable participants were in general agreement that while single sex programs had some positive effects


\textsuperscript{339} \textit{Id.}
for individual students in particular contexts,\textsuperscript{340} “researchers do not know for certain whether the benefits derived from factors unique to single sex programs, or whether those factors also exist or can be reproduced in coeducational settings.”\textsuperscript{341}

\textsuperscript{340} Cornelius Riordan stated, “My argument is there is an effect, but it's conditional. It only applies to students who are disadvantaged by virtue of their low social class or their low racial or gender status.” Separated by Sex, \textit{supra} note 92, at 5.

\textsuperscript{341} Separated by Sex, \textit{supra} note 92, at 2.
Individual roundtable participants stressed that the seeming successes of single sex environments were actually due to institutional or student characteristics other than gender, such as high academic standards, small class size, innovation and strength of the curriculum, excellence in teaching, parental involvement and a feeling of community. University of Michigan professor of education Valerie Lee attributed success to the “organizational correlates" of Catholic single sex education: “a curtailed all-academic curriculum (fewer course offerings, all of them in academic subjects), smaller schools, a more communal school organization, and more female principals.”\(^{342}\) Sociologist and single sex education proponent Cornelius Riordan said that student self-selection of a single sex environment constituted a “pro-academic choice," instead of embracing the anti-academic culture rampant in coeducational public schools.\(^{343}\) The AAUW Report, while preserving the possibility that single sex classes might offer advantages to some students, particularly girls, in certain subjects, concluded that “[t]here is no evidence that single sex education in general ‘works’ or is ‘better’ than coeducation.”\(^{344}\)

The pattern seems to be interpreting any data showing gender disparities harming girls as

\(^{342}\) Id. at 4-5.

\(^{343}\) Id. at 5.

necessarily leading to the solution of single sex education. Not only is the form of reasoning unnuanced (in mistaking correlation for causation), it is fallacious in the circular sense (assuming the very conclusion it purports to establish). The political use of existing educational research makes it difficult to trust interpretations of studies. As interpretations of Gilligan's, the Sadkers', and the AAUW's research attests, single sex education advocates are willing to reinterpret research results to support their political conclusions even when those conclusions do not comport with the researchers' results. Thus, attention to the original single sex schools research is vital, since translations of the social science evidence may misconstrue the results. An equally troubling problem occurs when one considers what sociological evidence has not even made its way into the debate, which is the subject of the next section.

E. Gendering: The Broader Social Picture

The contextual backdrop is missing from the single sex education debate. Most of the single sex education studies at all levels look only at the slice of the social picture that schooling represents. The studies themselves, and those using the studies to make political and legal arguments, fail to consider the larger social context of gender education provided by peers, families, churches, and the media, to name but a few influences.

The dimension of sociological evidence regarding sex-exclusivity that is often overlooked in the single sex schools debate is the very obvious fact of pervasive and persistent sex segregation in all aspects of daily living. We live in a world in which the sexes are socially segregated from birth to death: in names, clothing, possessions, sports, occupations, social
groupings, civic associations, and domestic roles.\textsuperscript{345} Gender separatism is so pervasive that it is almost invisible. It is woven into the fabric of our daily social routines.

\textsuperscript{345} See Levit, \textit{supra} note 106.
The tracking begins at birth with color-coded blankets. We unthinkingly gravitate toward the pink or blue aisle at Toys ‘R Us to shop for gender-“appropriate” toys. Boys, in particular, are discouraged, by peers, parents, and teachers, from cross-gender play activities.\footnote{See Claire Etaugh & Marsha B. Liss, \textit{Home, School, and Play—Training Grounds for Adult Gender Roles}, 26 \textit{Sex Roles} 129, 136-37 (1992); Clyde C. Robinson & James T. Morris, \textit{The Gender-Stereotyped Nature of Christmas Toys Received by 36-, 48-, and 60-Month-Old Children: A Comparison Between Nonrequested vs. Requested Toys}, 15 \textit{Sex Roles} 21, 30 (1986).}

Boys are trained to distance themselves from girls, in attire, attributes, and ultimately, occupations. As Kenneth Karst says, “In the hierarchical and rigorously competitive society of other boys, one categorical imperative outranks all others: don't be a girl.”\footnote{Kenneth Karst, \textit{The Pursuit of Manhood and the Desegregation of the Armed Forces}, 38 \textit{UCLA L. Rev.} 499, 503 (1991).}
In schools, even mixed sex schools, gender separatism is rampant. Sex segregated coat closets, lunch lines, home economics classes, playground and after school activities are only the beginning. Activities such as Little League, Boys Scouts, Girl Scouts, and social clubs spanning adolescence to adulthood, such as fraternities, sororities, the Elks, Moose, and Junior League have literally millions of members. Only in the mid 1980s, after a series of lawsuits, did the sex segregated civic associations the Jaycees, the Lions, and the Rotary merge with their diminutively named women's auxiliaries, “the Jaycettes, the Lionesses, and the Rotary-Annes.” Adolescent girls have curfews and are assigned housekeeping chores, while adolescent boys are more likely to play sports, use the family car, and attain economic independence through jobs or a more generous allowance.

Sex segregation persists during the working lives of most adults. Forty-one percent of men work in occupations that are more than 80% male, while 38% of women work in occupations that are 80% female. The extent of occupational segregation by sex is measured by an index of segregation. In index figures available for the 1980s, approximately 60% of women and men would have to switch jobs to achieve a perfectly integrated employment

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348 See Levit, supra note 106, at 98 (“In addition to the 5 million Boy Scouts, there are presently 3.4 million Girl Scouts. The nation's seven thousand fraternities and sororities boast nine million active members. These numbers do not begin to include the tens of millions of alumni of single sex clubs.”).

349 Id. at 97.

350 See John F. Peters, Gender Socialization of Adolescents in the Home: Research and Discussion, 29 ADOLESCENCE 913 (1994).

351 Barbara H. Wootton, Gender Differences in Occupational Employment, MONTHLY LAB. REV., Apr. 1, 1997, at 15.
Occupational sex segregation is accompanied by wage and status inequalities. In 1998, women still earned only 76 cents for every dollar earned by men for comparable work. Sociologists estimate that “as much as 75% of the gender wage gap is attributable to sex segregation.”

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353 Herstory, DALLAS MORNING NEWS, Aug. 26, 1998, at 5C. See also Diane L. Bridge, The Glass Ceiling and Sexual Stereotyping: Historical and Legal Perspectives of Women in the Workplace, 4 Va. J. Soc. Pol'y & L. 581, 597 (1997) (“women still constitute between eighty-nine and ninety-nine percent of all workers in lower paying and less prestigious occupations such as librarian, secretary, nurse, bookkeeper, and bank teller.”)

The past decade has witnessed a slight decrease in traditionalism regarding the division of domestic responsibilities and somewhat greater participation of fathers in child care, but in two-parent families (which is, by the way, our stereotypic mental picture—Ward, June, Wally, and the Beave—but represents less than a quarter of all families), the basic gendered division of household labor has changed very little. Even in households where both parents work, mothers spend twice as many hours performing domestic tasks as fathers.\footnote{Richard Morin & Megan Rosenfeld, \textit{With More Equity, More Sweat}, WASH. POST, Mar. 22, 1998, at A1 (citing sociologists Suzanne Bianchi and Daphne Spain)(“On average, working mothers do about 20 hours of housework a week, down from 30 hours two decades ago, while their husbands are doing 10 hours a week, up from 5 hours.”).} And household chores are themselves sex segregated: The memories children will carry with them to adulthood is of mom cooking dinner and dad mowing the lawn.
Other cultural institutions and influences reinforce the sharp segregation of the sexes and the beliefs that women and men should have different roles and responsibilities according to their sex. In 1998, the Southern Baptist Convention, a denomination 16 million strong, said that wives must “submit” themselves “graciously” to their husbands,\textsuperscript{356} promoting a fatherhood ideal that equates familial responsibility with patriarchal control.\textsuperscript{357} This separatism is not just a phenomenon of the religious right: Various men's movements' insist on men's separation from women.\textsuperscript{358} The House National Security Committee just voted to have separate military training for women and men, despite the recommendation of Defense Secretary William Cohen who advocated separate barracks but integrated training.\textsuperscript{359}

The significance for the single sex education debate of this pervasive pattern of sex segregation in all aspects of social life is twofold. First, it means that in considering the studies demonstrating advantages or disadvantages of single sex educational groupings, we must somehow assess the effect of pre-existing sex segregation in other aspects of students' lives, something none of the studies has done. Second, it means that any evaluation of whether sex segregated schooling will “work”—will develop the right capacities and send the right


\textsuperscript{357} Indeed some Promise Keepers literature says that the breakdown of the family can be attributed to “the feminization of the American male.” Levit, \textit{supra} note 106, at 179, citing Peter S. Canellos, \textit{Groups Making Reform Next ‘Guy’ Thing}, BOSTON GLOBE, Oct. 21, 1995, Metro, at 1 (quoting Rev. Tony Evans).

\textsuperscript{358} See Levit, \textit{supra} note 106, at 178-81 (discussing men's rights, evangelical, and mythopoetic men's groups).

messages—must be considered in light of the present cultural meaning of sex segregated institutions.

III. THE HISTORY AND PHILOSOPHY OF SEGREGATION

Supporters of single sex education talk about it as if it were an isolated matter—a class here, a school there across the country, an educational experiment—without the recognition of either how pervasive it is in other contexts or the historical and cultural connotations attached to segregation. Those who favor single sex education argue that we can vest it with new meaning. This myopic optimism ignores the historical and social meaning and impact of segregation.

A. The Historical and Social Meaning of Sex Segregation in American Education

The American history of sex segregated education dates originally to beliefs in innate differences between men and women: “higher education was considered by leading experts of the time to be dangerous and inappropriate for women. Experts claimed that scientific evidence established that women were physically and temperamentally not suited to the rigors of the academy. . . . Separate education for men and women paralleled the separate spheres that each was expected to occupy.” Publicly-funded elementary education began with boys—but not girls—being educated in state-funded schools in New England. It was not until the mid

360 Vojdik, supra note 120, at 83-84.
361 Susan McGee Bailey & Patricia B. Campbell, Gender Equity: The Unexamined Basis
nineteenth century that girls routinely became publicly educated in coeducational schools.362

Even though coeducational classrooms became common, "many school buildings constructed before the 1950s had separate boys' and girls' entrances."363

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363 Id. at 76.
The push for graduate coeducation was part of the women's rights movement in the latter half of the nineteenth century.\textsuperscript{364} Women's colleges were originally developed to be “female annexes as compromises in [the] battle for coeducation.”\textsuperscript{365} At the turn of the twentieth century, educators, particularly those in the South, fiercely resisted coeducation in elite all-male colleges, and “[m]ost of the Ivy League institutions would drag their feet well into the twentieth century before becoming coeducational.”\textsuperscript{366} Virginia's history of resistance to public education of women, described by Justice Ruth Bader Ginsburg in the VMI decision, is typical: “First, protection of women against higher education; next, schools for women far from equal in

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\textsuperscript{366} Pyle, supra note 133, at 271. Epstein, supra note 280, at 118 n.150 (“During the 1960s and 1970s almost all elite private colleges, including those in the Ivy League, opened their doors to women. . . . The notable exception is Columbia College, which remained all-male until 1983. . . . Yale and Princeton became coeducational in 1969, followed in 1972 by Brown and Dartmouth, and Harvard in 1976.”).
resources and stature to schools for men; finally, conversion of the separate schools to coeducation. In this country, the history of elite colleges is one of two hundred years of all-male education. Title IX, which prohibits discrimination on the basis of sex by schools receiving federal funds was not passed until 1972. For women in this country the history of coeducation with equal admissions standards is one that is less than 30 years old.

367 United States v. Virginia, 515 U.S. at 538.

Women were excluded from professional schools and professional life until quite recently. Until 1971, law school classes across the nation contained less than 10% women.\textsuperscript{369} In 1980, only 13% of physicians were female.\textsuperscript{370} The first women were not admitted into this country's publicly-supported military academies until 1976.\textsuperscript{371} More recent still is the exclusion of women from professional school faculties and professional organizations. Studies have

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documented patterns of gender inequality in hiring and promotion rates, salaries, institutional mobility, and job satisfaction. The refusal to grant women professional education paralleled the exclusion of women from leadership roles, professional organizations, the political process, and public life. Women were constitutionally excluded from voting until 1920 and from jury service until 1975.

372 See, e.g., Jacobs, supra note 350.

373 “Women founded their own anti-slavery societies, colleges, medical schools, and hospitals because they were excluded from comparable institutions run by men.” Virginia G. Drachman, Women Lawyers and the Quest for Professional Identity in Late Nineteenth Century America, 88 Mich. L. Rev. 2414, 2422 (1990).

Once admitted to educational institutions, women often were still unwelcome.\textsuperscript{375} And educational credentials did not translate into job opportunities.\textsuperscript{376} The consequences of sex segregation in education and the professions persist today. The legacy of the historic exclusion of women from educational and occupational channels of power lives on in continued deliberate employment discrimination against women, sexual harassment, undervaluation of “women's work,” and the persistent gender gap in wages.

\textsuperscript{375} See, e.g., Lani Guinier, et al., supra note 93, at 52.

\textsuperscript{376} “In 1960, when women earned about one-half of all college degrees and one-third of the graduate school degrees, they accounted for only about 7 percent of all doctors, 4 percent of all full professors, 3 percent of all lawyers and architects, and 1 percent of all engineers. . . . [I]n 1965, there were only three women partners of Wall Street firms and seven federal judges, and none were women of color.” Rhode, supra note 369, at 1173-74.
The exclusion of women from public educational institutions, and the battle for coeducation attests to the historical meaning of sex segregated education, which is pervasively to carry on the basic divisions and hierarchies within society. The separatism originated in beliefs about innate differences between women and men in inclinations and abilities, sentiments that comported with "widely held views about women's proper place." The existence of segregated higher education was itself, for centuries, a critical factor in the limitation of women's professional opportunities. And the social message of segregation, when considered in light of that history, could not be more clear. Major General Josiah Bunting III, president of the Virginia Military Institute, capsulized that meaning when he testified on behalf of the Citadel in its attempts to exclude Shannon Faulkner and preserve a 150 year history of sex segregated military education, that the admission of women into the all-male bastion would be a "toxic kind of virus."

B. State Sponsorship of Segregation

One of the premises of single sex education is that separate—if equal—does not imply inferiority or superiority. Can we reconstitute separate as good or invest it with new social meaning? The historical evidence discussed above suggests not: that we cannot divest single sex

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377 United States v. Virginia, 515 U.S. at 537.

education of its origins or history in such a short time frame. A more complete answer to this question, though, considers sociological and cross-cultural evidence regarding separatism.

The empirical evidence is undeniable that social separation on the basis of identity characteristics engenders feelings, habits, attitudes, and expectations of superiority and inferiority.379 State-sponsored separation promotes the idea of inherent differences between the

sexes: “State sponsored segregation perpetuates the mistaken belief that women are inherently different from men, not only in their cognitive abilities, but in temperament, personality, and psychology."\textsuperscript{380} The separation inevitably comes with a stigma. “In an unequal society, the exclusion of a subordinate group from association with the dominant group emphasizes the difference in power between them.”\textsuperscript{381} Construction of separate schools and even classes not only implies, it explicitly states and physically embodies, that the problem is the presence of the opposite sex.

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\textsuperscript{380} Vojdik, \textit{supra} note 120, at 70.

\textsuperscript{381} Mollman, \textit{supra} note 55, at 167.
Cross-cultural evidence supports the idea that state sponsored separatism implies hierarchy. Cultures that segregate the sexes are generally more repressive cultures. Societies in which women are spatially segregated typically are those with more rigid and traditional gender roles, and in which women are, economically, socially, and politically, second-class citizens.382 The segregation fuels economic and political stratification.383 The social, cross-cultural, historical evidence is that for women sex segregation is associated with rigid and traditional gender roles, economic stratification, and deliberate, invidious discrimination.

No way exists to measure the reconstructive effect of government-sponsored sex segregation. But consider as a parallel, the social meaning and continuing legacy of government-sponsored racial segregation. In Brown v. Board of Education,384 the Supreme Court stated that “[s]eparate educational facilities are inherently unequal.” The Brown Court recognized that the equal protection inquiry should not turn on comparisons of the “tangible factors” of educational “buildings, curricula, qualifications and salaries of teachers,” but on the symbolic message sent by the “segregation itself”: “To separate [grade and high school children] from others of similar age and qualifications solely because of their race generates a feeling of inferiority as to their status in the community that may affect their hearts and minds in a way

382 See, e.g., DAPHNE SPAIN, GENDERED SPACES 248-51 (1992). See also Shahla Haeri, Women, Law, and Social Change in Iran, in WOMEN IN CONTEMPORARY MUSLIM SOCIETIES 209, 216 (Jane I. Smith ed. 1980)(“Once outside of their homes, women needed another protective device to keep the segregation of the sexes intact. The veil replaced the protective walls and became women's shield in public.


unlikely ever to be undone.”\textsuperscript{385}

\textsuperscript{385} \textit{Id.} at 492, 494.
This recognition of the inherent stigma of separatism was omitted from the Supreme Court's VMI opinion. In fact, nowhere in the 23 page opinion is Brown v. Board of Education even mentioned. Thus the Court has not yet contemplated the idea that in the area of relations between the sexes, separate, by its very nature, might never be equal.

One lesson of Brown is that the legacy of segregation is extraordinarily difficult to overcome. Over time, government-approved racial segregation legitimated residential segregation (white flight), educational disparities, subtle forms of employment discrimination, and environmental racism. The ugly history of Jim Crow laws, and the messages of white supremacy and racial hatred they carried, lives on in virtually every area of economic, political, and social relations among the races.

Sex segregation undoubtedly differs from race segregation. The history of racism has been one of invidious discrimination rather than benevolent paternalism. And perhaps sex differences are perceived as more pervasive and structural (to individuals, to the family, and to

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386 Petitioner’s Brief to the Supreme Court raised the Brown issue, not as a specific preserved for review, but as a concern about segregated education: “Although single-sex education may not necessarily send a stigmatizing message that renders it ‘inherently unequal,’ cf. Brown v. Board of Education, . . . the exclusion of women from VMI does send a powerful, harmful message.” United States Supreme Court Petitioner’s Brief, United States v. Virginia, No. 94-1941 (filed Nov. 16, 1995), 1995 WL 703403 at 82 n.36.

The stigma concerns were not argued, and indeed were too readily conceded, in VMI: “the Solicitor General conceded that the state creation of two separate-sex institutions would not send any message that women were inferior.” Vojdik, supra note 378, at 8 (citing Transcript of Oral Arguments at 10-11, VMI II, --- U.S. ----, 1996 WL 16020 (1996) (Nos. 94-1941, 94-2107).

economics and politics) than racial differences. But given the history of sex segregation in American education and the social and psychological messages that such sex exclusivity carries, it is difficult to believe that state sponsorship of sex segregation can avoid imposing feelings of inferiority and superiority. The ideology of separatism—even “voluntarily" chosen separatism—carries with it a stigma: the message of something problematic about the presence of the other sex.

C. Diversity as a Constitutional Justification for Sex Segregation

One justification offered for sex-segregated schools is as a voluntary alternative to coeducation that provides a diversity of educational options. Pragmatics aside,\(^388\) the diversity argument is superficially appealing: it looks like a legitimate pedagogical choice that promotes pluralism.\(^389\) Diversity, though, is not a benefit claimed by educators, but one promoted by

\(^388\) See, e.g., McDermott, supra note 321, at 209 (“However, cost is likely to preclude this diversity in almost every instance. In light of the fact that many of the country's public schools are currently in financial jeopardy, it would appear impossible to give each student in every district the option of attending either a single-sex or coeducational public school throughout their academic years.").

\(^389\) The court in Williams v. McNair, 316 F. Supp. 134, 138 (D.S.C. 1970), aff'd, 401 U.S. 951 (1971), made just such a finding: “Flexibility and diversity in educational methods, when not tainted with racial overtones, often are both desirable and beneficial; they should be encouraged, not condemned.” See also Sandra Del Valle, Symposium: Legal and Policy Issues Raised by All-Female Public Education, 14 N.Y.L. SCH. J. HUM. RTS. 17, 27 (1998)(“The YWLS offers poor Latinas a choice within the public school context—that is, the possibility of a high quality education in the city for a population that desperately needs that choice”). The argument that parents and local educators should have “choices," though, is hauntingly reminiscent of the federalism arguments in opposition to racial integration made by Southern states during the Reconstruction era. See Robert L. Hayman, Jr., The Smart Culture: Society, Intelligence, and Law 336-37 (1998).
political supporters. More importantly, when closely examined the diversity argument unravels as little more than a semantic device.

See Bennett L. Saferstein, Note, Revisiting Plessy at the Virginia Military Institute: Reconciling Single-Sex Education with Equal Protection, 54 U. PITT. L. REV. 637, 656-57 (1993)(“The logical flaw with this [diversity] argument is that it substitutes the means for the ends in the scrutiny formula. The object is not to attain diversity per se, but to attain the best possible educational system.”).
As an empirical matter, the Supreme Court has indicated that the diversity justification is not acceptable unless both sexes are benefitted equally. 391 Thus, to make a constitutional case for diversity in the context of single sex education, schools would have to demonstrate equivalent benefits for males and females. The pedagogical research does not support this. Going back to the data on outcome measures, the “diversity” option of sex-sameness does not have a strong empirical backing for females and may actually be damaging for males. 392

As a theoretical matter, the diversity argument is slippery. What precisely is the meaning of “diversity” in the context of single sex schools? The diversity argument maintains that school systems should be free to provide a variety of educational choices. But the meaning of diversity in this context refers only to a narrow slice of experience — “system wide” diversity. Use of the term “diversity” in the single sex schools debate thus decontextualizes its meaning.

391 United States v. Virginia, 515 U.S. at 534 n.7 (requiring the State to “evenhandedly . . . support diverse educational opportunities.”); MUW v. Hogan, 458 U.S. 718, 731 n.17 (rejecting MUW’s diversity justification because it benefitted only women).

392 See supra text at notes.
If a school district creates single sex classes or schools, the students experience no diversity on the basis of gender within the individual school or classroom. In fact, it is precisely homogeneity that is sought. The diversity interest is simply an interest in segregation: it is “a reason to exclude, or to isolate and separate, constituent groups.” Sex separatism thus does not share the original diversity rationale of affording students a variety of racial, ethnic, social, or economic backgrounds. While Powell’s concurrence in *Bakke* suggested that “the attainment of a diverse student body” was a “constitutionally permissible goal,” this rationale should not extend to the converse: a student body that is absolutely the same in the only way that diversity is being measured.

The Court in *United States v. Virginia* determined as much when it rejected the diversity-of-educational-options argument used by VMI as a ruse to support traditional sex segregated institutions as something diverse. The Court disbelieved that the goal of diversity was the VMI’s motivation for preserving and all-male admissions policy. Recalling Virginia’s intransigent opposition to providing equal educational avenues for women, the Court held that “neither recent nor distant history bears out Virginia’s alleged pursuit of diversity through single sex educational options.” The Court implicitly held that 150 years of single sex uniformity was not diversity.

Nor is the same-sex educational choice diverse in the sense of larger social experiences,

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393 Mary M. Cheh, *An Essay on VMI and Military Service: Yes, We Do Have to Be Equal Together*, 50 WASH. & LEE L. REV. 49, 60-61 (1993) (“Diversity’ has too many potential meanings and too many negative possibilities to be blithely accepted as an all-purpose justification.”).


395 515 U.S. at 536.
given the pervasiveness of sex segregation in society.\textsuperscript{396} Thus diversity in the single sex education debate refers not to genuine diversity on an experiential (within the classroom) level or the broader societal level, only diversity at a narrow level of middle management. Diversity in this context means only sameness along the only dimension (gender) that is examined. The logic of the diversity argument becomes Orwellian in its implicit contradictions: sameness is diversity.

**IV. CONCLUSION: LIFE IS COED**

What markers should we view as important in determining both the constitutionality and the wisdom of single sex education? We know that daily both boys and girls suffer discrimination on the basis of sex in classrooms across the nation. We also know that the empirical research regarding sex segregated education is, at best, inconclusive. It is abundantly clear that the popular wisdom that single sex education provides significant academic and social advantages—that it is “better” for girls—is not borne out by the contemporary, more carefully controlled studies in the sociology of education.

The studies showing positive single sex outcomes are typically the earlier studies, based on data collected in the early 1980s. These studies are often those which fail to control for pre-existing differences among students and institutional selectivity factors. Self-reports by females at all educational levels show weak positive correlations between satisfaction and the single sex

\textsuperscript{396} See supra text at notes.
academic environment. Despite some experiential advantages (from warmth and friendliness to participation opportunities) for females, the studies show no consistent advantages in educational quality in single sex schools, once confounding variables are controlled.

While single sex schools and classes may (the evidence is contradictory) encourage girls to be more receptive to traditionally male subjects such as math or science, if boys are sex segregated, they may be nudged toward viewing those disciplines as all-male preserves. The research is generally in agreement that males do not blossom in single sex environments: they have less favorable social experiences, develop a "hypermasculine" ethos, and attain no compensatory academic advantages. Although the evidence is mixed, the weight of research suggests that for both sexes, sex segregation is generally associated with the formation of traditional or stereotypic gender role attitudes.

Even, and sometimes especially, those reports heralding benefits of single sex environments attest that sex separation can reinforce antagonistic feelings toward the opposite sex. Particularly in the context of anecdotal reports about successful experiments with single sex classes, the negativism of comments about the presence of the "opposite" sex is a repeated subtext: "‘Yes, it was great not to have the boys hogging the equipment.’” 397 "‘One sixth-grade girl entering a new single-sex class said, ‘Boys are loud, and they get all the attention.’ A boy in a parallel all-male school universe said, ‘Girls get you in trouble and make fun of you if you get the answer wrong.’” 398 These comments, while probably reflecting a pre-existing problem of masculine dominance in coeducation, may also illustrate the implicit lessons taught by sex

397  Parker & Rennie, supra note 277, at 122.
398  Ellen Goodman, Single-Sex Classes: Latest Education Fad Fails to Live Up To
segregation itself.

This cultural construction of gender is the dimension that has been omitted in almost all discussions of the benefits and detriments of single sex schooling. The persistent and pervasive sex segregation that already exists throughout society, in religious, educational, economic, and domestic spheres, comes with an ideology of inequality. The social history of sex segregation in America carries a legacy of disparate wages, opportunities, behaviors, combat duties, domestic responsibilities, and lifestyle possibilities. Images of appropriate, but unequal, social roles are attached, and attributable to, separation of the sexes. Particularly in education, separate has never before meant equal.

This raises the question to what extent a gender dichotomy necessarily means a hierarchy: Can there be a separation of the sexes without hierarchy? Given the history of gender relations—since exclusivity in both the public and private spheres for so many years implied a hierarchy of who was worthy to participate publicly—the assumption should probably be that the dichotomy implies a hierarchy.

A cumulative review of the available evidence—including the history and social meaning of segregation in education—suggests that the demonstrated benefits of single sex education are nowhere near sufficiently compelling to satisfy the constitutional requirement of an “exceedingly persuasive justification.” The argument that, irrespective of performance advantages, the mere existence of a single sex option provides educational “diversity” is troublesome—and not only because the diversity option is detrimental for males. Used in this way, diversity is shorthand for

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Billing, DALLAS MORNING NEWS, Mar. 18, 1998, at 29A.
the homogeneity of gender—that is the only “difference” of a single sex program. Thus, single sex classes and schools would be “diverse” as a matter of formal school choice, but part of the relentless sameness of sex segregation as educational and social experiences.

Given the flaws of single sex education, what will remedy the daily microinequities experienced by both sexes? It seems a less than radical suggestion to focus on the deficits of coeducation that have prompted the resurgence of interest in single sex education. Of course, this argument to revisit and “fix”coeducation understandably gives liberals pause. The “we need to be better at being fair” idea is hauntingly reminiscent of the argument that conservatives use regarding affirmative action.

But it is important to recognize that what we really have at present is just “mixed sex” education, not co-education: it is togetherness without equality. “Girls and boys are mixed together in our schools, but they are not receiving the same quality or quantity of education—nor are they genuinely learning from and about each other.”

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The single sex schools studies may be instructive in the move toward genuine co-education. What are the elements of single sex education that facilitate positive experiences?\textsuperscript{400} The studies indicate that certain components—other than the separation by sex—create equitable and effective educational environments: “(1) a relatively small student body that allows students to develop a sense of personalism and connectedness to the group; (2) a strong emphasis on academic content and achievement; (3) high expectations for student achievement; and (4) a shared understanding of and commitment to the school's mission and values.”\textsuperscript{401} In developing effective teaching methods and a useful curriculum—regarding gender, as well as other measures of success (e.g., drop-out rates), educators must continually study who is receiving attention in classrooms and what kind of attention is being received. We need to reevaluate curriculum, resources, technology, standardized testing, and homework, with an eye toward gender.\textsuperscript{402}

\textsuperscript{400} See, e.g., ANTHONY S. BRYK, ET AL., CATHOLIC SCHOOLS AND THE COMMON GOOD (1993) (analyzing the features of parochial schools that encourage student successes, including democratic administration, teachers who offer individualized student attention, high expectations of students, an academic focus in the curriculum, and an emphasis on character development); Kim and Alvarez, supra note 146, at 659-60 (while the gender of the faculty members was unrelated to the women's career aspirations, “[h]aving faculty who provided positive role models as well as emotional support and encouragement were associated with improvement in job-related skills.”). See also Deborah L. Rhode, Single-Sex-Schools Can Only Be Way Stations, Nat’l L.J., Aug. 18, 1997 at A19 (“Coeducational classrooms that use teaching strategies common in all-female environments have proven equally successful in improving girls' math and science performance.”).

\textsuperscript{401} Beth Willinger, supra note 142, at 256.

\textsuperscript{402} Richard A. Posner, Against Constitutional Theory, 73 N.Y.U. L. Rev. 1, 19 (1998). Altering the gender dynamics in coed classrooms may necessitate difference pedagogic approaches, such as offering “think time” (a reflective period of more time to answer questions) or promoting collaboration on projects. It will also require directly confronting issues of gender role stereotyping, addressing boys' embarrassment concerns and attention-demanding behaviors, and handling girls' self-esteem issues and lack of participation to avoid looking smart or foolish in front of boys. A classroom that promotes gender fairness will need to be tied to a culture of
Schools must not only attend to gender but move beyond it. And this demands organizing by pedagogical categories other than gender: differentiating based on other learning needs (multiple intelligences, giftedness, English as a second language, and so on).

gender equity. This will demand that teachers and parents work together to examine and dismantle the bombardment of cultural messages about gender, such as Mattel’s Teen Talk Barbie who said “Math class is tough.” See Gloria Borger, Barbie’s Newest Values, U.S. News & World Rep., Dec. 1, 1997, at 40.
We need to encourage teachers not only to be aware of gender inequities, but also to implement corrective strategies. While teachers may recognize broad patterns of discrimination, they may overlook the more subtle forms of gender-differentiated treatment regarding interactions, interruptions, and calling on volunteers. Despite enlightening theoretical work in the 1980s, many teachers in the late 1990s are generally not familiar with the causes of gender inequity. Even those who cognitively understand gender inequity may not be changing their behaviors. Studies of teacher-student interactions in the 1990s showed that “[t]eachers who believed that they were being "fair" were often shocked to see themselves on videotape behaving differently with boys than with girls. Their behavior was completely outside their awareness.” Importing these and other strategies from successful (not just single sex) schools and classrooms may move us toward equality in coeducational classrooms.

But shouldn't educators be permitted to experiment? A danger exists in generalizing whether anything is always good or bad. And perhaps, in some contexts, for some limited purposes, single sex classes are not inappropriate. Separating female and male middle school students for sex education classes (because of our notions of modesty and their possible embarrassment) or gym classes (because of size and strength differences) may be useful. The distinction here is between more individual or small group separations when sex is substantively relevant and a larger institutionalized pattern of government sponsorship.

403 (Plucker)

If the individualized “experiments” attain an institutionalized status, they risk promoting resegregation of the sexes. Sex segregation is a learned behavior. Institutions send messages about appropriate behaviors; and different customs and expectations about gender relations become habits, preferences, and “choices.” The flaw resides in thinking that an “experiment” of sex segregation will remain relegated to the classroom or to this generation of children. Even if single sex learning offers some benefits, reinforcement of segregation as good and right has long term consequences. The segregation itself sends messages. Numerous studies, in anthropology, sociology, and social psychology, demonstrate that structural segregation becomes developmental.405

405 See, e.g., Barbara D. Bianchi & Roger Bakeman, *Sex-Typed Affiliation Preferences Observed in Preschoolers: Traditional and Open School Differences*, 49 Child Development 910, 911 (1978) (one study of preschoolers demonstrated that in traditional classrooms, children played in mixed sex groupings only 30% of the time, while in an “open” school classroom, with one male and one female teacher, who carefully avoided sex segregative behaviors (such as creating boys' and girls' lunch lines or tables), the children played in mixed sex groups 60% of the time.).
Even supporters recognize that, in its best light, single sex education is a means, not an end.\textsuperscript{406} If the strategy of temporary separatism is part of a longer term strategy of egalitarian treatment, what will impel integration? When and how? Some supporters of single sex education want to promote the traditions emanating from single sex schools in the past. Others, typically feminists who believe (despite the empirical evidence) that the separatism will afford girls a compensatory boost in self-esteem, confidence, and leadership positions, want to afford females the most immediate educational and social advantages. Both, though, accept the structure of a competitive society; neither is looking at a society of equal concern for others. Overlooked on the one hand is the reconstructive meaning of sex separatism; overlooked on the other hand is the issue of what happens to the boys. In short, the social visions of single sex supporters focus either on the present or the past. The separatists focus on presentism; the traditionalists look retrospectively. Futurism comes out nowhere; omitted is the kind of society we want to create. Gaell Hildebrand points out that single sex classes may “give the appearance that a school system is ‘doing something’ about gender equity ‘without [changing] any of the . . . ways that gender is socially constructed in schools.’”\textsuperscript{407}

\textsuperscript{406} United States v. Virginia, 515 U.S. at 545.

Single sex education does not teach toward creating improved coeducation: “It does little to help those females who are not in the all-female program; it does nothing to help males learn to respect females and treat them more equitably; nor does it change teachers’ behavior so that they will be more equitable in the classroom including intervening when discriminatory behaviors occur.” One of the saddest parts of the single sex education debate is the acceptance of boys behaviors of domination. It views the dominating behaviors of boys as somehow innate or unchangeable. The single sex remedy harkens back to a protectionist model of putting girls in a safe place, away from the male terrors. Separation flatly ignores the problem of how males and females are going to learn how to behave among one another.

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The “separate can be equal” argument thus presents a paradox: if separate is equal—and the Court will require “substantial equality in the separate educational opportunities”\textsuperscript{409}—then what is the point of separation? If separate is intended to provide different educational opportunities—a curriculum designed for gender differences,\textsuperscript{410} some of which may be cultural creations—we risk recreating the differences. If, for example, we separate high school girls and boys (making scrupulously sure the facilities, resources, and academic offerings are equal, down to the number of pencils), offering the girls a Cooperative Curriculum and the boys a Competitive Curriculum, which group will be better prepared for the competitive labor market? Sex segregated education not only reinforces the idea that gender differences matter (and those differences are declining), but that gender is paramount (over ability, different individual learning styles (audio or visual), emotional differences (structured or unstructured settings), and other pedagogical issues. Even assuming gender differences exist, it is the significance we give to the differences that, in Martha Minow's words, “makes all the difference.”\textsuperscript{411}

Segregation by sex is the primary defining feature of gender in America. From the pink and blue tracking at birth, boys and girls are raised in two separate gender cultures: in clothing, haircuts, toys, playgroups, social organizations, sports, and jobs—virtually every institution and

\textsuperscript{409} United States v. Virginia, 515 U.S. at 554.

\textsuperscript{410} See, e.g., Corcoran, \textit{supra} note 1, at 1016 (“As the design of YWLS and Detroit's Academies demonstrate, school districts tailor their single-sex schools to perceived "tendencies" of the sex for whom the school is intended. It is likely that single-sex schools promulgated by school districts will contain disparate programs depending on the sex for whom the school was designed.”).

\textsuperscript{411} MARTHA MINOW, MAKING ALL THE DIFFERENCE: INCLUSION, EXCLUSION, AND AMERICAN LAW (1990).
facet of American cultural life segregates boys and girls, right down to the coat closets in the schools. At this juncture, state sponsored sex exclusivity is unlikely to vest segregation with new meaning. Sex segregation with connotations of inequality is of too recent vintage—indeed, it has never left us. Equality of opportunity requires boys and girls to live and learn together, because life outside the classroom is coed.