Historical Overview of the Single-Sex Education Debate

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My purpose is to provide a brief overview of where we have been and where we are now in this ongoing debate. As a result of the need to be brief, I will focus on history and research in the United States.

One of the key issues in the United States has been the long-standing tradition of public schools being for both sexes. Rigdon (2008) attributes this convention to economic realities of the compulsory school attendance laws that covered all states by 1918 (e.g., see Katz, 1976), which would have meant maintaining separate schools for each sex would have been too expensive (see also, Riordan, 2002). Shmurak (1998) focuses more on social factors such as the various beliefs of early feminists and educators in the superiority of mixed-sex schools. In any case, the single-sex opportunities were clustered in the private sectors throughout the first half of the 20th century.

The focus for what seemed to be a final blow to public single-sex educational efforts in the U.S. was Title IX, which in 1972 prohibited sex discrimination in federally funded education (Rigdon, 2008; Shmurak, 1998). Although Title IX did not completely ban single-sex educational efforts, Rigdon (2008) argues that there were only supposed to be single-sex “options...in very limited circumstances” (p. 538). In fact, in the years following Title IX there were isolated attempts to institute single-sex classes and schools, some of which were also aimed at economically disadvantaged and/or minority populations (e.g., see Salomone, 2003).

In the early to mid 1990s, there were several books published that helped to renew the debate over single-sex education. Among these were two reports from the American Association of University Women (AAUW), Shortchanging girls, shortchanging America (1991) and How schools shortchange girls (originally issued in 1992), Reviving Ophelia (Pipher, 2002, first published in 1994), and Failing at fairness: How our schools cheat girls (Sadker & Sadker, 1995). These reports focused on gender-related classroom and school inequities and girls’ supposed loss of self-esteem during adolescence. There were, not surprisingly, hysterical headlines that resulted from these works, (e.g., "Teenage turning point: Does adolescence herald the twilight of girls' self-esteem?" [Bower, 1991]; "Little girls lose their self-esteem on way to adolescence, study finds" [Daley, 1991]; originally identified by Kling, Hyde, Showers, & Buswell, 1999). Much of the articles’ content was, however, more nuanced, and identified major problems in the self-esteem research itself that subsequently were addressed in two meta-analyses (Kling et al., 1999; Major, Barr, Zubek, & Babey, 1999).

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1 In R. S. Bigler, L. Eliot, M. M. Ferrara, L. S. Liben, & M. L. Signorella (Chair), Single-Sex Schools: Debates, Data, and Decision-Making. Symposium presented at the meeting of the Gender Development Research Conference, 2 M. L. Signorella, Psychology Department, Penn State Greater Allegheny, 4000 University Drive, McKeesport, PA 15132, msignorella@psu.edu
In spite of the findings from the two meta-analyses that self-esteem gender differences were relatively small and dependent upon ethnicity (Kling et al., 1999; Major et al., 1999), some attribute an upsurge of interest in single-sex education to the fallout from the original books and reports (e.g., Barnett & Rivers, 2004; Pollard, 1998). In addition, there were (and still are) concerns about the academic achievement of minority girls and boys that some felt could be addressed via single-sex education (e.g., Pollard, 1998; Riordan, 1998; Salomone, 2003).

One of the famous projects that may or may not have directly stemmed from generally increased interest in single-sex education took place in California. Governor Pete Wilson spurred a move to open single sex schools in the late 1990's (e.g., Lewin, 1997; Rothstein, 1996). Datnow, Hubbard, and Conchas (2001) reported that Wilson’s initial plans seemed to focus on different goals for boys and girls, with boys’ schools emphasizing at-risk students and girls’ schools math and science. This wave of experiments did not last long. One factor leading to the quick end was an evaluation undertaken by researchers including Amanda Datnow and Lea Hubbard. The original report, which is critiqued on the website of the National Association for Single Sex Public Education (NASSPE; National Association, 2010a), is no longer available at the link provided by NASSPE nor anywhere else. NASSPE approvingly cites Christina Hoff Sommers’s (2001) characterization of the report’s authors as “gender wardens” because of what they reported occurred in the schools:

Students received mixed messages about gender. While both were told women could be anything they want, girls were made aware of restrictions on their behavior reinforced through expectations about clothing and appearance. Boys were led to assume that men are primary wage earners, that they should be strong and take care of their wives who were emotionally weaker (Zwerling, 2001).

It does appear that segments of Datnow and her colleagues’ report were published in journals and an edited book (Datnow et al., 2001; Hubbard & Datnow, 2002, 2005). In fact, although Hubbard and Datnow are critical of many aspects of the California program, some of which are related to the implementation rather than the concept, they also have positive things to say about the experience of the students (in particular, see Hubbard & Datnow, 2005). But the data collected were mainly qualitative and did not include measures of longer-term achievement, and thus are not viewed as extremely useful in answering the lingering questions about single-sex education.

Another factor that led to the demise of the California single-sex initiative in the late 1990s (Datnow et al., 2001; Zwerling, 2001) was a new AAUW report in 1998, one that was seemingly at odds with earlier AAUW projects (“AAUW changes tune on gender bias impact…”; Bowler, 1998). AAUW had commissioned several papers on single-sex education, including an overall review of the literature, and invited researchers in the field to attend a one-day conference to discuss the results. I was one of those invited to attend, as a result of the research I had done with my colleagues Irene Frieze and Susanne Hershey on the transition in a local independent school from single-sex to mixed-sex (Signorella, Frieze, & Hershey, 1996). Our results were among several discussed that showed no
advantage to the single-sex environment. The overall conclusion of the resultant AAUW report, *Separated by Sex* (1998), was that there was no consistent evidence in favor of single-sex schooling in general, and that some positive findings for single-sex education might be as a result of other factors present in the single-sex environment. It is not clear, however, how widespread or long-lasting the impact of the 1998 AAUW report might have been because only a couple of years later the U.S. government began revisions to Title IX guidelines that would increase the support for single-sex public schooling.

In 2001, several senators, including Kay Hutchinson and Hillary Clinton, inserted a provision into an education bill that provided money for single-sex schools and classrooms (Schemo, 2002). As a result of the anti-discrimination stipulations of Title IX, the bill also required the Department of Education to handle the apparent paradox, and thus the Bush administration "made clear its intent to change the guidelines and regulations" (Schemo, 2002, para. 2). The actual rules were not issued until 2006 (Schemo, 2006), following a period of comment on the proposed changes posted in 2004 (Rigdon, 2008) and a review of the literature by the Department of Education completed in 2005 (Mael, Alonso, Gibson, Rogers, & Smith, 2005). At the same time, the Department of Education also commissioned a review of existing single-sex schools (those included were in operation as of 2003; Riordan, Faddis, Beam, Seager, Tanney, DiBiase, Ruffin, & Valentine, 2008).

The 2005 review of the literature (Mael et al.) is the most comprehensive look at the situation currently available, but there are several serious problems with this review, most of which are identified by the authors themselves. Rigdon (2008) further raises the concern that given the weaknesses of the data set that it is not appropriate to make such a major change in the federal guidelines. Is the data set fatally flawed? First, as Rigdon (2008) emphasizes, there were a large number of studies thrown out of the final comparison. I should note that one of those discarded studies was mine. What is puzzling to me is why—first it was classified as a qualitative study and then later excluded for one or more of a list of reasons that included "work that was actually quantitative in nature rather than qualitative" (Mael et al., 2005, p. 6). And if I cannot figure out why my own study was excluded, then inclusions and exclusions may not be obvious to a general reader, although the large proportion tossed out is obvious to any reader (from 379 to 40 quantitative and 4 qualitative studies, pp. 5-9).

Another puzzling aspect of the Mael et al. (2005) review was their failure to do a meta-analysis (see p. 11). One understandable problem they reported was not being able to compute effect sizes, a common issue for meta-analysts. The puzzling part was that they “did not compute effect sizes or perform meta-analyses because the studies did not meet WWC standards for evidence of causality” (p. 11). (WWC refers to the What Works Clearinghouse, a U.S. Department of Education project [http://ies.ed.gov/ncee/wwc/]) I understand that much of the research, including my own, falls into the quasi-experimental to correlational domain, and thus cannot be used directly as causal evidence that an intervention, in this case a single-sex school, was effective. That does not mean that one cannot obtain important insights into a body of nonexperimental research via meta-analysis. It might not have been necessary to throw out as many studies if instead the methodological strengths and weaknesses were part of the coding of each study and tested
as moderating variables.

Mael et al. (2005) did try to be careful in making conclusions from their review. But essentially what they ended up doing was the old review method known as vote-counting, a method now widely believed to be inadequate (Borenstein, Hedges, Higgins, & Rothstein, 2009). The crux of the argument being made by Mael et al (2005), and one I have seen repeated elsewhere, is that even if the percentage of studies showing an advantage for single-sex schools was less than the percentages showing no effect or an advantage for mixed-sex schools, it was still notable that there were more studies showing an advantage for single-sex schools than there were showing an advantage for mixed-sex schools. Unfortunately, this is precisely the sort of situation in which meta-analysis is helpful. Without knowing whether the studies with no difference were consistently leaning in one direction or another, this body of findings is difficult to use. Other problems include small numbers of studies in some categories, and fewer comparisons with boys, both identified as problems by Mael et al. (2005), and what looks to me as nonindependent comparisons (i.e., comparisons from the same sample) being counted separately.

The other Department of Education study that was requested around the time of the Title IX guideline changes was done by Riordan et al. (2008). They conducted observations, surveys, and interviews at up to 19 single-sex schools. Their results show a variety of positive impressions by students, faculty, and parents that included perceptions of a more academic orientation and positive social interactions, but without assessing academic achievement. Interestingly, they were able to get only two mixed-sex schools to agree to participate to provide a comparison, and they also labeled their single-sex schools as nonrepresentative samples.

A crucial point that virtually everyone makes is that proper experimental evidence is lacking. Riordan et al. (2008) outline the ideal; namely, that “researchers should randomly assign students who wish to attend single-sex schools to single sex or coed schools and plan on following the study participants over a relatively long period of time” (p. x). I would raise the question, however, about whether we truly cannot draw firmer conclusions using the available data, which although not ideal, are certainly not impossible.

These various reviews and the results of the changes in the federal guidelines have left us not much further ahead than we were in 30 years ago. Nonetheless, according to NASSPE there has been an increase in the number of public single-sex schools or classrooms between 2002 and 2010 from 12 to 540 (National Association, 2010b). The single-sex education proponents are split between those who believe there are significant and enduring differences in male and female brains that must be accommodated in school versus those who believe that single-sex education is one means of addressing social problems (Weil, 2008). Are we are still debating the issue in large part because we lack the information needed to draw a definitive conclusion, or is evidence in fact irrelevant to the decisions being made at all levels from local to federal? Even if the latter is true, I believe we still have a responsibility to advocate for policy based on data.

References
Barnett, R., & Rivers, C. (2004). *Same difference: How gender myths are hurting our relationships, our children, and our jobs.* (Amazon Digital Services ed.)


