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Addressing Educational Inequities

Margaret L. Signorella
The Pennsylvania State University
msignorella@psu.edu

Carroll et al. (2023) focus on gender and SES as crucial factors in predicting student progress in the highly sequential math curriculum. The importance of addressing educational inequities in the essential math domain is high. A recent National Science Foundation report stresses three major points (Rotermund & Burke, 2021). First, mathematics is one of the foundational areas in elementary and secondary school for later entry into STEM majors and careers. Second, US students have not progressed in math in the last 15 years, while the performance gap between the highest and lowest levels has increased. Third, disparities persist, with many from traditionally underrepresented groups, such as African Americans and Latino Americans, evidencing lower scores on tracking tests such as the NAEP. Moreover, as directly addressed in this monograph (Carroll et al., 2023), students from lower SES backgrounds also lag behind their peers from higher SES circumstances. At a time when public education is under attack (e.g., Rogers & Kahne, 2023), developing ways for students to be more successful in math and overall in school are pressing questions.

There are many complexities in examining the personal and situational factors impacting progress in math. Although there are no consistent gender differences in math performance, and there are now more women than men enrolled in college, girls and women are still not aspiring to or entering some STEM majors and careers at the same rates as boys and men, most notably in engineering, computer science, and physical sciences (National Science Foundation, 2022). In the Carroll et al. (2023) study, girls and low SES students with low expectations for success "were the most likely to have their performance suppressed by the gender stereotyping in the classroom" (Carroll et al., 2023, p. 94). Overall, boys from lower SES families had a high risk of not advancing in math. These complexities highlight the need to consider multiple factors and mediators and intersectional identities.

The Carroll et al. (2023) discussion of recent research suggesting that school or academic achievement is too "feminine" or at least inconsistent with some conceptions of masculinity has echoes of earlier controversies around gender and education. The reverberations I am experiencing come from the long-standing claims that, indeed, school is too feminine for boys -- or relatedly, that boys learn differently than girls (e.g., see Liben, 2015). Julia Grant's (2014) important historical perspective dates concerns about "boy problems" in school to the start of

compulsory education and failures to support immigrant and poor boys whose employment options and needs were not closely tied to education. Grant (2014) provides many examples of early 20th-century writers raising some of the same fears as early 21st-century writers (e.g., Edsall, 2021), including the concern that women would someday outnumber men at universities.

Real, ongoing educational disparities and inequities need to be addressed. The purpose of presenting this historical perspective is, therefore, not to dismiss the real risks that boys from low SES backgrounds or girls in stereotyped classrooms are facing, but rather to recommend that we not fall back on failed solutions to these problems. I have previously written about the efforts to solve gender and racial disparities in school performance by proposing single-sex schooling (e.g., Signorella & Bigler, 2013), and how those proposals are often centered around the same arguments that have been put forth for a century or more. These various mechanisms have been touted as ways in which single-sex education removes educational inequities both gender- and racially-based, but support for the claims has proved elusive (e.g., Bigler et al., 2014; Pahlke et al., 2014). Even more important is Bigler et al.'s (2014) conclusion that we know about effective interventions and none of them require gender segregation to work.

Interventions proposed by Carroll et al. (2023) similarly do not require segregation by gender or any other social category, but they do require other changes, such as teacher training. To assess the effectiveness of these interventions, there needs to be research in the real world of schools, teachers, and their students. The best evidence will come from randomized control trials that are correctly executed. Anyone who has done research in schools knows how difficult this can be, as illustrated by dueling meta-analyses on mindset interventions that were published in Psychological Bulletin (Burnette et al., 2023; Macnamara & Burgoyne, 2023), just as the Carroll et al. (2023) monograph appeared. The differing conclusions from these two papers will be debated, but what are important points from both are best practices identified for future educational research on the important question of whether and how much growth mindset interventions work, and specifically in this context, help ameliorate educational inequities.

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