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Can we expect more of teachers?

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Abstract

Robinson et al. (2013) use nationally representative longitudinal data on a cohort of kindergarten students to argue that teachers' gender biases play a substantial role in creating gender differences in mathematics achievement. In this comment, I first underscore the importance of unpacking the black box of mathematics and understanding how gender differences in specific mathematics skills are related to subsequent gender differences in other areas of mathematics. Second, I place questions of teacher bias in a larger sociological context, arguing that we should not be surprised that teachers subscribe to widely held stereotypes, and suggest that focusing on the shortcomings of teachers can mask the role that we as a society play in creating and maintaining these inequalities.

Keywords

teacher bias; gender; mathematics; world society; status characteristics theory; teacher-deficit perspective

Robinson et al. (2013) highlight the substantial role that teachers play in creating the gender differences that emerge in mathematics among elementary school students. In this comment, I first discuss the importance of looking within the blackbox of mathematics in order to better understand the emergence of gender differences in future research. Second, I reflect on the broader implications of this comment's titular question: Can we expect more of teachers? In doing so, I seek to place research on teacher biases in a larger sociological context, and argue that while teachers can be powerful agents of change, it is unclear whether they can unilaterally redress the inequalities that we collectively maintain.

Unpacking Mathematics

What do we mean by mathematics when we say that there are gender differences in mathematics? Research on gender differences in mathematics typically conceives of mathematics as a unidimensional construct, with boys typically scoring some fraction of a standard deviation higher than girls. However, in a recent study using the same ECLS-K data as Robinson et al. (2013), Gibbs (2010) presents results suggesting that the emergence of gender differences in mathematics achievement might vary across domains: while sizeable gender gaps favoring boys appear to emerge and grow monotonically in some domains (e.g. fractions), the gender gaps in others (e.g. multiplication and division) appear to be relatively stable. Finding that there are different patterns across subdomains is not necessarily incompatible with Robinson et al.'s account, as one can imagine that teacher biases might predict differences in the development of new skills, but that skills already

mastered by boys and girls in earlier grades might not be influenced by their current teacher's biases.

Why might this matter? In order to understand the emergence of gender differences in mathematics, it is important to have a firm grasp on how mathematics skills at a given time build on the skills learned earlier. Research in this vein suggests that procedural skills from number lines are key skills that low SES students fail to master, inhibiting their mastery of algebra, which forms the basis for higher level math (cf. Siegler et al. 2012). Were research on gender differences in mathematics to take a similar perspective, we might find that teachers at specific grade levels where key material is covered are particularly important in shaping later gender differences. Thus, while it is certainly appropriate to consider the emergence of gender differences in mathematics broadly, particularly given that processes like stereotype threat are more likely to function at these higher levels of abstraction, it seems likely that there are insights to be found in work that recognizes specific kinds of mathematical skills and considers them separately. Indeed, it seems unlikely that larger questions around the emergence of gender differences in mathematics achievement can be fully understood without unpacking and accounting for the nuanced relationship between the various skills and procedures that students are learning under the larger umbrella of “mathematics.”

Can we expect more of teachers?

I next want to consider the implications of Robinson et al.'s findings for education policy and reform. Robinson et al. provide an important demonstration of one avenue through which gender differences in mathematics are socially constructed, highlighting the substantial role that teachers play in creating these differences. While Robinson et al. are careful to note that their exact percentages may not be accurate, and call for additional research on factors like parents and peers, the thrust of their argument is that teachers' biases fuel much of the development of girls' disadvantages in mathematics, potentially accounting for as much as 85 percent of the gender gap.

It is important to note that Robinson et al. are not alone in suggesting that teachers are biased against girls (see, e.g., Sadker and Sadker 2013; Spender 1982). Interestingly, other research suggests that boys' academic struggles might be partially attributable to teachers as well (e.g., Younger, Warrington, Williams 1999; Sommers 2013), so that it is difficult to think of students who would be unaffected by teacher bias. Beyond bias, researchers have highlighted the role of teacher expectations and quality in reproducing inequality (cf. Rosenthal and Jacobson 1968; Sanders and Rivers 1996), and argued that teachers' low expectations contribute to student delinquency (Demanet and Van Houtte 2012). The idea that teachers are deeply implicated in our education system's problems comprises a substantial current of education reform and popular discourse on education (e.g. Felch, Song, and Smith 2010; Green 2010; Thomas and Wingert 2010), much of which adopts a “teacher-deficit perspective” (Ingersoll 2005: 175), suggesting that our teachers are, if not *the* problem, certainly a large part of the problem. Taken together, this begs the question, what can we as a society reasonably expect from our teachers?

In particular, should we expect our teachers to be immune to the stereotypes that exist elsewhere in society? If our educational system is meant to socialize students, then at some level it seems odd not to expect it to be a key site of the reproduction of inequality (cf. Bowles and Gintis 2013), even as we strive and hope for it to fulfill its role as society's great equalizer. While we might wish that education would be the one social institution free from gender, race, class, and other biases, it is not clear that it is reasonable to expect such exceptionalism. Further, setting aside institutional-level biases, even if it were the case that relatively few teachers were biased, the likelihood of a student encountering a biased teacher at some point in their educational career is still quite high (Lucas 2009). And if the experience of having a biased teacher is more powerful than the experience of having non-biased teachers, this effect could be quite important.

It thus seems eminently reasonable to conclude that teachers are part of the problem, and that teachers can be powerful agents of change, but it is less clear whether it makes sense to expect teachers to not act based on the prevailing cultural scripts in society, even if we are trying to rewrite these scripts. Thinking about teachers in their broader cultural context underscores the importance of thinking about how broader societal norms shape schools, classrooms, and the interactions that occur within them. On this front there is much that can be learned from research by John Meyer and colleagues examining how it is that world culture shapes our lives more broadly and our educational systems in particular (e.g., Meyer, Ramirez and Soysal 1992; Schofer and Meyer 2005). Unfortunately, the primary critique of this line of research is that it can be agent-less, and that it offers little sense of how agents might interact with or alter these scripts. So while these insights are of great importance in helping us understand the world, and why it is that teachers recreate inequality, if the point is to change the world (cf. Marx 1845), understanding these scripts which are simultaneously “everywhere and nowhere” (Hardt and Negri 2009: 190) offers us little guidance and hope for doing so.

Here, however, critical theory and social psychology converge unexpectedly: echoes of Hardt and Negri's argument that every site becomes a potential site of resistance to the hegemonic order reverberate in work by Cecilia Ridgeway Shelley Correll, and their collaborators examining status hierarchies and how they can be undermined. Drawing on work showing that status relevant characteristics like gender, race, and class affect whether people are perceived as competent, Ridgeway and Correll (2006) show that exposure to individuals questioning the status hierarchy changes the degree to which status-linked characteristics affect competence ratings. This research highlights that when people are left to draw on prevailing cultural scripts and stereotypes, these stereotypes will affect competence ratings, but that these processes can be interrupted by challenging people's understanding of the relevant status beliefs. Ridgeway and Correll's (2006) experimental paradigm is instructive for thinking about how status hierarchies shape teachers' evaluations, as their task called for respondents to assess the competence of others in contexts where a third party either challenges or affirms the status hierarchy. In thinking about teachers' evaluations then, the question becomes: If our teachers are evaluating our students, whose status hierarchies are they drawing on, and what are we telling them as they make these evaluations?

So, can we expect more of our teachers? Or to put it more bluntly, are teachers the problem? I would argue that while teachers can be a big part of the solution, they are no more the problem than the rest of us, and that if teachers are reproducing inequalities, they are reproducing inequalities that we also play an active role in creating. Thus, while it is not clear that we can expect more of teachers, Robinson et al. and others make it clear that we need to, and I would add that in order to expect more of our teachers, we also need to expect more of ourselves.

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