

Intent to Pursue STEM Occupations in a Nationally Representative Sample of US Ninth-graders

In *A Framework for K-12 Science Education*, the National Research Council (NRC, 2012) challenges educators to focus on key components not always associated with science achievement, namely that stereotypical views about interest and ability exist and that certain demographic groups are not proportionally represented in STEM. The NRC recognizes that both motivation and interest can also play a role in achievement as well as in the pursuit of science related fields beyond school. The High School Longitudinal Study of 2009 (HSL:09) presents a remarkable opportunity for researchers to explore issues related to STEM using a nationally representative study of more than 21,000 9th graders in 944 schools from the 50 United States and the District of Columbia (NCES, 2011). The purpose of the proposed poster is to communicate select findings from the HSL:09 data set that might augment the current understanding of motivation and gender issues as they relate to students' intentions to pursue a career in STEM.

Numerous items on the HSL:09 student questionnaire were intended to explore factors that might predict students' choices of postsecondary paths and eventual careers, including math and science identity (measured by student level of agreement with statements such as "You see yourself as a math person), perceptions of gendered ability (measured by student responses to questions involving the comparison of males and females in mathematics and science), and perceptions of teacher impartiality (measured by student responses to a question related to the equal treatment of males and females).

A series of means analyses, including one-way between subjects ANOVA, indicated that ninth-graders did not perceive ability differences between males and females in either math or

science. Furthermore, male and female ninth-graders did not report differences in levels of identification with math or science. Finally, males and females both reported that their math and science teachers treated both sexes as equals. However, one alarming difference does emerge from the data set: 61% of US ninth-graders who intend to pursue a STEM career were males, compared to 39% females.

The National Academy of Sciences (NAS) argues that a national effort to sustain and strengthen science and engineering must include “a strategy for ensuring that we draw on the minds and talents of all Americans, including minorities who are underrepresented in S&E and currently embody a vastly underused resource and a lost opportunity for meeting our nation’s technology needs” (NAS, 2010, p. 1). Research has indicated that motivation-related beliefs of males and females follow gender stereotypes; males report stronger ability and interest beliefs in mathematics and science (for a review of research see Meece, Glienke, & Burg, 2006). Moreover, as noted in Meece, et al., teachers may contribute to gender differences in motivation by modeling sex-typed behavior, communicating different expectations or encouraging different activities and skills for males and females (Eccles et al., 1983). HSLs:09 data indicate a significant gender-related difference in intention to pursue a STEM career, but the data do not suggest that ability stereotypes or unequal treatment are necessarily responsible.