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Science Majors and Degrees Among Asian-American Students: Influences of Race and Sex in "Model Minority" Experiences

Both race and sex continue to be factors that stratify entry into science and engineering education and occupations in the U.S. Although researchers have examined race and sex effects separately, few have examined the complex ways in which they work together to affect science experiences. Asian Americans (men and women) have experienced considerable success in the sciences and have earned the label of “model minority.” We use a sociological (status attainment) perspective on achievement to examine the potential advantage that Asian American students have in pursuing science majors and degrees. The status attainment framework utilizes concepts that have been linked to success among Asian American students including family socio-economic status, family social capital (e.g., parent’s values, expectations, and involvement with children), and the individual characteristics (e.g., educational expectations, standardized science scores, etc.) they influence. We argue that Asian culture has a considerable influence in creating an Asian American advantage in the pursuit of science majors and degrees.

The research also utilizes a multicultural gender perspective when exploring the way in which race and sex come together to influence choice of science major and degree. The assumption here is that gender systems vary across cultures and Asian American women have a unique set of gender experiences and attitudes. Asian gender systems are often assumed to be conservative and restricting for women. A closer examination suggests considerable sources of agency and encouragement for young Asian American women in science.

Our sample consists of Asian American and white students in the National Educational Longitudinal Study (NELS). Findings suggest that being male and being Asian American are both associated with higher chances of pursing majors and degrees in science. The male advantage is greater than the Asian American advantage. The males in the sample are over twice as likely as the females to have chosen a science major or received a science degree (24% vs. 11% and 29% vs. 13%). Findings also suggest that race and sex interact in the science decision. For example, race differences (with an Asian American advantage) in choice of science major are significant for both women and men, but the differences are much larger among women. Thus Asian American men are more likely than white men to pursue science majors and degrees but this science advantage is smaller than the one that Asian American women have over white women in the science arena. Additionally, sex differences (with a male advantage) in choice of science major are significant in the white, but not the Asian American sample. Asian American (but not white) women and men are equally likely to pursue postsecondary science majors. We do not find this to be the case for science degrees, however. Here there is a male advantage in both the Asian American and the white samples (with a

smaller advantage in the Asian American sample).

Findings additionally show that family socio-economic status, family social capital, and (especially) individual characteristics help to explain race and sex patterns. Additionally, when Asian American youth have closer ties to the Asian culture they are more likely to choose science majors and degrees. The research concludes Asian culture and family patterns can create a positive environment for success in science for both Asian American male and female youth. Continued gender inequity in the pursuit of science degrees among “model minority” students does, however, exist. It is important that future educators, researchers and policy makers explore and acknowledge the complex routes through which race and sex statuses continue to affect achievement in engineering and the sciences.

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