
Research Brief

You, Zhixia. 2010. "Gender Differences in Mathematics Learning." *School Science and Mathematics*. 110(3): 115-117
<http://vnweb.hwwilsonweb.com/hww/jumpstart.jhtml?recid=0bc05f7a67b1790e656c3f451f334317790bbee68a46b7e1b336b49300ecfe24f7d7d9aee003e00a&fmt=P>

Synopsis: Considering the fact that mathematics and science are important disciplines to shape a number of academic and professional careers, the increasing gender gap in these disciplines has largely attracted the attention of the scholars, particularly in the past 3 decades. However, the findings of the research on gender differences in the mathematics and science disciplines often conflict with each other in terms of the extents of these differences, nature of these differences as well as the causes and consequences of these differences. To investigate the concerns regarding gender gap in mathematics learning the scholars have used many conceptual models such as social learning theory, social cognitive theory, theory of nature versus nurture, spatial ability theory, theories on socialization and, cultural and structural theories.

Likewise, the empirical findings also present diverse facts and figures about the gender relations in the mathematics and science disciplines within and outside academia. These results also emphasize on other factors like age, cultural and ancestral backgrounds, peer pressure and, teacher-student relationships. Yet, very few research projects have offered a positive and definitive solution to the given concern. Thus, the purpose of this research brief is to motivate the scientific community to ponder deeply on how women and men learn mathematics differently and what can be done on a substantial level to bridge the gender gap in mathematics and science learning.

Upcoming National or International Events

Event: Conference on Innovations in Gender, Sex and, Health Research
Location: Toronto, Canada
Date: November 22-23, 2010
Theses: Sponsored by the Canadian Institutes of Health Research (CIHR) and Institute of Gender and Health (IGH), this conference emphasizes the importance of Gender and sex in the arena of health research. Gender and sex-based issues will be explored in the disciplines of biomedicine, clinical studies, health services, population and public health and other social health-related disciplines. The conference intends to highlight how gender and sex-based issues and concerns impact and enhance the understanding of health research and thereby various public policies and programs. Thus, the conference will also focus on the ethical and moral issues of the study of gender and sex in the health-related disciplines. The conference intends to bring together scholars and academicians from several disciplines with common interest in gender, sex and health research. Thus, it attempts to initiate and enhance teamwork and partnerships among researchers and scholars to make substantial contribution to the fields of health care and policy implementations.

Deadline for abstract submission: June 17, 2010

Details: <http://www.f2fe.com/IGH/2010/Conference/>

Scholarly Publications

1) Hunter, Laura A. and, Erin Leahey. 2010. "Parenting and Research Productivity: new Evidence and Methods." *Social Studies of Science*. 40(3): 433-451

Using the longitudinal method of hierarchical linear modeling (HLM), the authors study the impact of having children and family on the productivity and visibility of the academic scholars within the disciplines of linguistics and sociology. In so doing, the authors have accounted for gender. Findings suggest that birth of a child significantly decreases the performances of the women scholars over time. Thus, having children increases the gender-gap in academic efficiency. Birth of child also increases the visibility of the scholars but this relationship is not associated with gender-gap. This paper has 2 important merits: (a) the analyses is detailed and provides information about both the levels and rates of changes in the independent variables over time and; (b) the review of literature is in-depth and resourceful. However, this paper is based on the work-life experiences of

the scholars within the linguistics and sociology. Thus, the readers do not get any information about the scholars in the STEM disciplines. Moreover, the dynamics of the STEM and social science disciplines are different. The social science disciplines are more gender integrated than the STEM disciplines. Again, academic work is more flexible for the social scientists in terms of work away from workplaces than the STEM scientists. Also, social science scholars collaborate less with their peers and other scientists to do research or publications as compared to the STEM scholars. Thus, this paper should be read primarily from the perspectives of the linguistics and the social science scholars without generalizing the results to the work-life experiences of the STEM scholars.

- 2) Amelink, Catherine T. and, Elizabeth G. Creamer. 2010. "Gender Differences in the Elements of the Undergraduate Experience that Influence Satisfaction with Engineering Major and the Intent to Pursue Engineering as a Career." *Journal of Engineering Education*. 99(1): 81-92

The authors examine 3 specific issues in the career-related decisions among the undergraduate engineering students: (a) the factors in the academic institutions that encourage the undergraduate students to continue with their engineering careers and the gender differences thereby; (b) the factors in the academic institutions that the students perceive as motivating so that they can retain their engineering career on a long term basis and the gender gap thereby and; (c) are there any differences among the factors that encourage students to complete their graduation and those that inspire them to continue with their engineering careers? Amelink and Creamer conduct rigorous analyses based on mixed methods. Data are derived from the survey across 9 research-based institutions. Students' interests to graduate do not always convert into their continuation with engineering as a career. This is more prominent among the women students. Results from this study show that individual and institutional factors such as peer effect, teacher-student relationships and, gender-based organizational norms have adverse impacts on women's aspirations to become engineering professionals.

- 3) Rosenberg-Kima, Rinat B., E. Ashby Plant, Celeste E. Doerr and, Amy L. Baylor. 2010. "The Influence of Computer-based Model's Race and Gender on Female Students' Attitude and Beliefs Towards Engineering." *Journal of Engineering Education*. 99(1): 35-44

"Only 8.5 percent of all professional engineers are women... African Americans, Hispanics, and Native Americans constitute 24 percent of the total workforce but just 7 percent of the science and engineering work- force" (pp. 35). The authors seek to address these concerns in the engineering profession by proposing a new model of learning among the women and minority students. The model is called "interface agents." Using the theories of self-efficacy and stereotypes, it has been hypothesized that when computerized models match the race and gender of the students; the students respond positively towards the course and thereby the discipline. Data are collected in terms of experiment with 80 African American and 39 White female undergraduate students. Analyses are based on quantitative methods. Findings suggest that similarities in the race and gender of the computerized models and the students enhance the interests of the students towards to course. The authors hope that implementation of such computer-based teaching programs will increase the representation of women and minority professionals in the engineering and technological fields.