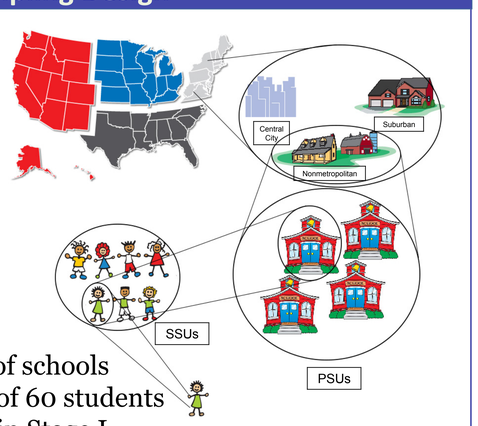
Longitudinal Study of American Youth

David Chavez, Giancarlo Escobar, Noel Pimentel

Abstract

It is acknowledged that there are a small number of individuals that hold a career in science, technology, engineering and mathematics compared to other career fields. A data analysis was conducted on student data records, obtained by Longitudinal Study of American Youth, of individuals who currently hold STEM jobs and those that have chosen different career paths in an effort determine factors that may have influenced them to pursue or steer away from a STEM career. To further analyze factor effects, individuals were classed into different sub-populations to determine which group holds a higher proportion of people in STEM and which factors would have caused such differences within each sub-population. The effects of difficultness, parental influence, math and science literacy scores, and math and science class career utility measurements were examined for each individual and sub-population. Factor measurements were plotted and tested to determine if there was a relationship within each population and tested for similarities amongst different sub-populations.

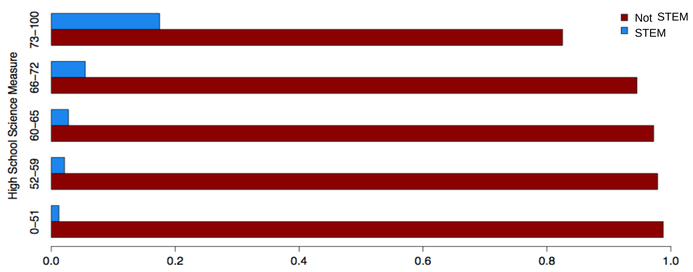
Sampling Design

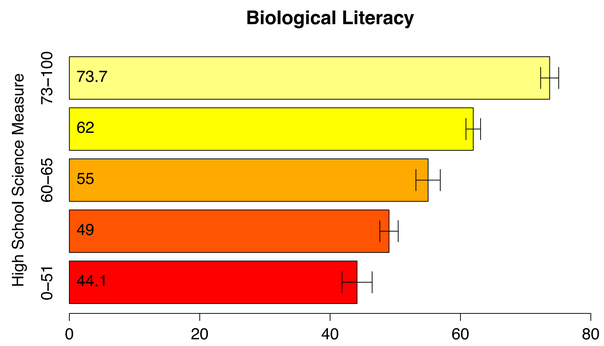


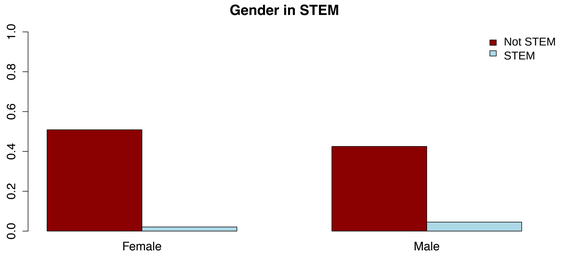
- Sample design of the LSAY was a two-stage stratified probability sample
- United States Stratified by four geographic regions and by three levels of urban development for a total of 12 stratums
- Stage I involved selection of schools
- Stage II random selection of 60 students within each school selected in Stage I
- Time Period: (1987-1994), (2007-2011)
- Students recontacted again in 2007, 2008, 2009, 2010, and 2011 with a follow-up questionnaire.
- Sampling Frame: all public high schools and middle schools in the U.S.

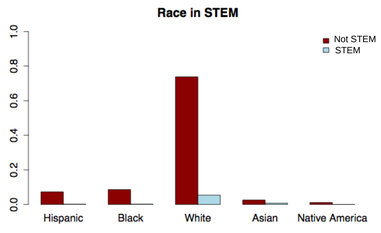
	Cohort 1	Cohort 2
Sample Size	2,829	3,116
Primary Sampling Unit (PSU)	Public high schools throughout the United States	Public middle schools throughout the United States
Secondary Sampling Unit (SSU)	10th grade students	7th grade students

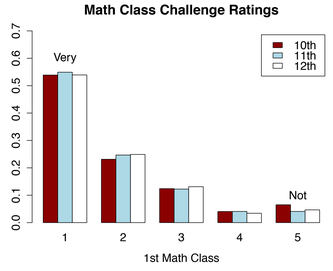
Data Exploration

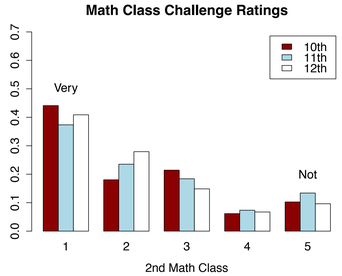


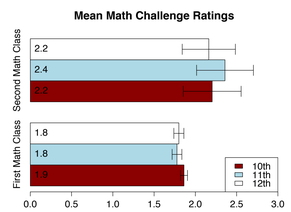




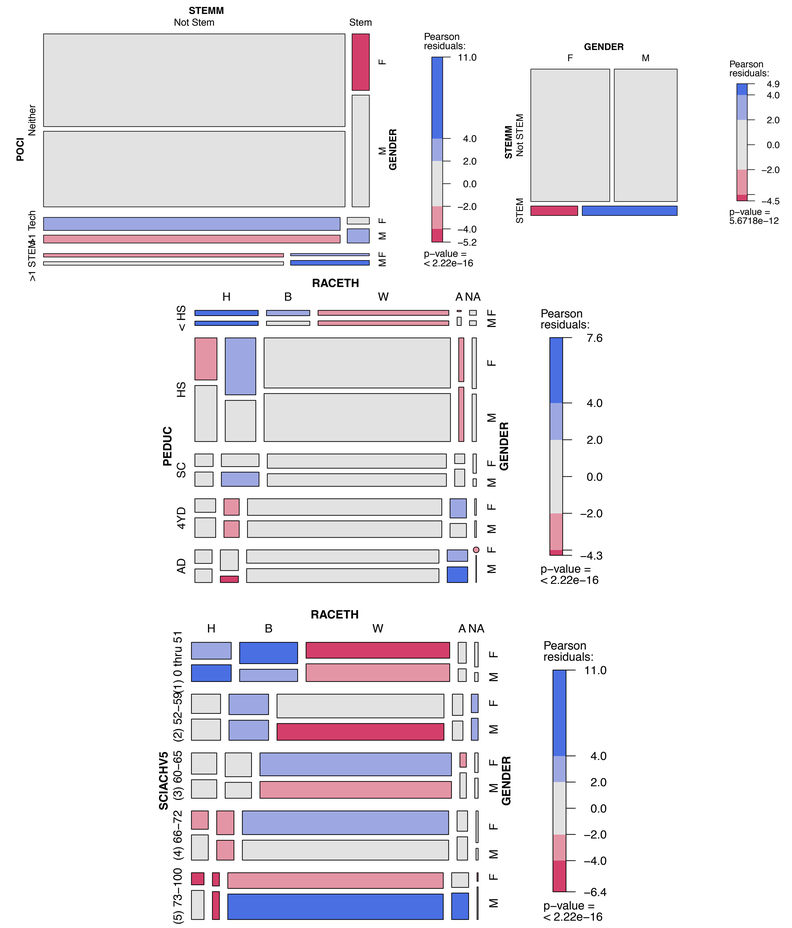








Results



Conclusion

- Chisquare test for independence resulted in concluding dependency between STEM & GENDER and STEM & RACE
- Low achievement scores in STEM and STEM course difficultness may have steered individuals away from STEM career choice
- Mosaic plots display significant proportion differences between STEM within subgroups.
- Parental influence was also different within subgroups. Heavy parental influence may have steered more individuals to STEM.

References

D. Miller Jon, (2011) Longitudinal Study of American Youth, 1987-1994, 2007-2011, University of Michigan, Inter-University Consortium for Political and Social Research