The Impact of Computing Outreach Activities on Choices of Majors

Adrienne Decker — Rochester Institute of Technology
Monica M. McGill — Bradley University
Amber Settle — DePaul University

Background

A lack of diversity in the computing field has now existed for several decades, and while female participation in computing remains low, outreach programs attempting to address the situation are now quite numerous.

After doing a systematic literature review and discovering that longitudinal studies were lacking, we wanted to investigate whether undergraduate students believed that their participation in computing activities prior to college contributed to their decision to major in a computing field.

Research Question

Is there a correlation between students' previous participation in computing outreach activities, the context for the activities, and the impact that these students believed that the programs had, if any, on the selection of their present college major?

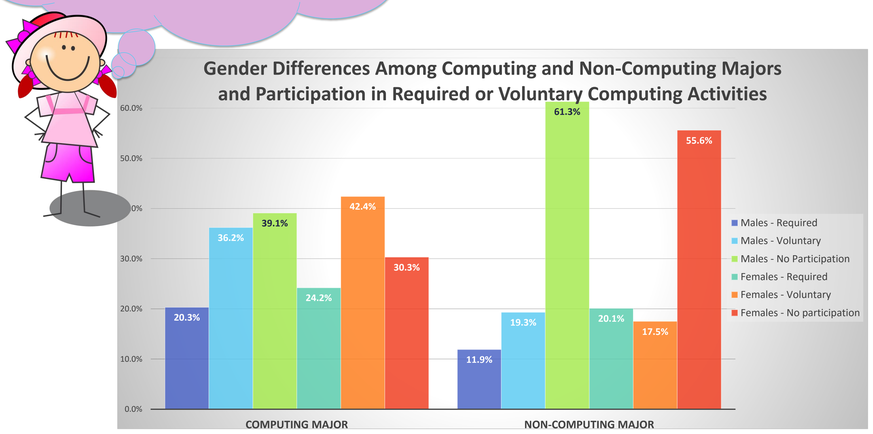
Methodology

- Developed and distributed the Effectiveness of Technology Outreach Survey
- 770 respondents across six public and private institutions
- 411 respondents across the same institutions retook the survey two weeks later
  - To test for reliability of results – only two minimal differences found

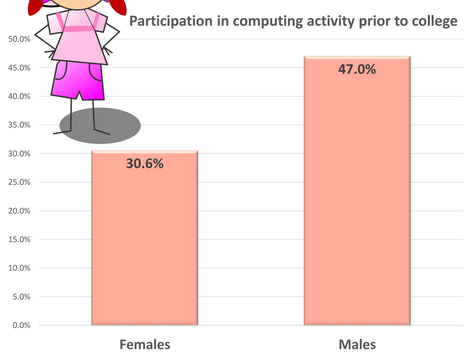
Conclusions

- Lack of systematic study of long term impact of outreach activities in the current literature.
- Our recall study provided some interesting insights into perceptions of impact (see below).
- Boys are choosing to voluntarily participate more often than girls.
- Activity participation by boys was more likely to be correlated with their choice of computing major.
- For those who chose not to major in computing, men and women have different views of their time spent in outreach activities, with women expressing more negativity about the activities.
- Longitudinal studies are needed to determine the lasting impact of computing outreach activities on participants.

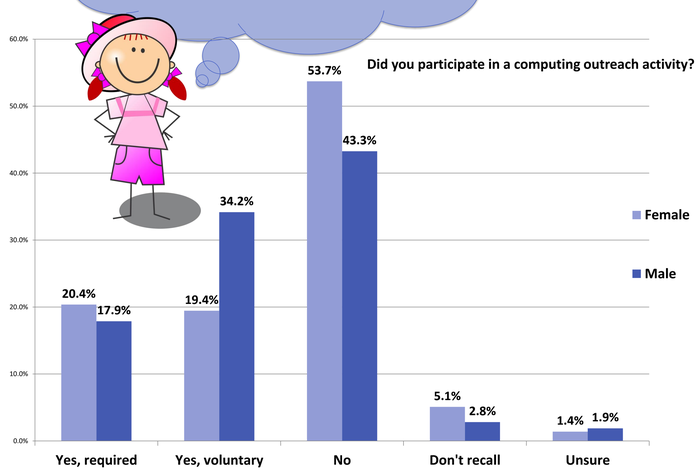
Girls and boys were more likely to pursue computing if they were exposed to computing before college!



But wait—boys still seem to participate more in computing outreach activities than girls.



Hmmm, perhaps that's because boys seem to choose to participate voluntarily in these activities more than girls.



Consider, though, that among computing majors, there were no differences between perceptions about the activities. But among the non-computing majors, the men and women have different perceptions. That's strange!

	Computing Majors						Non-Computing Majors					
	Male			Female			Male			Female		
	#	Mean	SD	#	Mean	SD	#	Mean	SD	#	Mean	SD
The majority of students participating in the activities were boys.	24	4.21	1.21	50	4.50	1.04	151	4.38	1.01	168	3.89	1.40
I enjoyed many of the activities.	24	4.63	0.88	50	4.40	0.93	151	4.16	0.89	168	3.77	1.06
I enjoyed learning about computers.	24	4.67	0.70	50	4.50	0.89	150	4.27	0.88	168	3.78	1.03
I was interested in computers before I participated in the activities.	24	4.17	1.20	50	4.22	1.08	151	4.16	0.99	167	3.53	1.25
I felt like I was a welcome part of the group participating in the activities.	24	4.21	0.93	50	4.38	1.09	151	4.19	0.99	168	3.83	1.07
The majority of students participating in the activities were girls.	24	2.38	1.64	50	2.14	1.60	151	2.17	1.47	168	2.30	1.39
Participating in the activities increased my interest in computers.	24	4.46	0.83	50	4.24	0.96	150	3.85	0.94	167	3.37	1.07

Either voluntary or required, boys seem to still be affected by computing outreach activities more than girls. What's up with that?