

Tools for Outreach Presentations

Ronald I. Greenberg, Loyola University Chicago, USA

Dale Reed, U. of Illinois at Chicago, USA

20th Annual Conference on Innovation and Technology
in Computer Science Education (ITiCSE), July 6--8, '15

Context of most of our presentations

- One time visits to interest students in computing
- Typically high school level
- Typically a classroom period

Some related efforts

- Carnegie Mellon University Women@SCS Roadshow
- Indiana University Women in Computing “Just Be”
- University of Illinois Women in Computer Science “Chic Tech”

Our impact

- New presentation elements
- About 100 schools
- Several thousand students
- Positive ratings and attitudinal responses in surveys
- Built HS teacher and administrator contacts

Content areas

- Who does computer science?
- What is computer science about?
- Are there jobs for computer scientists?
- How can I prepare to be active in CS?

Most content at <http://illinoiscomputes.org/hspresent>

Typical presentation

- Start with a robotics video (e.g., bionic arms)
- Slide show to break stereotypes
- Presentation on some CS applications
- Statistics on job prospects
- A CS-based magic trick
- Questions
- Robotics videos to fill out time

Some further details

- Who: Usually focused on pictorial quiz; sometimes skipped.
- What: Often part of CMU Roadshow or Jeanette Wing CT slideshow, robotics, visualization and/or art, assistive technologies for disabilities
- Jobs: Statistics on job availability and salary
- Preparation: Emphasized feasibility of starting in college

Student ratings of components

Component	Good/VG
Robotics videos (n=227)	88%
Visualization techniques (n=212)	82%
Identifying computer scientists pictorial quiz (n=237)	80%
Magic tricks (n=209)	79%
Statistics on job availability and salary (n=215)	74%
Pointers to prepare for computing studies/careers (n=208)	74%

Student attitudinal responses

	Neutral	Agree / Strongly Agree
gained greater recognition of diversity of people working in computing (n=434)	30%	63%
learned more about computing work (n=432)	16%	70%
learned more about availability of computing career opportunities (n=427)	25%	70%

Where we got material

- Mostly collected from Web
- A few new constructions, albeit incorporating content or ideas of others:

Pictorial slide quiz

Instead of asking to identify a computer scientist among several non-scientists, each frame presented several computer scientists and asked for the number of such or to identify the one non-scientist. Thus, more computer scientist diversity was shown.

Number guessing magic trick

- Seven tables used to guess student's secret number from impressive range of 1 to 125.
- Tables color-coded for easy reference, and students returning to the web site could get an extra bonus of an explanation of color representation in computers.

Error detection magic trick

- Variation on CS Unplugged trick so that no need for magician to add tiles; instead flip at most 3 in an 8x8 grid.
- Online HTML/Javascript implementation working for grids of any size.