Gender, Lies and Video Games: the Truth about Females and Computing

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Why do fewer females

➤ Play computer and video games?
➤ Take computer science courses?
➤ Major in computer science?
➤ Go into computing careers?
➤ End up in senior positions?
Myths (lies?) about computing?

- Computers are a boy toy
  - Teenage girls spend more time on the internet than boys
- [Girls, women] can’t do math
  - Girls outperform boys in high school math
- You have to program 24/7 and …
- Programming is boring
- Computer people have no life
- To succeed you need to be born with the computer gene
- Computing jobs are all gone now
Myths? Lies?

- Some of these “myths” were [are] partially true at some point
- They persist in influencing students, teachers, parents, media
Some “truths”

- Boys spend more time playing video and computer games than girls
- Boys and girls like different things in video and computer games
- Most games are designed for boys and men
- Most boys who learn to program early do so in order to create a computer game
- Boys monopolize access to computers at school and at home
Some “truths”

- Under-prepared high school CS teachers rely on boy hackers in class
- Males taking intro CS courses are more prepared and act more confident
- Assignments focus on CS rather than applications
- Software, assignments often buggy
More truths

- In N.A. gender differences appear early and are sustained into adulthood
  - Using computers by age 7-10
    - getting access
    - choice of activities
    - style of use
    - confidence
  - Interest in courses/careers by age 10-14
K-12 SWIFT Career Interest Survey 1998-1999

- 7300 Vancouver students in grades 8, 10, 12
- participation decided by English class teacher (60% participation) but results from entire schools analogous
- interest in subjects, ability in subjects, career influences
- participation, interest, ability in IT activities
- perception of different kinds of careers
Interest in taking a course
Expected performance
Career influences

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<th>Factors</th>
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<td>Parents</td>
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<td>Make World Better</td>
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GENDER
- Male
- Female
Issue 1

- Choice of careers follows interest and perceived ability
- Most females think that computing is less interesting than other options and that they won’t be as good at it
Females often have the “impostor syndrome” to a higher degree than males

[lack of confidence, lack of sense of belonging]

this causes many females to leave computing courses and careers

Imposter syndrome occurs at all ages, career points, and levels of achievement
solutions

- Increasing interest in computing
- Increasing confidence
- Increasing sense of belonging
Increasing interest

- Change the image
  - media, games, contests, workshops, speakers, programming in math curriculum
- Emphasize applications
- Have computer science majors with...
  - psychology, biology, art, music, languages, statistics, math, chemistry, theatre, business
- Provide work experience (coop terms)
- Include team work, users, communication, volunteer opportunities
- Give her a [new] laptop of her own
Increasing confidence

- How we teach
  - Pairs programming, assignments in labs
  - Unfailing encouragement, positive feedback
- Role models and mentors
- Peer cheer-leading groups
- Comfy home base
- Ok to cry
- Learning how to become strong in an area of weakness
Increasing sense of belonging

- Achieving critical mass
- Creating environments supportive of personal lives
- Ensuring inclusive language, images, examples
- Suppressing jerky behavior
- Treasuring difference of opinion, difference of experience
- Hearing female voices
Everyone can contribute

- Encourage
- Provide role models
- Work on the image
- Help high school CS teachers (JETT project)
- Use pairs programming in intro classes
- Make your environment PL-friendly
  - photos, kid presence, part-time, flex-time
- Hear female voices
- Join ACM
The contribution of Larry Summers?
Remembering Anita Borg
www.abi.org
references

- Female Computer Science Students Who Pair Program Persist, Linda L. Werner, Brian Hanks and Charlie McDowell, preprint (submitted to JERIC)
Questions and comments