

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

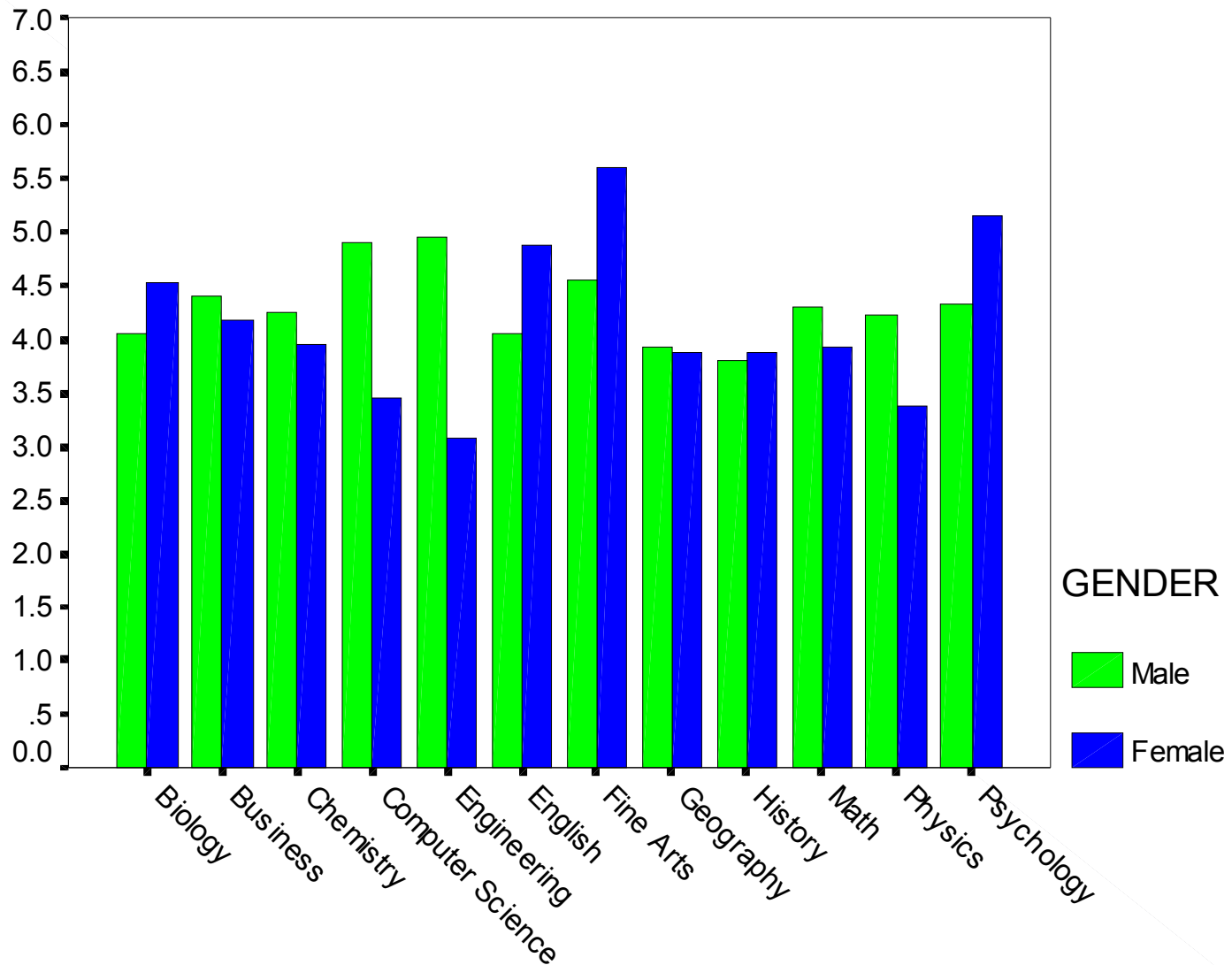
More truths

- ➔ 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

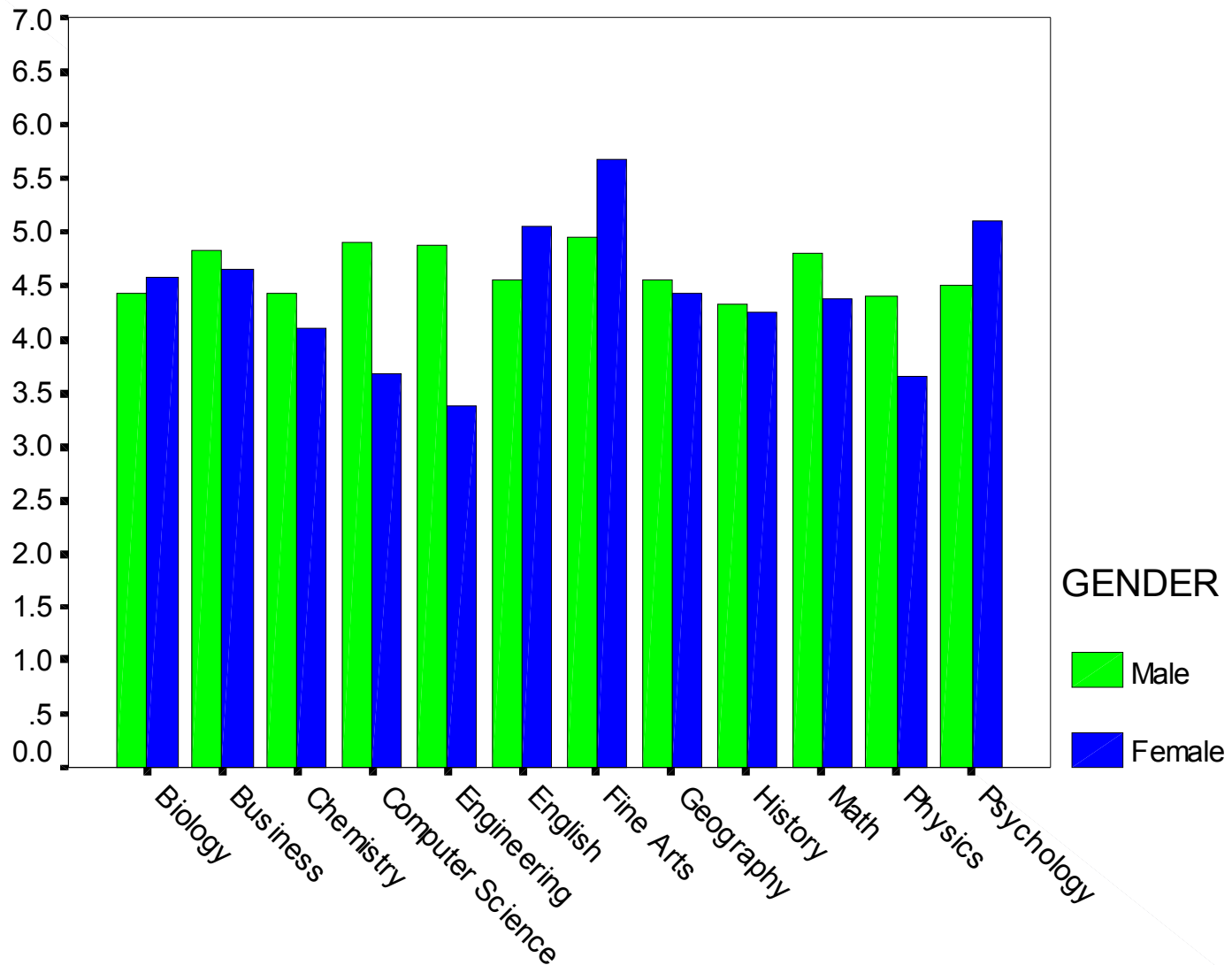
K-12 SWIFT Career Interest Survey 1998-1999

- ➔ 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

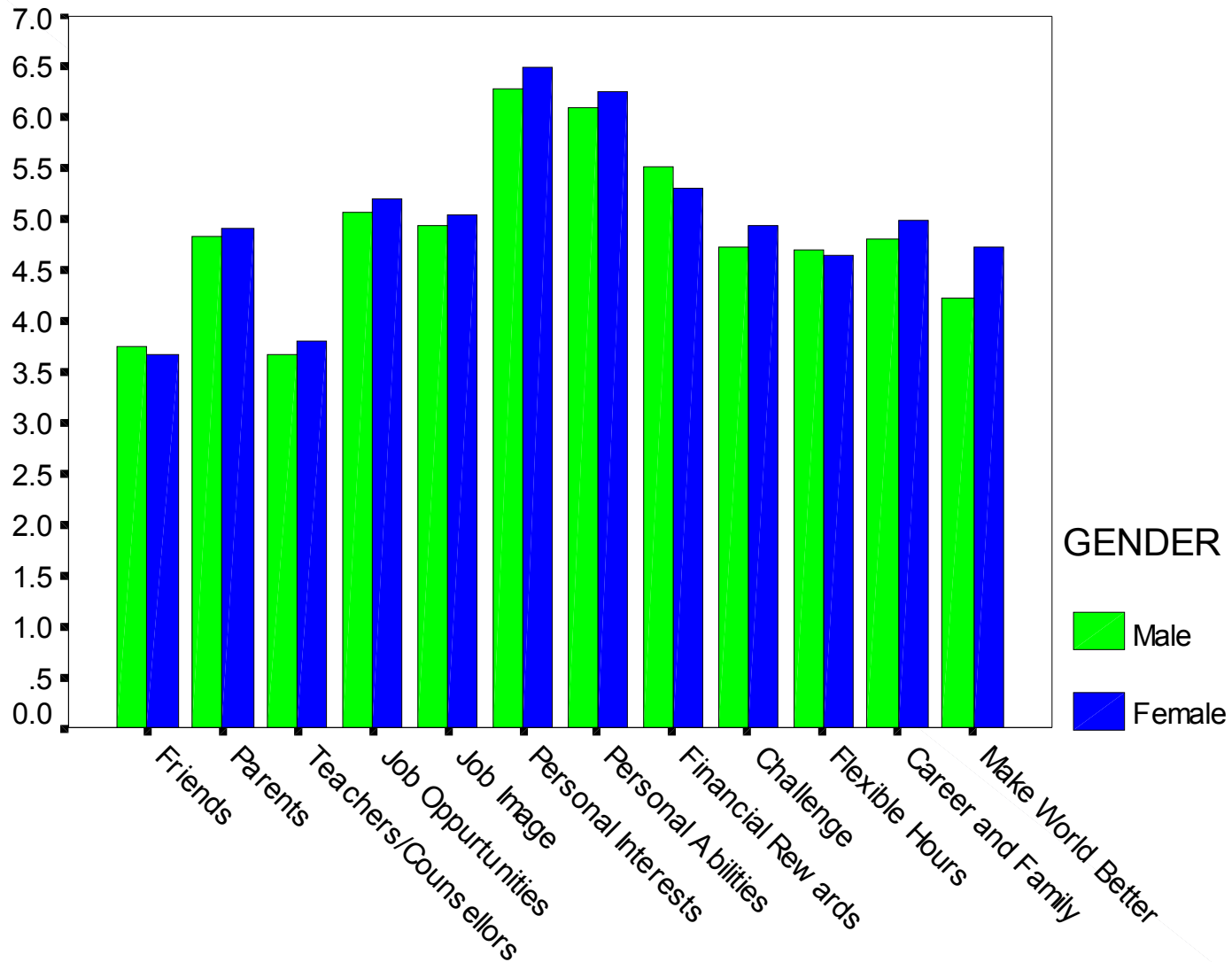
Interest in taking a course



Expected performance



Career influences



Issue 1

- ➔ Choice of careers follows interest and perceived ability
- ➔ Most females think that computing is less interesting than other options and and that they won't be as good at it

Issue 2

- ➔ 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

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references

- ➔ Women in Computing, CACM Jan. 1995 Vol. 38, No. 1 [[ACM DL](#)]
- ➔ Proc. Women, Work and Computing 2000, Vancouver, BC.
- ➔ Women and Computing, Inroads, SIGCSE Bulletin, Vol. 32, No. 2, 2002 [[ACM DL](#)]
- ➔ Unlocking the Clubhouse, Margolis and Fisher, MIT Press 2002 (paperback 2003)
- ➔ Female Computer Science Students Who Pair Program Persist, Linda L. Werner, Brian Hanks and Charlie McDowell, preprint (submitted to JERIC)

Questions and comments
