

# Technology + Girls = An Equal Chance for Success

by: Lesley S. J. Farmer, PhD

According to a 2008 Pew Research Institute report, about 99 percent of boys and 94 percent of girls play video games. Almost all teens use the Internet, and females now constitute the majority of social networkers. Nonetheless, the culture of technology as a whole remains male-dominated, and adolescent girls exploring their sexual identity try to distance themselves from technology to avoid appearing unfeminine.

## Technology and gender

Before puberty, children of both sexes exhibit similar technology use behaviors. In her 2004 article "Gender, educational technologies, and the school library," researcher Denise Agosto asserted that as girls enter adolescence, their e-gaming activity declines. According to researcher Johannes Fromme in his article "Computer Games as a Part of Children's Culture," another reason girls use technology less is because they choose to spend their time in other ways, such as reading. In addition, he asserted that girls tended to have more household responsibilities than boys, and so had less time to use technology. In short, societal expectations and messages affect girls' engagement with technology, particularly during the crucial teenage years.

Over a lifetime, attitudes about computer use can become deeply gender-linked. Several factors feed that attitude, including computer games' use of male characters and objectification of females, timed contests, complicated navigation requirements, and tedious actions. As a result of computer anxiety, girls are likely to avoid computers, to harbor negative views about technology, and to feel less technologically competent. Especially if girls have negative first experiences with technology, they are far less likely to master it later in life.

This attitude is made worse by the fact that girls tend to underrate (and boys tend to overrate) their technological ability. Attribution theory, which addresses a person's sense of control, shows that girls who are successful with computers *attribute* the accomplishment to the machines; when they experience failure, girls blame themselves rather than the limits of the technology.

Even when successful, girls tend to have a different relationship with technology than boys do. Girls see technology as a tool to accomplish something that interests them. Social networks, for example, enable them to maintain social relationships, and the Internet helps them find information for schoolwork. By contrast, boys tend to see technology as an end in itself and are more likely to explore technology "just for fun." They like to control technology and

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enjoy the mechanics of it.

This picture does not improve at school. Girls are less likely to take technology courses and advanced math courses in high school. The latter issue is important because math continues to serve as a gatekeeper course for computer science majors; if a student does not take at least precalculus in high school, she will likely have to do remedial math courses before starting a technology major. Tech and math courses tend to use gender-neutral or masculine examples, so girls might be disadvantaged. Additionally, such courses tend to have few females, so those few girls taking them may feel uncomfortable or marginalized.

Amazingly, girls generally do not get much information in school about the role that technology plays in careers; as a result, girls tend to think technology-related careers are limited to computer programming, mechanical engineering, and systems operation. They do not realize that more than two-thirds of jobs overall incorporate technology and that the lack of technological expertise will severely limit their career choices.

This narrowly focused view of technology will cut girls out of many jobs. According to a 2007 U.S. Department of Labor report, the percentage of women in engineering is 11 percent, and only a quarter of computer technology jobs are held by women. Ironically, social networking and other collaborative technology, which could draw on girls' interpersonal skills, play a central role in the global economy, but without technological expertise, girls will not be equipped to pursue this career path.

### **What we can do for girls**

Family and community technology use and attitudes serve as models for children. Parents can learn more about technology, better understand its potential and applications, and share that learning with their daughters. Likewise daughters, who probably have more time to explore and absorb technological skills, can share their burgeoning knowledge with the rest of the family. Indeed, a family approach to technology offers a concrete way to keep in touch, particularly in the adolescent years, through meaningful activities.

Families are the first teachers and the principal support group for children. Even if they are not very tech savvy, parents' life experiences give them a moral compass to help girls act safely and responsibly with technology. From the very start, families can provide a solid foundation of internalized values and skill sets so that as girls grow up, they can

- Feel comfortable taking intellectual risks
- Critically evaluate and produce digital information
- Be good digital citizens
- Weather outside opinion and maintain a positive self-image

Everyday life today requires technology, be it online shopping, getting directions to destinations, or doing taxes. Girls' technology use will certainly affect society. Girls can bring their communication and interaction skills to bear to develop more user-friendly and innovative technology for a wide variety of uses, from everyday tasks to in-depth applications. Girls who

remain technologically challenged might not reach their full potential, and society will be the poorer for their lack of contributions. Girls can blossom in technology use if they know about the wide range of careers that require its use and prepare accordingly.

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## **PARENT CHECKLIST**

### *Check your attitude*

- What is your attitude about technology?
- Is technology fun or work?
- Do attitudes about technology within the family fall along gender lines? Do males have different attitudes than females?
- What is your attitude about math? Do family members' attitudes about math fall along gender lines?
- When there's a tech problem, do you blame the technology or yourself?
- When you're successful with technology, do you praise yourself or the technology?
- What is your attitude about taking intellectual risks? Do you believe in lifelong learning?

### *Check your actions*

- What technology do you have at home (e.g., computers, gaming devices, mobile devices)? For whom was the technology purchased?
- Which family member uses each type of technology? How frequently and for what length of time?
- Who supports daughters' technology interest and engagement?
- Do you try to eliminate technology dangers, or do you try to teach your children ways to deal with potentially unsafe situations?

### *To do*

- Listen.
- Maintain a trusting and safe environment.

- ❑ Offer regular opportunities and support for personal development and competence, in general, and in terms of technology, in particular.
- ❑ Make technology a family effort. Use technology to keep a family history, tell digital stories, manage family photos, and create digital scrapbooks and custom books.
- ❑ Explore websites with your daughter according to *her* interests, and suggest a few of your own. Find computer games (e.g., Wii and *Beatles Rock Band*) and social-networking tools (e.g., Flickr, Twitter, *Family Connections*) that the whole family can enjoy.
- ❑ Encourage your daughter to take intellectual risks. The teen years are the time for experimenting, so channel that adventuresome spirit in a positive way.
- ❑ Discuss online safety. Talk about what to do if cyber-bullying occurs.
- ❑ Help teens become critical evaluators of information (e.g., author bias, questionable organizations, manipulated images, media propaganda techniques).
- ❑ Encourage your daughter to be politically aware and engage in citizenship activities via technology.
- ❑ Share the technological parts of your job and discuss how your work might have changed over the years in terms of technology use. As job openings occur, scan to see if technology expertise is needed, and share that information with your daughter.
- ❑ Chat about careers and future plans with your daughter, noting how technology might be needed to do a job now or in the future. Go through the help-wanted ads to see what specific technology skills are in demand.
- ❑ Check out colleges online.