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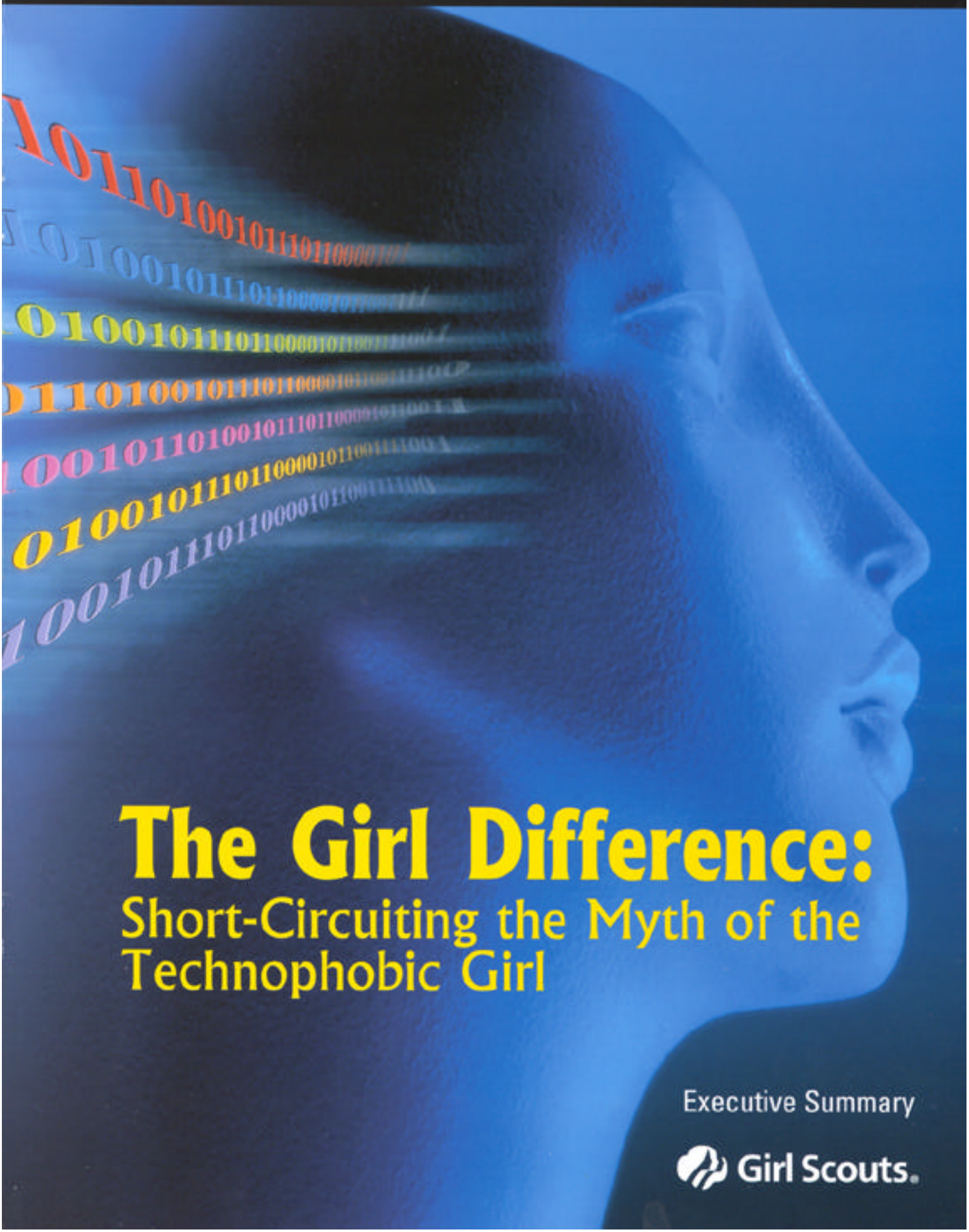
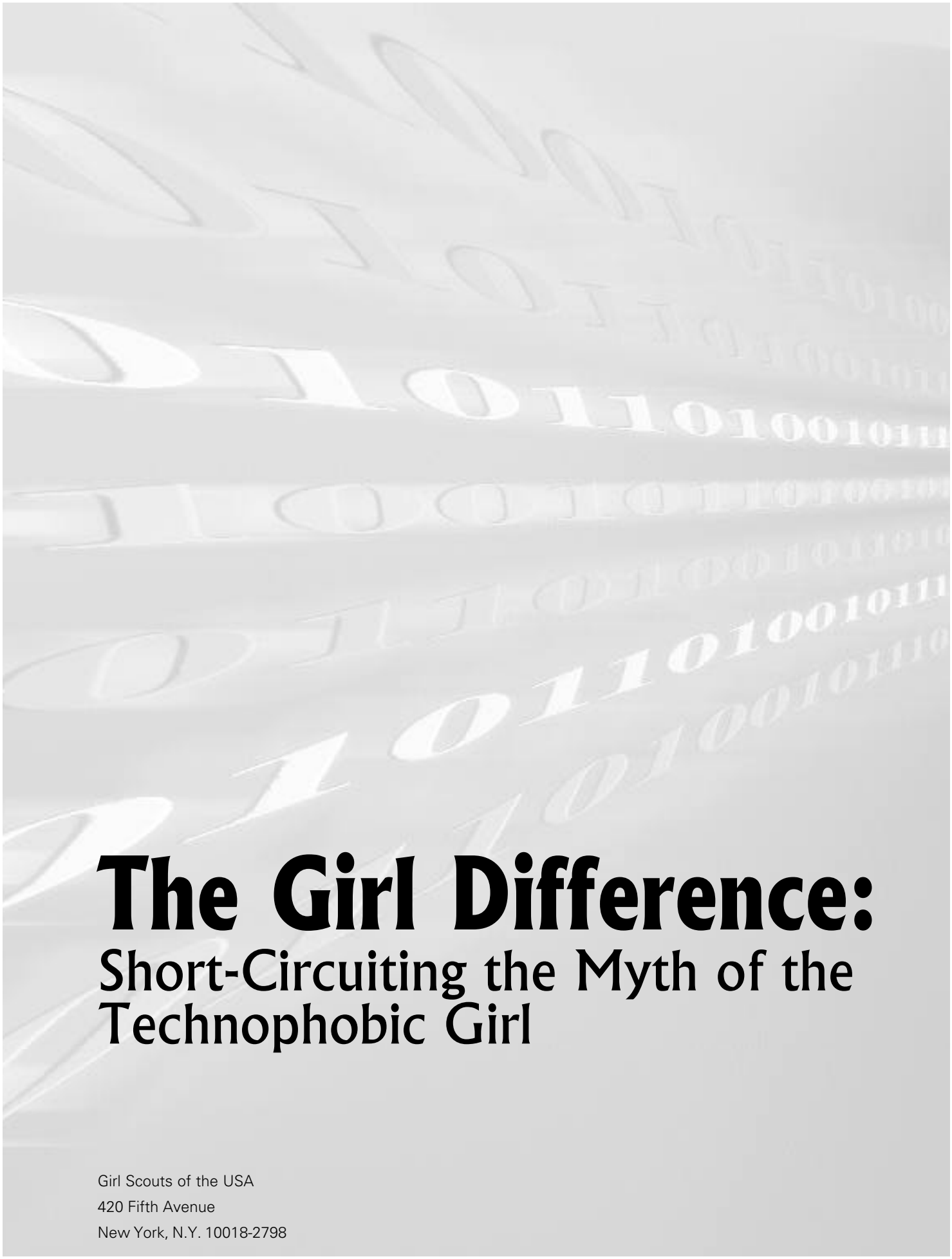


The Girl Difference:
Short-Circuiting the Myth of the Technophobic Girl

Executive Summary

Girl Scouts.



The Girl Difference:
Short-Circuiting the Myth of the Technophobic Girl

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Acknowledgment is made to the following individuals for their contributions to this executive summary: Paula Fleshman, Maureen Fox, Laurie Newton, James Riedel, Whitney Roban, Ph.D., Research Unit, GSUSA; Harriet Mosatche, Ph.D., Membership, Program, and Diversity, GSUSA; David Sahatdjian, Senior Editor, Publishing, GSUSA; Suzanna Penn, Director, Publishing, GSUSA; Joy Williams, Assistant Director, Communications, GSUSA; Joyce Richards, National Director, Marketing and Development, GSUSA; Sharon Hussey, National Director, Membership, Program, and Diversity, GSUSA; Laurie Westley, National Director, Government Relations and Advocacy, GSUSA; Kallen Tsikalas, Computers for Youth; Kathryn Wheeler, Ed.D., Wellesley Center for Research on Women/ The Girls' Coalition of Greater Boston; and Isabel Wolcott, Smartgirl Internette.

First Impression 2001
Printed in the United States of America

1 Identifying the Gaps

Today's youth are immersed in technology. They are defining new patterns of behavior and computer use more rapidly than researchers can study the phenomenon. We are only at the very beginning of understanding how girls' lives are changing as a result of their increased reliance on technology. In earlier days, computer use was male-dominated; girls did not have the same access to technology as boys. While that aspect of gender difference has been reduced dramatically in the past 10 years, three gender-related gaps have become more apparent:

- *A gap between the degree of technology use among young girls and their subsequent adult educational and career choices related to technology.* Girls' increasing use of technology is not mirrored in their academic or employment pursuits.

- *A gap between girls and boys in their school participation in math, science, and technology.* Girls do not pursue courses in these subjects with the same frequency as boys.

- *A gap in the number of females and males who are employed in fields related to technology, math, and science.* Men occupy the majority of positions in these fields.

These and other compelling research outcomes can be found in a new publication of the Girl Scout Research Institute, *The Girl Difference: Short-Circuiting the Myth of the Technophobic Girl*. A review of recent research on girls and technology use, *The Girl Difference* challenges the myths of gender and technology. Difference is discussed in new, eye-opening ways:

- The *different* mindsets and imaginations of girls and boys regarding technology.
- The *different* roles computer games play in the development of girls and boys.
- The ways in which *differences* in race/ethnicity and socioeconomic status among girls impact their experiences with computers.
- The desire of girls to see technology make a *difference* in the real world.
- The *difference* that design makes in supporting girls' interest in technology.
- The *different* roles adults might play in encouraging girls' pursuit of technology.

In the executive summary, we have condensed the findings for faster and easier processing. Readers who want to know more are encouraged to read the full report which, in addition to fuller details on the research, provides complete reference citations and Web-based resources for girls and the adults who work with them.

The following quote will shed some light on why this topic is of such interest to Girls Scouts of the USA:

> ***"When Juliette Gordon Low founded the Girls Scouts, she taught girls survival skills—cooking, sewing, etc. The Girl Scout purpose is no different today—teaching girls survival skills for the twenty-first century in science, math, engineering, and technology."***
>
> —Gina Ryan, executive director and CEO, Society of Women Engineers

2 Short-Circuiting the Myths

What do we mean when we talk about girls and technology? The issues surrounding the subject are multidimensional. Efforts to promote technology knowledge and skill can mean anything from girls programming VCRs and using digital cameras to girls taking high school Advanced Placement computer classes or spending time e-mailing friends. Recent studies of girls and technology go beyond the nature and extent of their computer usage, situating this information in a larger framework of how girls view themselves in the overall technology culture.

Focusing on girls as computer users—the patterns of their usage, their perceptions of the field, and their relationship to technology—allows a broader picture of girls to emerge. That picture reveals new understandings of adolescent development, gender role socialization, and the impact of the technology culture. The overarching implication of all the research analyzed is the need to short-circuit the myths about girls and technology. *The Girl Difference* proposes to do just that.

3 Myth vs. Fact

What is the current mythology about girls and technology? What does the most recent research tell us? Can we separate myth from fact? Research findings short-circuit the myths dramatically, as the following examples show:

MYTH: Girls have little interest or aptitude in technology.

FACT: Currently, girls are highly engaged with computers and their usage has increased steadily over time, on par with that of boys.

The percentage of students using computers at home or in school more than doubled between 1984 (30 percent) and 1997 (80 percent), with no gender differences in the rates of use in either year.

Source: National Center for Education Statistics (2000)

Myth: All of us, female and male alike, use technology similarly.

FACT: Girls use computers in ways very different from boys.

In an analysis of technological fantasies, researchers summarized some of the most striking differences in how girls and boys think about technology. Even in their Internet use, girls emphasize educational and communicative functions, while boys tend to use computers more for entertainment and recreational purposes. Girls use technology as a tool of empowerment, sharing, creation, and expressiveness. Boys use it in ways related to control, power, and autonomy.

Source: *Girl Games and Technological Desire*. C. Bruner, D. Bennett, and M. Honey (1998)

"We need to make math and science and technology more visible in creative ways, and reach out to girls."

—Ann Ryder Randolph, vice president, Corporate Alliances

Myth: Boys have greater access to computers than girls.

FACT: Girls are using computers as often as boys.

The amount of time girls and boys spend at the computer or on the Internet is essentially equal.

Source: *Safe and Smart: Research and Guidelines for Children's Use of the Internet*. National School Boards Foundation (2000).

Myth: Gender-neutral software, beneficial to the technology styles and interests of both girls and boys, is universally available and prevails in the market.

FACT: Almost half of the top-selling video games with female characters contain negative messages about girls, including violence, unrealistic body images, and stereotypical female characteristics (e.g., provocative sexuality, high-pitched voices, and fainting).

Source: *Girls and Gaming: A Console Video Game Content Analysis*. Children Now (2000).

"We should also focus on incorporating a female perspective in designing software and programs. Why is there a Game Boy and not a Game Girl? Girls have different interests and needs than boys and their perspective needs to be represented in the design process.

—Linda M. Sherr, program director, IBM Women in Technology

Myth: Computer and Internet use will have more harmful effects than beneficial ones.

FACT: Research indicates that, although young people's use of technology has become routine practice, they spend less time watching television; more time reading newspapers, magazines, and books; more time interacting with family and friends; more time playing outdoors; and more time doing arts and crafts than they did before computers became widely available.

Source: *Safe and Smart: Research and Guidelines for Children's Use of the Internet*. National School Boards Foundation (2000)

Myth: Technology has become the great social leveler. All children, regardless of race/ethnicity or socioeconomic status, now have equal access to technology because schools and libraries have provided computers universally.

FACT: Differences in computer usage are mainly economic, not racial or ethnic. Racial differences can, by and large, be explained by examining income level. School and library availability does not level the playing field. Young people use computers more at home than in school or at other sites.

Girls and boys become proficient because they have open access to computers at home. There appear to be no racial or ethnic differences in the amount of home use, except those that are determined by the socioeconomic level of the family.

Source: *Kids and Media @ the New Millennium*. The Henry J. Kaiser Family Foundation (1999)

Myth: Increased use of technology by girls has led to increased career choices and opportunities in the field of information technology.

FACT: Girls' increasing use of technology is not mirrored in their adult academic or economic pursuits in these arenas.

Myth: Technology achievement is more natural for men than for women.

FACT: People with liberal arts degrees, specialized training, and critical thinking skills can fill up to 80 percent of information technology jobs. Girls' strengths in reading and writing, combined with their current use of technology for communication and social functions, provides an entrée to teach girls more technical skills.

Research suggests we can work toward re-visioning technology so that it incorporates and builds on perspectives and values girls bring to it rather than focusing on how we can help girls adapt to the predominantly male world of technology.

Source: National Science Foundation, 1999

"Currently, much of the software designed for children is geared toward boys. Not surprisingly, many software game designers are men. We need women and girls to be part of the equation."

—Linda M. Sherr, program director, IBM Women in Technology

"It is critically important for women and girls to participate in what the future of technology looks like."

—Dr. Anita Borg, president, Institute for Women and Technology

Myth: Girls today have strong women role models in science and technology. They are finding their way into careers in those fields in increasing numbers.

FACT: Even girls with strong skills in math, science, and technology do not pursue careers in those areas. This may occur because they do not have women to mentor them into the field, and because they find the male-defined environments stylistically unaccommodating to women.

"The key is to identify girls' interests at an early age, provide them with the opportunities to learn about math, science, and technology, and link them together in a support network to keep them motivated."

—Sally Ride, astronaut, NASA, and founder, The Sally Ride Science Club

4 Cause for Concern: Perils of the Qualitative Gaps

Some might argue that, if there is not a significant discrepancy in the degree to which girls and boys are using computers, we should just let "nature take its course." In other words, why should researchers, educators, and policymakers be concerned about the qualitative differences in the ways in which girls use computers as long as they are using them in ways that are meaningful to them? Should we
let "girls be girls" and "boys be boys"? The consequences of adopting such an attitude could prove to be extremely limiting for girls and boys alike.

The existing gaps are cause for serious concern; while girls' use of computers is on a par with use by boys, at this point it is difficult to determine whether their patterns of usage will, over time, translate into equal academic and economic pursuits in these arenas. Research on the current status of these gaps offers several underlying reasons why girls' current gains in technology may not translate into long-term advancement in this field:

- Girls are not taking advanced computer courses in high school (American Association of University Women, 1998).
- Adults are not encouraging girls to pursue math, science, and technology-related courses (National Science Foundation, 1994).
- Early childhood messages prevail. Boys are expected to learn about machines and how things work. Girls are not. Gender-specific social expectations may play a role in limiting the likelihood that girls will be creators, shapers, and producers of technology.
- Girls perceive themselves, and boys perceive them similarly, as "outside" the technology culture. If they are outside the culture, they are presumed to be less competent. Girls will not identify with a subject area in which they are stereotyped as less competent than men.
- Girls reject computer games that are violent, and they find action gaming boring and repetitious. Girls prefer games that feature simulation, strategy, and interaction. (American Association of University Women, *Tech-Savvy: Educating Girls in the New Computer Age, 2000*).
- Women's "desire for communication, collaboration, and integration is not central to the masculine technological world view, which is increasingly accepted as the only legitimate model for discussing, developing, and evaluating technology" (Honey, et al., 1991).
- The image of the computer scientist has been related to maleness, masculinity, and a "logical" mindset (Honey, 1996).
- Women would be more attracted to computer science if it were integrated with other subjects and resulted in their ability to do something useful for society in their work. (Margolis, et al., 2000, Carnegie-Mellon University).
- Women do not encounter mentors in the computer field to support them in their career pursuits.
- Women's salaries are not on a par with those of men in technology-related fields.

The research implies that technology and the prevalent culture would be transformed if the strengths and interests in computers of girls and women were given greater consideration. Awareness of the ways to provide increased pathways for girls to enter into the design and utilization of technology can only enhance the field. It may also serve as a model for reducing more of the barriers to equality for all girls and women. Another important implication can be found in the research. What are boys missing out on by not using technology adequately for social interaction and other purposes? We have only begun to understand the ways in which technology will change how we live and think. Are we, as a culture, being denied a richer capability as long as we do not validate the quality and effectiveness of computer usage that girls and women display?

5 Technology, Girls, and the Girl Scouts

The Girl Difference asserts that although the number of girls who are using technology is increasing, future research needs to explore whether these modes of interaction are actually providing girls with the skills that they need to succeed in school and in the workplace. At the same time, girls' interest in using technology for communication and making a better world must continue to be relevant in defining how we understand the computer culture. Girls Scouts is deeply committed to meeting the needs of today's girls and tomorrow's women. An essential part of that commitment is providing an environment in which girls' strengths, talents, and interests can be encouraged to flourish, including their abilities in science, math, and technology.

> *"Girl Scouts needs to focus on programs that keep girls interested in science and technology at all ages, from Brownie Girl Scouts through high school."*
>
> —Dr. Barbara Shailor, former dean, Douglass College

Girl Scouts.
Where Girls Grow Strong.

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