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Teaching Tech to Girls Can Open Doors

—By Kristin Butler

At first glance, it looked like a teacher's night-mare: the innards of a computer laid bare across a long table in a green-gray motherboard mess.

But for Veronica and Danessa, both 10, the exposed C-drives, hard drives, and intricate computer chips in front of them have been transformed into a lively town, complete with parking lots, a school, a park, houses, and tiny, green-dot people.

"We are the makers of this town," Danessa said. "And we feel we can be as good at computers as boys are."

The Tinker-Town project, which invites girls to take apart a computer and play and build with it in creative and explorative way, is part of a science, math, and technology program at Girls Inc. of the Island City in Alameda, just one of the growing number of organizations and efforts working to bring more girls — and

eventually women — into the world of technology and computers.

According to studies by the Higher Research Institute and the Bureau of Labor Statistics, only 7 percent of teenaged girls surveyed said they intended to work in science, engineering, and technology, compared to 17 percent of boys; fewer than 2 percent of college freshman majoring in the physical sciences and 4 percent majoring in computer science are women; and less than one-third of working computer and mathematical scientists and one-tenth of engineers are women.

By avoiding careers in technology and computers, women are missing out on opportunities to work in fields where they can think creatively, get paid highly, and impact the world in meaningful and rewarding ways. While this is unfortunate for women, many say it is also a problem for society.

"It's good for engineering and technology to have a female point of view," said Linda Kekelis, Project Director of the Chabot Space and Science Center's Techbridge Program for girls in Oakland. "If there are more women in these fields, products can be developed, tested, and marketed differently."

According to "Tech-Savvy: Educating Girls in the New Computer Age," a recent report by the American Association of University Women's Commission on Technology, Gender, and Teacher Education, the best strategy to bring about gender equity in the computer and technical fields is to increase the number of girls in the technology pipeline starting at the youngest ages, and to listen closely to the experiences and opinions of girls and women, which are urging the industry to change the nature of how these subjects are taught in schools, marketed in toys and games, and used in the workplace.

The commission found that the problem is not that girls cannot

excel in these fields, but that they simply don't want to participate in them because they don't seem to connect to the values that girls generally hold. And the less they participate, the further behind they get.

Games and toys that help young children develop spatial and tool-use skills needed for later success in these fields — such as Legos and computer games — are overwhelmingly marketed to boys' interests and include boy characters and boy themes that often include violence. Subjects which are generally interesting to girls — such as animals, art, and cooperative human relationships — are not often found in these toys and games, so girls ignore them and pursue other activities. Once girls are behind boys in these areas, it is more difficult for them to enter and remain in technical classes and catch up, especially since the curriculum in older grades is also geared toward boys' interests.

Another reason girls don't pursue these subjects is that they still believe the stereotype that only men work with computers or as engineers and that such work is isolating, tedious, and does not have any connection to the real world.

The solution, say educators, is to provide girls with experiences that allow them to learn in ways that are interesting to them; offer them a less-competitive environment where they can experiment and play; offer applicable technical experiences across the entire curriculum in school; and give girls role-models, women whose jobs in these fields are interesting, involve close relationships with others, and provide opportunities to be creative and impact the world in ways that coincide with girls' values.

"We try to create a risk-free environment where girls can learn to trouble shoot and be interactive rather than passive learners," said Katie Topper, Technical Director at the Julia Morgan School for Girls in Oakland. "Our girls also get to e-mail women mentors

through our e-mentoring program and learn that technical women get to travel through their jobs, and that they have families and dogs and hobbies like snow-boarding."

Some of the other programs focusing on the areas highlighted by the commission include: the YWCA, which offers the TechGyrls program; Girls Scouts of America, which offers the Girls Go Tech Program; the Math Science Network, which offers the Expanding Your Horizons Program; and San Francisco's GirlSource and Oasis for Girls.

These programs offer hands-on activities and games with girl-focused themes, environments where girls can explore at their own pace, and career information and opportunities to meet women mentors. Girls get to reverse-engineer hair dryers, build phones, play with tools, make movies, and create websites about issues important to them, such as substance abuse, teen pregnancy, and body image.

All of these programs listen closely to what girls are saying about their computer and technical experiences and by doing so, they hope to slowly impact the industry as a whole — by making it more user-friendly, applicable, and relational.

"Research shows that once girls feel confident about their skills in computers and tech-nology and have a genuine interest in these subjects, they successfully transfer their abilities into co-ed settings, bringing their ideas and interests with them," said Tristen Fredrickson, Program Director at Girls Inc. of the Island City. "We believe that once girls' voices are heard, they will motivate the industry to further connect technology with human experience." Kristin Butler is a Bay Area freelance writer. She can be reached at (510) 290-5972 or kristindeann@earthlink.net.