

Why Women Avoid Computer Science

The numbers prove women embrace the “precision” of mathematics. Could it be the ill-defined nature of computing is what drives them away?



Women find careers in computing unattractive. A report from the American Association of University Women says that women account for only 17% of the high school students who take advanced placement exams

in computer science and earn only 28% of the undergraduate degrees [1]. This confirms an earlier report that noticed a sharp drop in CS degrees going to women between 1986 and 1994 [2].

As it happens, the literature fairly bubbles over with speculation as to why there are so few young women in computer science courses. We hear about math anxiety, violent computer games, the scarcity of mentors, and a supposed female preference for “relational work” [7]. Since no one really knows why women avoid computer science—or what to do about it—I feel justified in offering a guess of my own.

Among the many reasons offered, math anxiety is the most obvious. It is also the least defensible. Commentators never seem to notice that women receive almost half of the undergraduate degrees in mathematics. In fact, they received nearly 40% of them in 1970, well before the women’s movement became a mass phenomenon [5]. Not only do young women not avoid mathematics, they embrace it. What if the precision of mathematics, that “most masculine of subjects” in the words of one study [7], is exactly what has long invited women? The flip side is that the ill-defined nature of computing is what drives them away.

Young men drawn to computer science, engineering, and physics like to tinker. They enjoy taking things apart and putting them back together. They

like kits, gadgets, and screwdrivers. They were the boys who set up the audio-visual equipment in high school 30 years ago, and who now man—the choice of gender is deliberate—the school’s computer network. They are fascinated with anything that moves, especially if it has wheels or wings, and, crucially, is not alive [4]. The men usually given credit for the microcomputer all started with screwdrivers and soldering irons. Bill Gates and Paul Allen built a Basic interpreter to run on their Altair 8800, a computer kit for hobbyists, in the mid-1970s. Steves Wozniak and Jobs, of Apple fame, built their first machine to dazzle pals in Silicon Valley’s Homebrew Computer Club around the same time.

In fact, I claim that microcomputers are responsible for the steep rise in the number of women entering computer science following its introduction, as well as for the steep drop a few years later [6]. In 1971, fewer than 2,400 students received degrees in computer science from a handful of academic departments. By 1986, that number had jumped to nearly 42,000, including almost 15,000 women. It is clear that the dramatic growth of computer science as an academic discipline is due to the microcomputer and, of course, to the extravagant promises that buzz around it. If the number of computer science degrees had continued to grow as it had from 1975 to 1985 (and if the population grew at its average annual rate over the same period), by next year everyone in the U.S. would be the proud holder of one. Lucky for us this didn’t happen. The number of recipients began to drop off sharply in 1987, stabilizing by the mid-1990s at about 24,000.

We know why both men and women entered the field through the academic portal in great numbers in the 1980s. The attention paid to the microcomputer led many to believe it was a talismanic object. Why