

## Understanding the Science Gender Gap

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*A young boy and his father were in a car accident. Both were injured and rushed to the hospital. They were wheeled into separate operating rooms and two doctors prepped up to work on them, but the doctor assigned to the young boy stared at him in surprise. "I can't operate on him!" the doctor exclaimed to the staff, "That child is my son!"*

This is a classic riddle that was once used in an episode of the T.V. series All in the Family. Its ability to stump intelligent, educated people speaks volumes of the expectations people have for the sex of certain professionals. It is difficult because when we hear the word “doctor”, we reflexively picture a male, because as we see on T.V., in books, on commercials, and our own experiences in the doctor’s office, doctors are men while nurses are women. The connection is never made that the doctor could be female and the boy’s mother.

Meanwhile, science fields are overwhelmingly dominated by men, and in the interest of an equal society we must ask ourselves why. The casual observer might expect it is a product of a society that, despite years of progress in women’s rights, is still chauvinistic and sexist. Presenting another idea is Harvard President Lawrence Summers, who suggested at a conference on women in science and engineering, that “innate differences” in the aptitude of women and men for math and science may be to blame for the discrepancy (Summers, 3).

Boys do score higher than girls on test scores, but the difference is not nearly great enough to explain the very large gender gap in science and math related professions. Neither of these explanations is adequate. The popular concept of sexism as the overt discrimination against women, while certainly a factor in the “good old boy” circles of ivy league institutions, cannot offer a total explanation. In fact, few women seek a career in science compared to men, rather than many women being rejected. Rather, the lack of women in the sciences is the result of a deeply ingrained panoptical power structure lurking below our consciousness, in which societal gender stereotypes represent a prime example of what Foucault refers to as “counter law”, or de facto law born from the unwritten rules of society. This counter law says that scientists, doctors, and engineers are to be men. Established customs, while not sexist in our common use of the term, enforce a dynamic which is a form of gender power. This can be seen to represent an altogether new and different concept of sexism in society, in which panoptical counter law has replaced the direct force of discrimination.

Consider a 2004 study conducted at New York University by Prof. Madeline Heilman. A group of men and women were told to give a performance review on a fictional vice president of an aircraft company. In half the cases the candidate for review was a man, and in the other half she was a woman. Of each of these two groups, half of the candidates were clearly excellent performers, and half were of unknown quality. When the performance of both candidates was known to be excellent, the reviewers rated both the man and woman as competent, but they rated the man as likeable and the woman as very unlikeable. When the performance of both candidates was unknown, both were rated as equally likeable but the man was rated more competent than the woman. (Valien, 2) In other

words, both men and women devalued the competence and likeability of the woman unless they were given clear evidence otherwise. The most important information from this study was that men and women held the same bias against a woman in a male dominated field. These biases are an indicator of a “disciplinary society”, in which the rewarding of the “normal” and punishment of the “abnormal” create counter law which says there are men only jobs, and any woman who tries to perform them will automatically be bad at it. To quote Foucault, “all the authorities exercise individual control function according to a double mode; that of binary division and branding (...normal/abnormal)” (Foucault, *Panopticism* 320). The study shows very tangible evidence of women who don’t follow the discipline of society being branded as abnormal. The woman was seen as unlikable or incompetent simply for holding a traditionally male job. Foucault describes the Panopticon as the ultimate enforcer of power because the people regulate themselves. The use of force is no longer necessary, fear of violating a cultural taboo is enough. In describing the Panopticon, Foucault says, “the constant pressure acts even before the offences, mistakes, or crimes have been committed” (Foucault, *Panopticism* 325). So it is with women in science. The fear of disapproval from others, conscious or subconscious, is what prevents women from entering science in the first place.

It would be a misunderstanding to say that I argue women are consciously fearful of being derided if they choose a career in science. That sort of direct force application is not how the Panopticon operates. Foucault says that “power is produced from one moment to the next, at every point, or rather, in every relation from one point to another” (Foucault, *History* 93). Here, power comes from the relationship between each woman as an individual and the people around her. The

woman wants to be “normal” and conforms, thus power flows from below as well as from above. The force operators are the cultural expectations society places on girls. Producing examples of these expectations is hardly necessary, they are common and accepted. Popular culture and media are very unanimous in their presentation of doctors, scientists, and engineers as men. Science and math are presented as very unfeminine. Besides pop culture, these stereotypes are fermented by the historical taboo on women in science. When girls are told from birth that girls are bad at math, many are compelled to accept the expectation and live up to it. It is a product of our history and culture, a relic of three hundred years of women being actively prevented from pursuing science. In 1905 it was overtly unseemly for a woman to take interest in math and science. In 2005 it is subconsciously unseemly.

The law treats women the same as men but the discipline of society does not. Just as we don’t picture a female doctor and just as we subconsciously penalize women in “men’s” fields, on a subconscious level we don’t believe a woman can make as good a scientist as a man. Lawrence Summer’s remarks are dangerous not because of their sexism, but because they enforce this mentality. Once we assume that women are biologically inferior to men in the sciences, it becomes acceptable to mentally discriminate between women and men. The automatic male image of the doctor is now valid because men are naturally better doctors. Likewise the gender gap in science is now nothing to worry about because it is only natural. This only reinforces the gender gap, and continually reproduces itself. Girls are told early on that they are supposed to be bad at math and science, and many live up to the expectation. When as a result there are few women in those fields, it is generally assumed that girls are bad at math and

science. Add to this the sexism of elite scientific institutions, and the source of the gender gap becomes clear.

The power exercised in this case is closely approximated by Foucault's theories of power relations as articulated in "The History of Sexuality", in which he says, "Power is not something that is acquired, seized, or shared, something that one holds onto or allows to slip away; power is exercised from innumerable points, in the interplay of nonegalitarian and mobile relations" (Foucault, History 94). The power relations governing women in science are not exercised through the direct use of force, but rather through the implicit force of the Panopticon and through the compliance of women. This was not always the case. Years ago this same power was exercised through direct force, through overt disdain for female scientists, prohibition of women from universities and laboratories, etc. As society changed however, the power structure was forced to change. As Foucault predicts, the power structure changed from the more clumsy direct force relation, to the much more discreet and efficient panoptical model. The suppression of women in science did not disappear; it evolved. Ultimately, "(The Panopticon) makes it possible to perfect the exercise of power" (Foucault, Panopticism 325). In this new power relation, women played as large a role as men. While women are no longer directly prohibited from science, it is now seen as "abnormal" for them to be interested in it. It is "normal" for a woman to study humanities or human services. Foucault provides insight into what this means: "Power comes from below; that is, there is no binary and all encompassing opposition between rulers and ruled at the root of power relations" (Foucault, History 94). In other words, conscious discrimination against women is not the root of the problem. We can see there is no "binary opposition" between women and men in society. Again, the power arises when women do

not study science because of cultural expectations. Power is merely a situation in society from which arises a certain outcome favorable to one party, that party being male domination of science.

We like to think that we have advanced far beyond the sexist attitudes of an earlier, less enlightened era. It is no longer impossible for a woman to go to college and start a career. Sexism in institutions of learning is publicly decried. On the other hand, in many scientific fields, men outnumber women ten to one. Have we changed all that much? Or has the method simply changed while the outcome has remained largely the same? Of course no one doubts things are better- immeasurably better. It is possible for a woman to pursue a science career if she so chooses, but so few do. The reason lies in the stereotypes and expectations society has for girls. Our culture portrays science as a man's domain, and thus, to some, it is unnatural for a woman to enter it. This panoptical system of discipline enforces the counter law that discourages women from going into science. The scientific gender gap is entirely a creation of our culture. Until people like Lawrence Summers accept this and change their mentality, the gap will remain.