Men outnumber women as TV and movie characters in STEM

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Women are outnumbered by men nearly 2 to 1 in science, technology, engineering and math roles on TV, and a new study suggests that dramatic imbalance might be discouraging girls from pursing STEM

careers.

The numbers hardly improved between 2007 and 2017, according to the study, which was released this week and looked at more than 1,000 characters across television shows, movies and content on streaming platforms.

The study, from the Lyda Hill Foundation and the Geena Davis Institute on Gender in Media, comes amid efforts by members of the [tech industry](#) and educators to increase the number of girls that go into STEM careers and empower those that have to move into leadership positions.

In the tech industry in Chicago, for example, networks of women working to reduce barriers for their peers are growing, and more women are moving into positions of power. Still, women held roughly 22 percent of technology jobs in Chicago and nationally last year, according to data from Downers Grove-based trade association CompTIA.

The lack of female representation in popular culture stands to threaten not just the future of the STEM industries but also efforts the industry and educators have made to encourage girls and women to enter the male-dominated fields, said Nicole Small, president of the Dallas-based Lyda Hill Foundation, which funded the study.

"(Girls are) getting good messages from role models and teachers," she said. "But then they go out into the world, and whether it's what they're seeing on Instagram and YouTube, these messages are not being reinforced in the right ways.

"We need to make sure that out of school time and outside of these specialty programs, these girls are getting messages that she can change the world if she wants to."

If a girl sees a woman in a STEM career on TV, she can see herself in that role too, Small said. As part of the study, the researchers surveyed girls and young women in middle school, high school and college; 4 out of 5 respondents said seeing female characters in science and technology careers was important to them.

Some characters in particular stood out as influences among the girls and women who intend to pursue a STEM career, including Dana Scully from "The X-Files," Meredith Grey from "Grey's Anatomy" and Amy Farrah Fowler from "The Big Bang Theory," according to the study.

When Nancy Amato was in graduate school, "The X-Files" was a staple. Now Amato is set to become the first woman to head the computer science department at the University of Illinois at Urbana-Champaign in January.

Amato calls herself "an accidental computer scientist," having found the profession through a job offer after receiving her undergraduate degree in applied math and economics. But math was always her best subject, and she remembers the women she learned from—the nun who taught her calculus in high school remains her favorite teacher.

So was it the real-life role models or the women she saw on TV that encouraged her more toward her career path?

"Probably both," she said. "It's hard to know really what influences you."

As an educator, Amato sees movies as a learning tool. She ran the honors program at Texas A&M University and showed students—men and women—Hidden Figures," the 2016 film about three trailblazing black female scientists at NASA.

But characters—male or female—in STEM fields rarely have leading

roles, the study found. Over the last decade, the percentage of female lead characters who work in technical fields peaked in 2012 at less than 15 percent. White women were more likely to be featured as leads and portrayed as heroes than women of color.

Hollywood is dealing with its own issues regarding female empowerment following the sexual abuse allegations that surfaced last year against film producer Harvey Weinstein. The #MeToo movement, spurred by the revelations, has upended careers and prompted institutional changes in schools, restaurants and businesses. Earlier this year, prominent actresses banded together to launch the Time's Up movement, meant to support working-class women dealing with the effects of inequality.

Whether a push for more female characters in STEM fields comes from writers, producers or actors, it needs to start somewhere, and it needs to happen soon, said Terri Brax, co-founder of Women Tech Founders.

Three years ago, when Brax and her team were preparing to launch their tech group, they reached out to young women as part of their research to learn why the lack of women in the startup industry was so pervasive. The answers they received highlighted stereotype after stereotype, she said.

Young women were convinced that creativity and STEM couldn't go hand in hand, and they thought tech jobs meant sitting behind a computer all day, having no life and no interests, Brax said. The Lyda Hill study found that almost 43 percent of characters in STEM careers were shown sacrificing their personal life to work in the field, and more than 30 percent of films and episodes portray STEM professions as "not at all family-flexible."

"These stereotypes, they knock you out before you're ever starting the idea of what it looks like to be a woman in STEM," Brax said.

The problem is fixable, said Small, from the Lyda Hill Foundation. Kids are born scientists, exploring and curious. Their interests need to be stoked, and there are plenty of stories to tell about women in STEM to help girls connect the dots.

"Girls can do anything too," she said.

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