

“I’M A GIRL, SO I CAN’T DO SCIENCE.”

*Gender-science stereotypes first arise during childhood,
so let’s start debunking them during childhood too*

Michelle Wijma, 14 april 2017

When I was a fifteen years old, I had to choose what courses to follow during my last three years of high school. I hesitated between the health and the technical study program, even though deep down I knew that the technical program fitted me better. Adolescent-me was very insecure and had low self-esteem. I thought I was too bad at physics and would never be able to make my way through a STEM* study at university.

GIRLS JUST DON’T HAVE THE SKILLS

My story is not unique. Society teaches girls to feel like they don’t have the skills or intelligence to be successful in STEM courses or careers. Girls value their STEM achievements too lowly due to low self-esteem and a lack of confidence. This results in them losing interest and aspiration for choosing a STEM career.¹⁻³

And who are they to blame? Sixty-seven per cent of Europeans think that women do not possess the required skill set in order to achieve high-level scientific positions.⁴

NOBEL PRIZES FOR DUTCH WOMEN: A SHORT STORY

Gender-science stereotypes are an important reason for the huge gender gap in STEM careers. It might surprise you, but the Netherlands is ranked No. 1 (of sixty-six nations) in gender-science stereotypes.⁶

Therefore, it might not surprise you that the Netherlands scores lowest in the European Union when it comes to gender diversity in mathematics, science and computing studies. Only twenty-three per cent of those students are female.⁷

Have you ever taken a good look at children’s **toys**? Toys marketed at boys demand being practical and creative, for example with LEGO. Toys directed to girls, like Barbie dolls, mostly lead to passive play and are often focused on appearance. These stereotypical distinctions between boys and girls have a big influence on their world view.⁵

* STEM = science, technology, engineering and mathematics. Some literature groups these fields of science slightly different. For this essay, all are referred to as STEM.

Also, at every moment of educational choice, an outflow of female STEM potential occurs. Only eleven per cent of the professors at Dutch technical universities are female.⁸

One of the highest achievements in science is being awarded with a Nobel Prize. Recently I visited the University Museum in Groningen where portraits of all twenty Dutch Nobel Prize winners were displayed. Guess how many women there were... none.

THE GENDER GAP NEEDS TO CHANGE, BUT WHERE DO WE START?

The gender gap, gender-science stereotypes and girls' low value of their STEM abilities all connect at the moment girls first lose interest in STEM subjects: during adolescence. When puberty hits, girls show heightened awareness of gender roles.⁹

The good news is that people are not convicted to their traditions by genes and hormones. This means that stereotypes and gender prejudices can be unlearned. This preferably happens before or during adolescence, because the older people get, especially after puberty, the harder it will be for them to unlearn their entrenched ideas.¹⁰

You might be wondering: **“why is this a problem?”** or even feel threatened in your privileged position as a man in STEM. Research shows that more diversity in a team leads to better results.¹³ Imagine a team of ten people consisting of nine men and one woman. If the four least skilled men are replaced by four women with equal skills as the people who are left, you end up with a higher quality team than you started with.

ROLE MODELS ON TELEVISION: ONE METHOD FOR CHANGE

One way children learn is via observing and imitating the behaviour of others. This means that symbolic models, such as those depicted in mass media, have an influence on children's knowledge and ideas. It is also important to know that children mostly identify with characters of the same gender as themselves.¹¹

Television is one form of media that influences girls' views on science. Research shows that this is because 1) adolescent girls watch a couple of hours of television a day, 2) television is a source of information about scientists for middle school-aged children, and 3) television programs positively influence children's attitude towards science.¹²

The influence that television programs and role models have on girls' ideas about science is the most important reason why it is crucial that female scientist characters on television are portrayed in a realistic and non-stereotypical way.¹²

ROLE MODELS ON TELEVISION: NOT GOOD ENOUGH YET?

The portrayal of scientist characters on television has changed over the years in a positive way. Gender-science stereotypes are less present than before and the characters are female more often.¹²

But we are nowhere near perfect yet. Subtle gender stereotyping still happens, for example by focusing on appearance or family issues more often with female than with male scientists. Also, male scientist characters still get way more screen time than female characters.¹²

As long as the gender gap in STEM still exists, I think we should take affirmative action and show female scientist characters on television more than just half of the time.

One step in fighting the gender gap in STEM is the portrayal of good role models for girls in mass media. Meanwhile, we have to stay alert to stereotyping.

Let's find the next Dutch Nobel prize winner. We need her.

Luckily, fifteen-year old me chose the technical program. However, choosing my university study was, again, based on insecurity. And remember me saying I was bad at physics in high school? I actually got a 7 out of 10 on my diploma. I really am a living stereotype...

To my fellow science communicators

We can help make this change happen. We are the role models I describe. We can speak up about the issue, we can introduce role models to mass media, we can simply use social media or YouTube, we can focus on the issue when designing books for school... whatever career you foresee in the future, you can always keep this topic in mind.

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