



YOU CAN'T BE WHAT YOU CAN'T SEE

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STEM is the combination of Science, Technology, Engineering and Maths. People who work in STEM are the hidden heroes of humanity.

Without these everyday heroes we would still be living in the dark ages. STEM superheroes save lives, protect our planet, and create our future possibilities. They literally keep society functioning and moving forward and yet most of the population is unaware of the vital work people in STEM do.

WE NEED MORE VISIBLE ROLE MODELS

Research by Engineering UK [1] showed that a whopping 73% of 11–14-year-olds don't know what engineers do, 69% of parents don't know what engineers do, and 42% of teachers don't feel confident giving engineering career advice. Is it any wonder then that we don't have enough people choosing to pursue STEM and go into STEM careers, like engineering?

The STEM skills shortage is estimated to cost employers in the UK £1.5bn a year [2]. This cost to the economy is huge, but what will the cost to humanity be in the future if we don't plug this gap?

Role models inform, influence and inspire the decisions people make about their life and career.

The lack of visible diverse STEM role models who represent the breadth of career opportunities in STEM is a key contributor to the skills shortage problem.

To plug the STEM skills gap, we need to widen the net. This requires more diverse role models to inspire and influence a wider pool of talent.

DIVERSITY IS THE DIFFERENCE

As we evolve through the 4th Industrial Revolution and beyond, the need for innovation in STEM will continue to increase at pace.

Innovation in STEM is key to solving some of our biggest Global challenges. A key ingredient for innovation is diversity, but a well-known challenge in STEM is the lack of diversity [1] which is another reason diverse STEM role models are so important.

Black and ethnic minority workers make up only 12% of the UK STEM workforce and only 24% are women, when you look at engineering alone it's much worse, with only 14% women in engineering. This is not enough.

Research shows that children aged 3–5-years-old already show less support for counter-stereotypical STEM career choices, e.g. a girl who wanted to be an engineer [3].

This is a major problem for STEM Industries as these biases are established so young and then mostly reinforced over time, but we can do something about it.

EVERYONE BENEFITS FROM DIVERSE ROLE MODELS

We know that counter-stereotypical role models have a positive influence on minorities, but what about the majorities? Do they lose out? No.

Research [4] shows that girls who only interact with male STEM educators reinforce their negative stereotype that they don't belong in STEM. The surprising evidence is that boys who interact with female STEM educators don't think they are any less able or respected but they have a more equitable view of girls and women in STEM so their experience is also positive. Win win!

This is not only crucially important for diversity but also a key piece of the inclusion puzzle.

In addition to this, a study presented in the Journal of Applied Developmental Psychology [5] showed that early childhood is a key window in which educational interventions aimed at fostering female engagement with STEM may have greater impact. So diverse role models benefit everyone, and the younger this engagement happens the better.

OUR STEMAZING MISSION

Stemazing is dedicated to inspiration and inclusion in STEM. We are passionate about the importance of diverse visible role models. One of our initiatives, the Stemazing Inspiration Academy, empowers women in STEM to shine as visible role models and inspire Primary children through fun, interactive STEM sessions.

The diverse women in STEM participants take part in a 4-month programme of training and workshops to build their confidence on camera and grow their STEM delivery toolbox.

These newly empowered role models then deliver a 6-week programme of LIVE online sessions which are all hands-on simple STEM activities and experiments designed to promote curiosity, creativity and courage. Places for Primary schools are prioritised by percentage of families on free-school-meals to ensure we are reaching the highest need areas.

In just 18 months of running this programme we have delivered over 30,000 STEMAZINGKids experiences run by empowered women in STEM.

We continually receive fantastic feedback from women and schools saying how much they have benefitted. As our not-for-profit enterprise gains more support we will be able to grow this impact significantly in future.

DIVERSE PEOPLE ARE THE RAW INGREDIENTS. INCLUSION IS THE RECIPE FOR SUCCESS

However, this is only part of the long-term solution. Recruiting more diverse people into STEM does not bring the potential benefits unless those diverse perspectives can thrive. This is the real recipe for success – inclusive cultures with psychologically safe working environments.

We have a long way to go, but with more awareness of what good looks like and where the pain-points are – maybe then we will cultivate the STEM culture that enables and empowers everyone to thrive and bring their whole self to work. Not only representing the diversity in the communities they serve but enabling real innovation that will improve the future of humanity for everyone.

JOIN OUR MISSION

Thanks to our Sponsors we can offer the Stemazing Inspiration Academy free of charge to women and schools participating. For more information about participating and how you can support our mission of inspiration and inclusion in STEM, please visit our website: www.stemazingltd.com/inspiration-academy.

References

1. The State of Engineering, Key Facts 2018. Engineering UK.
2. Skills shortage costing STEM sector £1.5bn. May 2018. www.stem.org.uk
3. Judgements and reasoning about exclusion from counter-stereotypic STEM career choices in early childhood, Mulvey & Irvin, 2018.
4. Shifting STEM Stereotypes? Considering the Role of Peer and Teacher Gender. Reigle-Crumb et al. 2016.
5. STEM gender stereotypes from early childhood through adolescence at informal science centres. McGuire et al. 2020.

