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How to find success as a woman in science

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How to find success as a woman in science

Abstract

As children we are encouraged to dream big, and many young people - including young women and girls - aspire to a career in science. While there are role models at the top tiers of science combating gender bias, the jump from PhD student to lead researcher may at first seem insurmountable for many women. Students considering a career in science are told that competition for research funding is fierce, giving rise to short-term contracts and job insecurity. This sees scientists working overtime and weekends and that makes it harder to succeed if you are a female scientist and mother. This outlook can leave students questioning their future in science. But there is a way to make a successful and rewarding career in science. Our own personal stories demonstrate this.

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THE CONVERSATION

Academic rigour, journalistic flair



How to find success as a woman in science

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Students at the 2017 Science, Technology, Engineering and Maths (STEM) Camp for Girls at the University of Wollongong. Paul Jones/UOW, Author provided

As children we are encouraged to dream big, and many young people – including young women and girls – aspire to a career in science.

While there are role models at the top tiers of science combating gender bias, the jump from PhD student to lead researcher may at first seem insurmountable for many women.

Students considering a career in science are told that competition for research funding is fierce, giving rise to short-term contracts and job insecurity. This sees scientists working overtime and weekends and that makes it harder to succeed if you are a female scientist and mother.

This outlook can leave students questioning their future in science. But there is a way to make a successful and rewarding career in science. Our own personal stories demonstrate this.

Our stories

When Amy Wyatt completed her PhD at the University of Wollongong (UOW), she looked abroad to answer the question of where to next? Amy tested out an alternative career in science communication but returned to academia because the

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pull of discovery in science was too exciting to ignore.

A fellowship sent Amy to Cambridge, UK, for two years and then back to UOW. With her science communication skills, Amy won the UOW iAccelerate pitch competition in 2015, a small grant competition for innovative ideas, before securing federal funding.

Martina also ventured overseas after her PhD to a complete postdoctoral stint in Germany, and later the United States. She too decided to return to UOW. She felt this was a good environment in which to establish her independence, rather than be in the shadow of more senior, well-established researchers in her field. A key factor was the support she received from her PhD supervisor, who advocated for Martina as she set up her own research group.

Kara worked with researchers in Sweden and Denmark before taking a postdoctoral fellowship at her hometown university, UOW. She chose to further her career alongside neuroscientists, chemists and materials scientists to build new collaborations beyond her realm of cancer biology and expand her program of research in drug targeting and delivery.

As three early-career researchers, we have guided students through their undergraduate and PhD studies, many of whom are promising scientists but they are doubtful that they will find a way to establish themselves as independent researchers.

If you, or someone you know, is considering a career in science, here are some important lessons we have learnt in how to make it work.

Call on support networks

Gender equity is a particularly sticky issue for science. The choice to raise a family may be judged as a disruption to research output when scientists are assessed for funding. This is the point where many women choose to leave academic careers. The global nature of science also necessitates regular long distance travel, which is difficult for those with family responsibilities.

A strong local support network can make the task of balancing young children and the demands of research more manageable. Family networks can offer assistance when travel or extended work hours are called for and a supportive, collegiate ethos between co-workers can encourage and boost young postdocs.





Amy Wyatt studies the effect of misfolding proteins in Alzheimer's disease and pre-eclampsia. Robyn Gower/IHMRI

Use small grants as a stepping stone

Small institutional grants offered by universities to early-career researchers can provide funding to kick-start research when returning from parental leave.

Small grants also allow researchers to develop new projects and obtain preliminary results to be competitive in major funding schemes. For Amy, who is the lead investigator on a National Health and Medical Research Council (NHMRC) project grant on Alzheimer's disease, internal funding allows her to pursue side projects and build a broad research program.



Kara Perrow (nee Vine) designs targeted therapeutics for breast cancer and motor neurone disease. Paul Jones/UOW Media

Build diverse collaborations

A research institute with a healthy diversity of sciences can help young scientists make their mark through innovative projects. In our experience, when research diversity is paired with a collegial atmosphere that has researchers swapping ideas over coffee, unexpected collaborations can be fostered.

In her research, Kara designs drug delivery platforms to make sure that cancer drugs reach their target by encasing drugs in protective lipids that seek out breast cancer or immune cells, or producing drug-loaded scaffolds to implant for pancreatic cancer. Kara happens to share an office and work with a motor neurone disease (MND) research fellow, Justin Yerbury.

Combining their expertise in the fields of drug delivery and neuroscience, Kara and Justin won an ambitious grant from the US Department of Defense to improve drug delivery to the brain for MND. The idea for this research came about on a social mountain bike trip with Wollongong alumnus and friend, Darren Saunders.



Martina Sanderson-Smith is a microbiologist who studies the mechanisms of bacterial infections. Paul Jones/UOW Media

Find an advocate

Networking is fundamental to building a career in science so that researchers can exchange ideas and call upon advisers. Finding an effective mentor is important for up-and-coming researchers and their professional development.

But finding someone who is prepared to advocate on your behalf is invaluable. To have someone nominate them for opportunities gives emerging scientists the confidence to back themselves.

For Martina, it was her PhD supervisor who put her name forward when approached by international collaborators and said that she was the best person to speak to. Work from these collaborations led to her NHMRC project grant successes to study Group A *Streptococcal* bacterial infections. Martina now follows suit as a supervisor to raise the profiles of her students and postdocs.

This can be challenging, as the pervading message to early-career scientists is that you have to promote yourself, but we admire the leaders who build up those around them.

Diversity in the leaders that we promote can reveal new pathways for young scientists.

Advancing a career in science is challenging, especially for women. But it can also be deeply rewarding. We hope our experiences, and the lessons we learnt from them, can encourage and assist other young women to embark on a career of discovery in the sciences.

Clare Watson, research assistant and science writer at the University of Wollongong, assisted in the production of this article.



Women in science

Women in STEM