

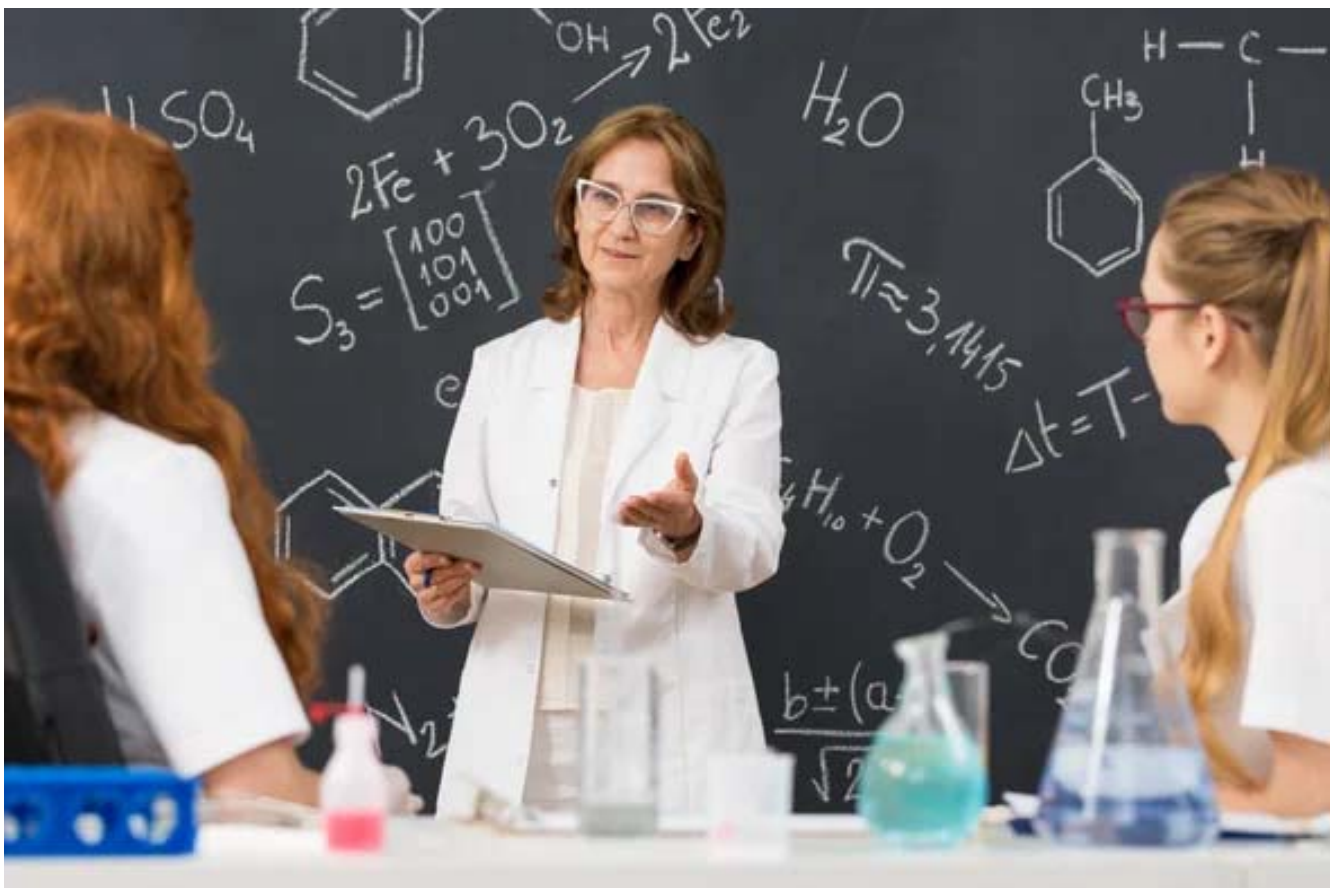


Observations

Why Scientists Should Have Leadership Skills

It's an excellent way to foster innovation

By Rowan Brookes, Bob Wong, Susie Ho on August 15, 2017



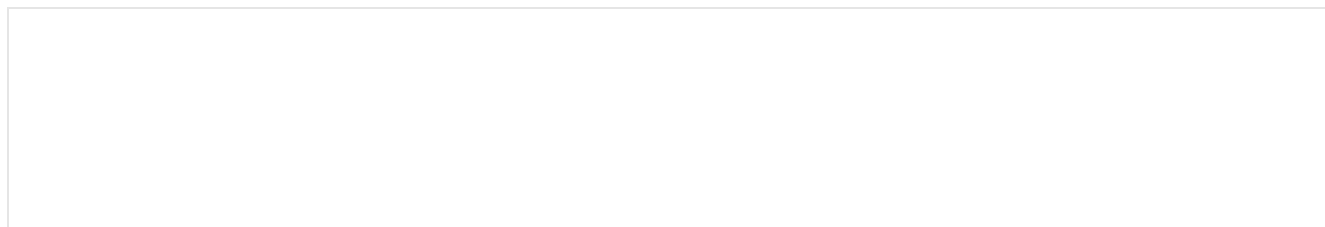
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Science has a vital role in shaping our society and economy. The impact of science can continue to grow provided our scientists and science professionals are equipped

with skills to create an innovative, sustainable and prosperous future.

Too frequently, leadership skills are mistakenly equated with management skills; many only see value in leadership education when people reach senior positions and are managing teams. When leadership education is conceptualized as an action undertaken by many rather than a title held by few, it can increase the quality of people's contribution to their sector. This is because leadership education can provide a pathway for building self-awareness, self-efficacy, interpersonal skills, resilience and adaptability.

Providing leadership education could be a way to extend science graduates' outlook and capacity beyond the traditions of academia. This will, in turn, create scope for changing the culture of science. A science education with leadership could enable those trained in the discipline to be as proactive in implementing and integrating science and scientific thinking across sectors as they are in researching it.



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SCIENCE GRADUATES OF THE FUTURE: EMPLOYABLE IN ANY ORGANIZATION

If the current requirements of employers are considered, studies indicate a mismatch in the skills desired by employers and those that science graduates enter the workforce with. For example, when comparing skills in non-STEM (science, technology, engineering and math) employees and STEM employees, those from a STEM background are perceived to lack interpersonal skills and time management.

The perception from students and employers is that these skills are often poorly developed in a traditional science curriculum.

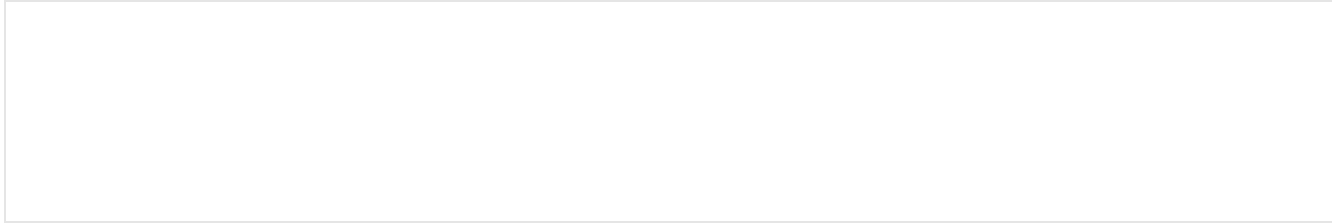
Addressing the present skills gap is even more critical because the science workforce is changing. In this regard, the need for a highly skilled scientific workforce is increasing because of the acceleration of emerging technologies (eg, artificial intelligence, robotics and biotechnology). These disruptive trends are occurring in concert with a critical need to address global challenges (eg, water and food security, biodiversity loss and climate change).

Along with these technological shifts, there is a change occurring in the skills desired in the workplace. Specifically, a *Future of Jobs* report by the World Economic Forum indicates that, by 2020, the skills most sought after by employers will include problem solving, creative thinking, emotional intelligence and interpersonal skills. Such skills can be directly gained through leadership education.

LEADERSHIP EDUCATION WILL HELP WITH RESEARCH

Research skills are, understandably, a top priority for the fledgling scientist, but what is often overlooked by the science community is the importance of leadership skills for establishing and running a research team.

The increasing globalization of science heralds the growth of research teams with greater international diversity and multidisciplinary composition. Diverse scientific teams have been demonstrated to produce better research and more broadly diverse teams are considered more innovative. Our emerging laboratory heads need to be equipped to lead these teams for innovation by learning to harness this diversity.



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Finally the interpersonal skills developed through leadership education may be helpful for emerging researchers. An early career researcher, Jessica Seeliger, outlined how transitioning from a science education with a focus on rational scientific methodology leaves young research scientists short when faced with the challenges of growing a team and delivering results. She suggested that leadership education might help with interpersonal dynamics such as “dealing with a difficult co-worker, or motivating students.” These skills, which are grounded in teamwork, communication and emotional intelligence, are foundational skills in most leadership courses.

LEADERSHIP EDUCATION FOR SCIENCE PROFESSIONALS

We mustn't forget that science graduates have diverse career destinations. A rigorous science education should prepare all students for the workforce, not just those destined for a scientific career. Leadership education can directly enhance the employability of science graduates, as leadership skills are often the same transferable skills sought by employers.

Exposing students early to leadership skills will help them bridge the gap between research and implementation, or utilize the scientific mindset cultivated over many years of study into their work (eg, in government or industry).

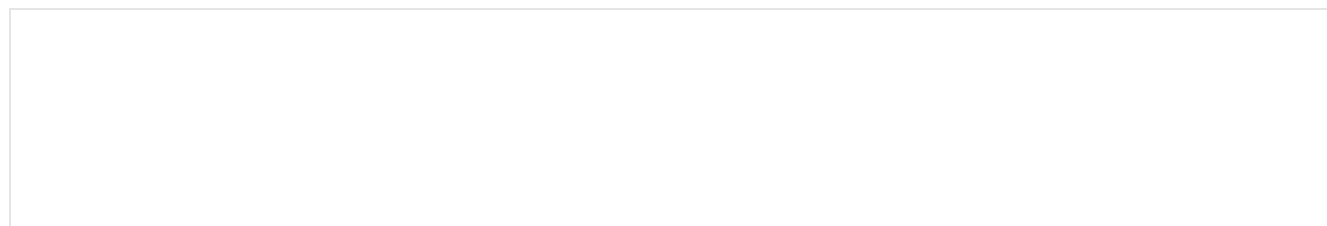


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Science students themselves also appear to want a broader set of skills from their degree. Almost any science graduate preparing to leave university will speak about the anxiety of facing an uncertain job market. We have recently found that science students choose to enhance their science degree with leadership education specifically to increase their employability and job opportunities outside of science.

The benefit of equipping more science graduates with leadership skills is that this approach can serve many masters in a climate of innovation. When we teach individuals how to have impact, think strategically, understand themselves and work with others, this can benefit multiple career trajectories. These benefits can flow across the spectrum of societal and economic needs from the grassroots eco-warrior to CEOs of global biotechnology business.



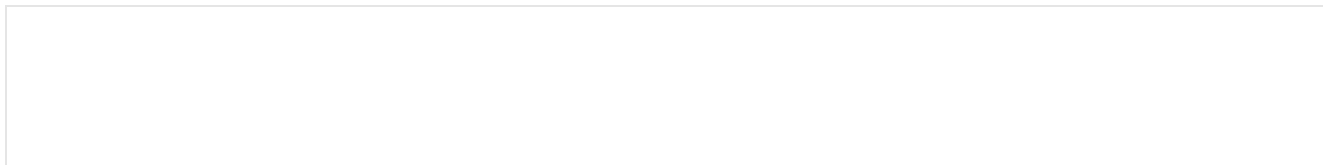
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Leadership principles incorporated with scientific education can elevate the discipline to challenges across a range of sectors, not just within research. As one of our science undergraduate students states, “*Scientific leaders are needed to drive the integration of science into the wider world in a way that places science in a more influential position to help change the world for the better.*”

Bob Wong is an evolutionary and behavioral ecologist. He is currently the Deputy

Head of the School of Biological Sciences at Monash University and the coordinator of the Science Faculty's leadership program for undergraduate students.

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ABOUT THE AUTHOR(S)

Rowan Brookes

Rowan Brookes is the Director of Education for the School of Biological Sciences at Monash University. She also coordinates an undergraduate degree focused on leadership, entrepreneurship and industry engagement.

Bob Wong

Susie Ho

Susie Ho is a freshwater ecologist. She is the Course Coordinator for the Master of Environment and Sustainability where she works to foster cross-disciplinary teaching and learning.

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