The Future of Work Lab – Pilot Program Research

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Emerging Leaders Lab: Women in STEM

Program outline

Academic research has identified that women studying Science, Technology, Engineering and Maths (STEM) at university have the highest rate of attrition following the completion of their degree. This phenomenon is referred to as 'the leaky STEM pipeline'. With an estimated 75 per cent of the fastest growing occupations requiring strong STEM skills, it is more important than ever that we support young women in STEM industries, ensure their workforce retention, and encourage their leadership in the sector.

The Future of Work Lab in partnership with the University of Melbourne is seeking to address this rising rate of attrition amongst women in STEM. Linking tertiary students with young industry professionals, the Future of Work Lab's leadership program will be the first initiative at the university to bring together women across STEM for leadership training, networking, and mentoring.

Following extensive research, we have created a pilot program that uses evidence-based best practice. The overall aim of the program is to support individual career development and broader organisational change, thus strengthening the 'leaky STEM pipeline'. With a monitoring and evaluation (M&E) framework built into the program, The Future of Work Lab team will carry out an assessment of the program and produce an evaluation report of our findings.

The program will be delivered for 8-weeks during Semester 1, 2022, with a time commitment of 80-minutes - 3 hours per week. For more information about the *Emerging Leaders Lab: Women in STEM* program, please contact Kate Dangar (kate.dangar@unimelb.edu.au).

Program structure

Mentoring

Students will be partnered with young industry professionals for traditional 1:1 mentoring which focuses on career and identity development. Using Dr Jennifer De Vries Bifocal Approach to mentoring women, participants will be asked to attend a minimum of four one-hour sessions. Each participant will receive a mentorship guidance and training manual written by The Future of Work Lab team.

Evidence-based best practice: Mentoring

Atkins et al. (2020) recognise that the development of a student's scientific identity through mentoring can improve academic performance, retention, and STEM degree completion (p. 2).

Dennehy & Dasgupta (2017) concluded in their research that same-gender mentoring "during development transition points promotes women's success and retention" in STEM, which yields dividends over time.

Barabino et al. (2020) reported that a 1-year study from the University of Massachusetts showed "better professional achievements of female engineering students when mentored by women as compared to those that were mentored by males or not mentored at all". Female students paired with female mentors felt more motivated, self-assured, less likely to drop out of their courses and more determined to look for STEM jobs after graduating.

Redmond & Gutke's (2020) research concluded that "mentors who are close in age to student participants have been highlighted as having the most effect".

Stoeger et al. (2013) agree that mentors who are as similar as possible to their mentees, with respect to age, are particularly effective as role models for women in STEM.

Leadership training

All program participants will be given the opportunity to attend leadership training. The Future of Work Lab will deliver eight 40-minute interactive sessions, that cover leadership topics and soft-skills such as 'effective communication', 'conflict resolution'. and 'delegation'.

Evidence-based best practice: Leadership training

Eagly (2021) notes that in today's climate many social scientists reiterate that "women still face formidable barriers that exclude them from STEM and leadership" (p. 89).

Daldrup-Link (2017) argues that women in leadership programs could be the catalyst to provide new perspectives within the STEM workforce (p. 808). Leadership programs can be developed to help women discover and enhance their own

leadership style so they may become more confident and assertive.

Van Oosten et al. (2017) stress that "the goal is to provide women with knowledge, tools and a supportive learning environment to help them navigate, achieve, flourish, and catalyse organisational change in male-dominated and technology-driven organisations" (p. 1).

Daldrup-Link (2017) suggests that supporting the development of female leadership in STEM could be achieved using a two-pronged approach. First, empowering women through educational training platforms and second, creating an environment in which women are given equal opportunity to develop as their male co-workers (p. 285). It is emphasised that such methods should be cultivated in the early stages of a women's career as an undergraduate and postgraduate STEM student.

Nash et al. (2017) concluded that to facilitate the development of women's leadership identities, women-only programs must recognise and address the subtle and pervasive effects of gender bias so these women may establish a stronger sense of self and relationships with other women in the sector (p. 2-5).

Networking

Two networking events will be held by The Future of Work Lab at the beginning and end of the program. Each event will include lectures, panels, and interviews with STEM industry leaders. Held at Melbourne Connect on the University of Melbourne campus, these events will offer program participants the opportunity to grow their professional network in an inclusive and supportive environment.

Evidence-based best practice: Networking

Bhatia & Amati (2010) claim that "equally important to obtaining and succeeding leadership roles is developing support networks with peers". They emphasise that such networks are particularly important for women early in their graduate careers, to help build their confidence and provide them with personal and professional support

Program timeline

Week	Date	Event	Time allocated	Topics covered
Week 1	28th Feb – 4th March	Networking – Launch of Program	2 hours	Guest speaker
		Mentorship	1 hour	Self-led
Week 2	7th – 11th March	Leadership training	80 minutes	1) Effective communication 2) Stress/time management
Week 3	14th – 18th March	Mentorship	1 hour	Self-led
Week 4	21st – 25th March	Leadership training	80 minutes	1) Conflict resolution 2) Problem solving
Week 5	28th March – 1st April	Mentorship	1 hour	Self-led
Week 6	4th – 8th April	Leadership training	80 minutes	1) Team motivation/ engagement 2) Delegation
Week 7	11th – 15th April	Mentorship	1 hour	Self-led
Week 8	25th – 29th April	Leadership training	80 minutes	1) Diversity and inclusion 2) Continued learning
		Networking – End of Program	2 hours	Guest panel – discussion/ interview

NOTE: *Dates are subject to change*

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