



Australian Government



UNSW  
SYDNEY

Women in STEM  
Ambassador



# YEAR IN REVIEW 2019

# Contents

## 04 OVERVIEW

Our annual review  
About us  
Our purpose  
Our vision

## 05 EXECUTIVE SUMMARY

## 07 YEAR IN REVIEW

Our activities	07
Our people	16
Who we work with	16
Outreach activities	17
Media report	18

## 20 2020 OUTLOOK

Our key projects  
and goals for 2020

# Impact at a glance

**91**

hours  
outreach  
activities



**46**

school visits  
& events in  
every state  
& territory



Delivered  
National Press Club Address,  
reaching an audience of

**213,000**



Travelled  
approx.

**103,180**

kms across the globe in  
2019



Good Weekend's  
*Who Mattered*  
2019

Reached

**1.6**

million through  
media coverage



**150**

different media  
outlets (From 1 Oct  
2018 to 1 Oct 2019)



Keynote at inaugural  
Hopper Down Under  
conference

(this is run by a major international  
organisation that holds the largest  
gatherings of women technologists  
in the world in the US, and they  
brought their event to Australia)



This annual review provides information on the  
activities of the Office of the Women in STEM  
Ambassador during the 2019 calendar year.



# Overview

## OUR ANNUAL REVIEW

This annual review provides information on the activities of the Office of the Women in STEM Ambassador during the 2019 calendar year.

## ABOUT US

The Women in STEM Ambassador is an Australian Government Initiative to address gender equity in science, technology, engineering and mathematics (STEM).

In October 2018 the Australian Government announced Professor Lisa Harvey-Smith as the Women in STEM Ambassador, a position outlined in the 2018-19 Budget as part of a \$4.5 million package to encourage more women into STEM education and careers.

The Women in STEM Ambassador initiative is funded by a Commonwealth Grant and hosted at the University of New South Wales. We work with stakeholders across government, education and training, research and industry to enhance visibility of women in STEM and drive needed cultural and social change for gender equity.

## OUR PURPOSE

We work to increase the participation of women in STEM in Australia by encouraging women to pursue STEM study and careers, making the case for change and working with the STEM community on actions to eliminate barriers to gender equity.

## OUR VISION

We are a leader in action for gender equity in STEM, encouraging and empowering girls to pursue STEM study and careers and advocating for systemic and cultural change across the sector.

# Executive summary

*This annual review provides a summary of the activities and achievements of the Office of the Women in STEM Ambassador in the 2019 calendar year.*

In the period from the announcement of her role in October 2018 to 30 September 2019, Professor Harvey-Smith reached an audience of over 1.6 million through media coverage and is established as a thought leader and compelling science communicator.

She was recognised as one of Good Weekend's *Who Mattered 2019*, an annual snapshot of the people defining Australia in 2019.

Another highlight this year was delivering the Science Meets Parliament National Press Club Address, which reached an estimated audience of 213,000.

As a science, technology, engineering and mathematics (STEM) role model, Professor Harvey-Smith engaged over 8,500 people across all states and territories through her talks and outreach activities.

She spoke to 3,350 students and educators across Australia to inspire students to pursue STEM study and careers.

She delivered keynote presentations at four major state and national education conferences, describing her STEM journey and suggesting ways to reduce gender bias in classrooms.

This year the Office of the Women in STEM Ambassador launched official social media channels to showcase our activities and deliver consistent, targeted key messages around gender equity in STEM to a broad audience.

We also expanded our advocacy to international audiences, developing valuable networks and gaining global perspectives on challenges and solutions to gender inequity in STEM through visits to Europe and New Zealand.

We supported significant government and sector-led women in STEM initiatives including the Australian Government's *Advancing Women in STEM* strategy, the *Women in STEM Decadal Plan*, the *STEM Women*



*Professor Harvey-Smith with students from Kent Street Senior High School in Perth, WA.*

website and the *Girls in STEM Toolkit*, through providing input during their development and promoting them through our online communication channels and speaking engagements.

The team has grown to include a Project Officer, Brand & Communications Specialist, Research Associate, Project Manager and a Campaign Coordinator for the National Awareness Raising Initiative.

These team members provide diverse expertise to support the Women in STEM Ambassador and expand the capabilities of the Office to conduct research, deliver projects, collaborate across the STEM sector and enable high impact communications to attract women to STEM careers.

The Office has built important relationships with major stakeholders across education, research and industry. Through these valuable connections, the Office has developed a nuanced understanding of barriers to gender equity in Australia and how we can support coordinated efforts to improve women's participation in STEM.



We have identified gaps in actions to inform our priorities and are concentrating our activities around four pillars to achieve our purpose:

**1** Increase the visibility of female STEM role models

**2** STEM education

**3** Advocate for gender equity in STEM

**4** STEM careers

There are three major projects that we have progressed in 2019.

We reached out to influential STEM research organisations in Australia to participate in a trial of anonymised review as an evidence-based strategy to reduce bias in the allocation of research resources. We have successfully recruited a number of major national research organisations to participate in the trial, which will commence in 2020.

We are supporting women in STEM initiatives to evaluate their impact by developing evaluation guidelines for self-assessment and will pilot these guidelines in 2020 with the support of the Department of Industry, Science, Energy and Resources.

We are also leading a Women in STEM National Awareness Raising Initiative, announced in the 2019-20 Budget, to promote STEM study and careers to girls, which will launch in 2020.

# Year in Review

## OUR ACTIVITIES

*The Office of the Women in STEM Ambassador aims to increase the participation of women in STEM studies and careers by engaging stakeholders across education, industry, state and federal governments and research.*

Our work is aligned with the Australian Government's *Advancing Women in STEM* strategy and the *Women in STEM Decadal Plan*. The Women in STEM Ambassador raises awareness of gender equity issues, advocates for change and enhances the visibility of women in STEM.

We have identified four pillars to drive achievement of our purpose:



### **Increase visibility of female STEM role models**

Raise the visibility of diverse women in STEM role models.



### **STEM education**

Encourage and empower girls to pursue STEM studies and careers and support teachers and parents/carers to encourage girls' STEM interests.



### **Advocate for gender equity in STEM**

Increase awareness of the barriers to women's participation in STEM and engage with stakeholders across the sector to promote action to address gender inequity.



### **STEM careers**

Attract women to STEM careers and support the sector to address inequities which prevent organisations from retaining women in STEM fields.

The Office complements the existing work and activities that are driving greater gender equity in STEM, both government and sector led, and aims to improve co-ordination and national benefit from those activities. This section summarises our key activities and achievements this year in line with the four pillars.

## INCREASE VISIBILITY OF STEM ROLE MODELS

*As an astrophysicist, one of the ways in which the Women in STEM Ambassador fulfils this priority is through acting as a STEM role model herself.*

Since her appointment, Professor Harvey-Smith has visited schools across the country, including schools in regional and remote areas such as Broken Hill, Kalgoorlie and Leonora. She spoke to students about her exciting and rewarding career as a scientist and encouraged students towards STEM career pathways.

In addition, she wrote forewords for publications with a student readership, including the

*2019-20 STEM Careers Guide*  
published by gradaustralia  
and the *Careers with  
STEM: Maths 2019*  
magazine, advocating  
the importance  
of studying STEM  
subjects to be  
equipped for the  
careers of the  
future.

Another key  
achievement  
aligned with this  
pillar has been

to launch our official Women in STEM Ambassador Facebook, Twitter, Instagram, YouTube and LinkedIn social media channels. These channels enable the Office to communicate with key audiences, including school students, to promote both the Women in STEM Ambassador and other diverse women in STEM role models.

In line with the Women in STEM Ambassador's commitment to promote other important women in STEM initiatives, we also supported the Australian Academy of Science in the launch of the *STEM Women* website (funded by the Australian Government), an online directory of female experts working across STEM fields in Australia.

*STEM Women* is a powerful tool to enhance the visibility of women in STEM role models, empower media organisations and event organisers to achieve gender diversity in their activities and a way for women in STEM to be contacted about potential career-advancing opportunities.

Professor Harvey-Smith delivered a keynote address at the launch of the website, encouraged women in STEM to join through social media channels and has consistently promoted the website at public engagements.

Professor Harvey-Smith visited the Northern Territory School of Distance Education in Darwin and conference called 30 students from remote schools and students who cannot attend face-to-face schooling.

She inspired students by talking about her career as an astrophysicist, encouraged students to pursue STEM study and discussed challenges in STEM education for remote students with teachers.



## STEM EDUCATION

*Supporting educators to encourage girls' STEM interests and communicating with educators on gender bias in the classroom has been a priority in 2019.*



Professor Harvey-Smith engaged with early childhood, primary and high school educators at a number of state and national education conferences including the Little Scientists *Sonic Boom* Educators Conference, the STEM Education Conference held in Sydney, the NSW Department of Education Regional STEM Conference and the South Australian Science Teachers Association annual conference. Lisa shared research on gender equity best practice in education and encouraged educators to implement practical measures to improve gender equity in their classrooms.

In response to a need to evaluate the impact of women in STEM programs, highlighted in the *Women in STEM Decadal Plan* and the Australian Government's *Advancing Women in STEM* strategy, we identified assisting women in STEM initiatives to evaluate their impact as an important activity for the Office of the Women in STEM Ambassador.

We commenced development of evaluation guidelines for women in STEM initiatives and will trial the guidelines in 2020 with the recipients of the Women in STEM and Entrepreneurship (WISE) Grants Program, in collaboration with the Department of Industry, Science, Energy and Resources. These guidelines will be a practical self-assessment tool for effective, meaningful evaluation of women in STEM programs.

**"Professor Lisa Harvey Smith - totally changed my mindset on how I educate."**

- early childhood educator, *Sonic Boom* Little Scientists Educator Conference



## ADVOCATE FOR GENDER EQUITY IN STEM

Advocating for gender equity in STEM is a core part of the Women in STEM Ambassador's role and the work of the Office.

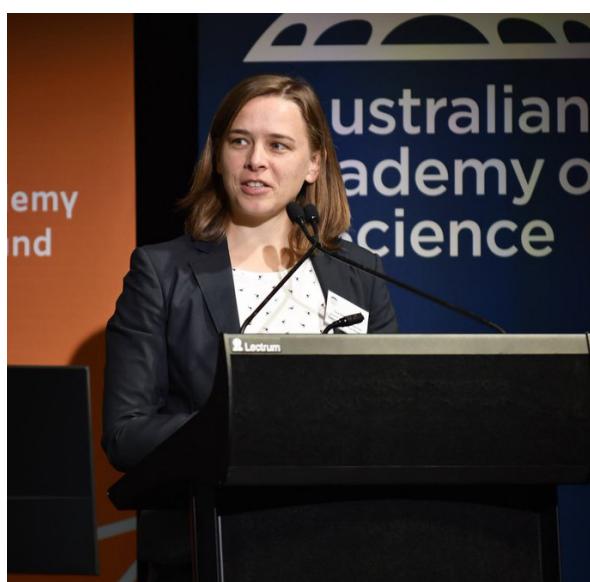
Professor Harvey-Smith communicated the case for change, strategies to achieve gender equity, and encouraged action across the STEM sector through her speaking engagements at events including the Science in Australian Gender Equity (SAGE) Symposium, the Australian Academy of Science's *Pathways to Equity in STEM* symposium, and the Science Meets Parliament National Press Club Address.



Professor Harvey-Smith and Project Officer Lauren Sullivan with the AnitaB.org Hopper Down Under organising team.

Professor Harvey-Smith delivered the keynote address at the inaugural Hopper Down Under Women in Tech conference, organised by AnitaB.org, who coordinate women in tech events worldwide including the Grace Hopper Celebration in the US, the largest gathering of women technologists in the world.

The Women in STEM Ambassador supports the actions of organisations to achieve gender equity by providing advice and support where appropriate. Professor Harvey-Smith produced feedback and advice on the *Women in STEM Decadal Plan* (funded by the Australian Government) as a member of the Expert Working Group and appeared in videos to launch the plan. This document is instrumental in catalysing action and setting gender equity targets for the community for the next ten years.



Professor Harvey-Smith speaking at the *Pathways to Gender Equity in STEM Symposium* in Melbourne.

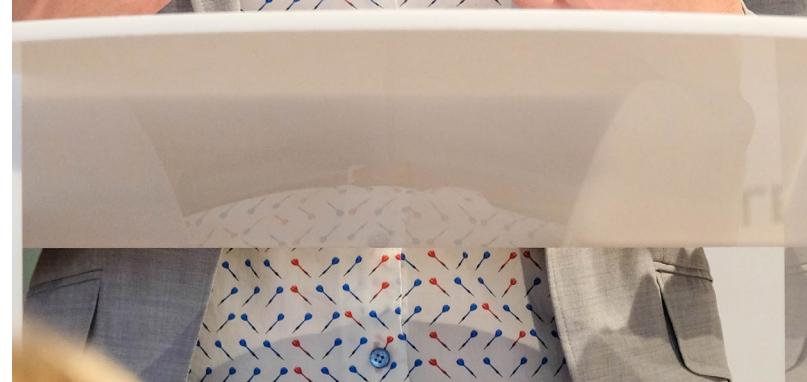
Professor Harvey-Smith also generated positive impact through her advice to and support of the Prime Minister's Prizes for Science, through her participation in the selection committee and appearance in targeted advertising encouraging nominations of women.

These measures contributed to an increase in nominations of women for the Prime Minister's Prizes for Science from 32% in 2018 to 42% in 2019 and women being awarded 5 of 7 prizes.

The Office is a strong supporter of SAGE and the Male Champions of Change (MCC) STEM. Professor Harvey-Smith provided the foreword and delivered the keynote for the launch of the MCC STEM research report on gender equity, *Harnessing our Innovation Potential*, which highlights the barriers to women's career progression in STEM workplaces.

Professor Harvey-Smith also engaged with industry, notably the mining and resources sector, when she joined the Centre of Resources Excellence (CoRE) Learning Foundation on a tour of the Goldfields region of WA and met with mining employees in the Goldfields-Esperance region to raise awareness of gender equity and gain a first-hand perspective on barriers faced by women in mining.

These advocacy discussions encouraged dialogue between mining staff and management around the benefits of flexibility and parental leave on staff morale and wellbeing, and resulted in strong acknowledgement amongst mining industry workers that a gender equal mining industry benefits all staff and promotes a more profitable and engaged business.



*Research is another key capability we are developing to support our advocacy.*

Conducting research and developing research connections allows us to address gaps in gender equity research and provide evidence-based advice to the sector. Inspired by the measures to anonymise applications successfully implemented by NASA<sup>2,3</sup> and the Irish Research Council<sup>4</sup>, the Office is trialling anonymised review of applications for research resources as an evidence-based strategy to reduce bias in selection processes. We have recruited a number of national research organisations in the trial, which will commence in 2020.

We also collaborated with the Engineering for Australia Taskforce and Monash Education Futures on a research report to understand the barriers to diverse participation in engineering in depth and provide recommendations for actions to improve the pipeline of women entering engineering tertiary study. This report will be released in early 2020.



*Professor Harvey-Smith and Lauren Sullivan with Australia's Ambassador to Austria Dr Brendon Hammer and staff from the Australian Embassy in Austria.*

Our advocacy extended to an international audience through visits to Europe and New Zealand, where we gained an international perspective on gender equity in STEM.

In October the Women in STEM Ambassador team were invited to Europe to participate in the 17th Gender Summit – Europe in Amsterdam and meet with key organisations to exchange knowledge on challenges and solutions to gender inequity in STEM overseas.

Professor Harvey-Smith presented at the Gender Summit in a parallel session on current actions to improve gender equity in Australia and spoke about the Australian Government's approach to supporting women in STEM.

Other key engagements included:

- a roundtable discussion in Vienna with representatives from the Federal Ministry for Education, Science and Research and the education sector,
- a speaking event hosted by Australia's Ambassador to Austria Dr Brendon Hammer with prominent members of the STEM community in Austria,
- meeting the CEO of Advance HE in London to discuss learnings from the implementation of Athena SWAN in the UK,
- a meeting in Berlin hosted by Australia's Ambassador to Germany Lynette Wood where we discussed challenges to gender equity with prominent women in STEM in Germany,
- discussions with UNESCO in Paris around their gender equity programs and opportunities for collaboration.

<sup>2</sup> Reid, I. N. (2014). Gender-correlated systematics in HST proposal selection. Publications of the Astronomical Society of the Pacific, 126(944), 923. Available from: <https://iopscience.iop.org/article/10.1086/678964>

<sup>3</sup> Space Telescope Science Institute (2018). Recommendations of the Working Group on Anonymizing Proposal Reviews. Retrieved from: <https://outerspace.stsci.edu/display/APRWG>

<sup>4</sup> Irish Research Council (2016). Irish Research Council policies and practice to promote gender equality and the integration of gender analysis in research. Retrieved from: [http://research.ie/assets/uploads/2016/06/final\\_progress\\_report\\_on\\_gender.pdf](http://research.ie/assets/uploads/2016/06/final_progress_report_on_gender.pdf)



Professor Harvey-Smith was invited by the New Zealand Prime Minister's Chief Science Advisor, Professor Juliet Gerrard, to attend a Women in STEM dinner at the New Zealand Parliament. Attendees shared perspectives on how the Athena SWAN accreditation program could be implemented in New Zealand, the intersectional approaches needed to include First Nations peoples in STEM and reframing discussions on gender equity in STEM workplaces around the definition of 'merit' in academia and education.

“ Today will be etched in my memory - as Lisa was speaking about a women who may ‘one day find a cure for cancer can follow her dreams without impediment – never to be bullied, harassed or marginalised from her chosen path’ - I looked around the room and a number of the PhD Candidate UNSW Women Champions had been moved to tears. ”

It was pretty special.

– audience member, National Press Club.



## STEM CAREERS

We have consistently promoted valuable resources to educators, parents and carers to encourage girls to pursue STEM careers including the *2019-20 STEM Careers Guide* and the *Girls in STEM Toolkit* (funded by the Australian Government) through the Women in STEM Ambassador's engagements and our online communication channels.



Professor Harvey-Smith and Dean of Science, UNSW Sydney, Professor Emma Johnston AO at the National Press Club.

We are leading a \$1.5 million Women in STEM National Awareness Raising Initiative, supported by the Australian Government, to raise awareness of STEM careers and increase the visibility of girls and women in STEM education and professions.

Through a targeted, evidence-based campaign across digital media platforms, this initiative will address perceptions of what a career in STEM involves and reduce stereotypes and gender bias around STEM study and careers.

We have commenced the preliminary research to inform the content and key messages for the campaign.

**Our activities in 2019 have positioned the Office of the Women in STEM Ambassador as a leader in STEM gender equity. We will continue to collaborate on gender equity initiatives across the STEM sector and deliver on our continuing projects in 2020.**



Professor Harvey-Smith with winner of the UNSW Bragg Student Prize for Science Writing, Arwyn Stone, and Annika Stone.



Professor Harvey-Smith with staff from Questacon and Suzy Urbaniak on the CoRE Learning Foundation Goldfields tour in WA.



Professor Harvey-Smith appearing on ABC News Breakfast on 22 September 2019.

## OUR PEOPLE

Since the start of 2019, the team has grown to include the Women in STEM Ambassador, a Project Officer, a Brand & Communication Specialist, a Research Associate, a Program Manager and a Campaign Coordinator for the Women in STEM National Awareness Raising Initiative. These roles equip the Office with a diversity of expertise to enhance our capability to conduct gender equity research, communicate our messages to a broad audience and allow us to expand our impact.

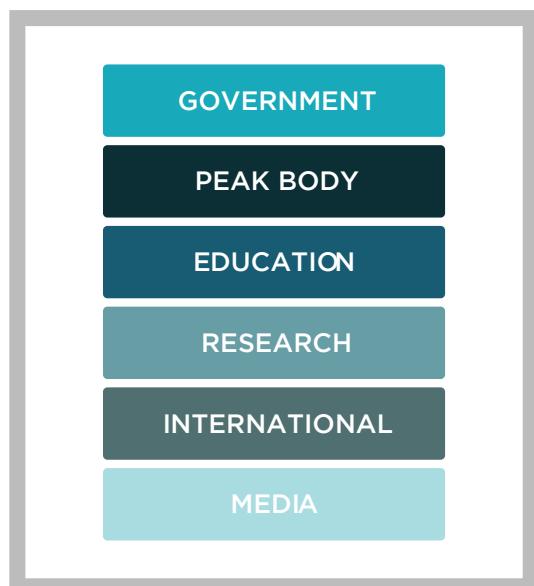


## WHO WE WORK WITH

We have developed relationships with stakeholders across education, industry, research and government to:

- Identify and support existing gender equity activities
- Coordinate and collaborate on initiatives
- Communicate the case for change

Figure 1 shows the stakeholder groups we collaborated and communicated with in 2019.



*Figure 1. Key stakeholder groups of the Office of Women in STEM Ambassador*

## 2018-19 HIGHLIGHTS

- We inspired **3,350** educators and students across Australia about STEM study and careers
- We raised awareness of how to reduce STEM gender bias and stereotypes among **1,000** school and early childhood educators at **4** education conferences
- We supported the launch of the *Women in STEM Decadal Plan*, the *STEM Women* website and the *Girls in STEM Toolkit*
- Communicated Australia's actions towards STEM gender equity in Europe and New Zealand
- Advocated for actions to improve gender equity in STEM to over **213,000** Australians through the Women in STEM Ambassador's Science Meets Parliament National Press Club Address

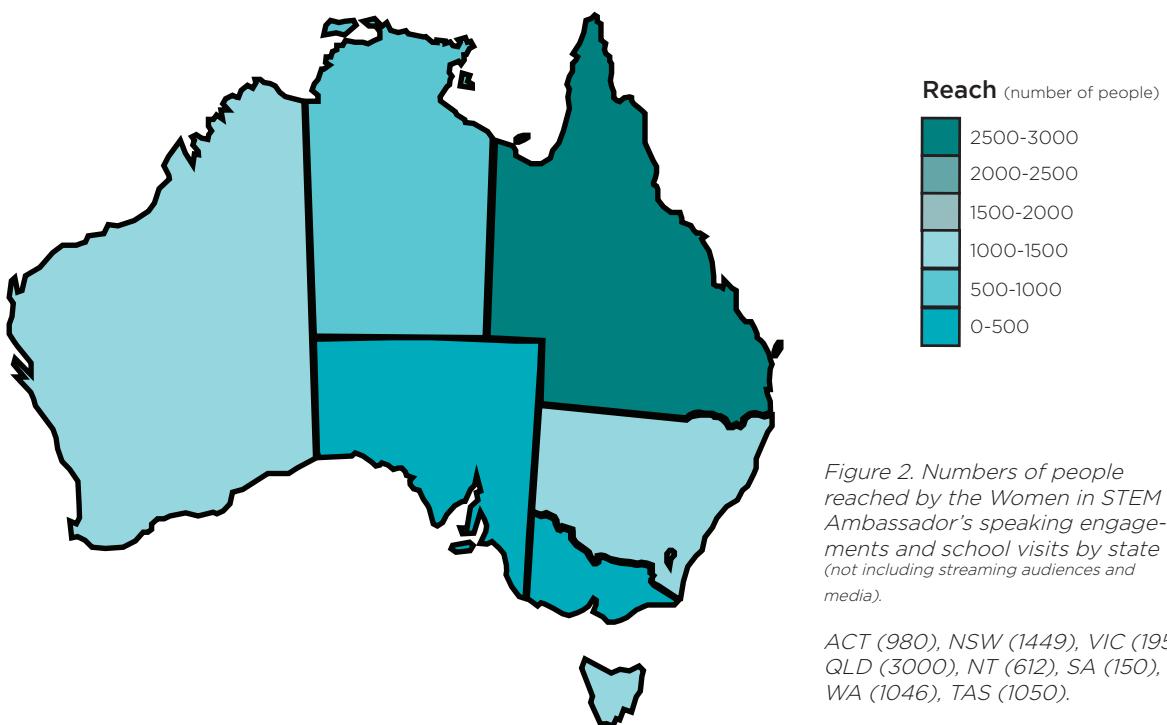
## OUTREACH ACTIVITIES

In 2019, the Women in STEM Ambassador's outreach activities focussed on public talks and school visits, where she spoke to key audiences including industry leaders, educators and school students.

Over the year, Professor Harvey-Smith completed over 91 hours of outreach through her speaking, school visits and community engagement, reaching approximately 8,540 people across Australia (not including media or streaming audiences).

Figure 2 shows the number of people reached through the Women in STEM Ambassador's speaking engagements and school visits by state.

The main audiences engaged through our outreach activities were educators (44%), school students (38%), STEM industry (38%) and research and tertiary education institutions (33%).



## MEDIA ACTIVITIES

In Professor Harvey-Smith's first year since her appointment (1 October 2018 to 30 September 2019) media coverage of the Women in STEM Ambassador reached a potential audience of 1.6 million people.

Professor Harvey-Smith or the position of the Australian Government Women in STEM Ambassador was mentioned in 320 items across print, online and broadcast media. Two key messages arising from media coverage were 'Science is interesting and fun' and 'Build visibility and drive needed cultural and social change for gender equity in STEM'.

One hundred and fifty-seven different outlets produced content on the Women in STEM Ambassador. The most prolific media types were Online and Radio outlets. Online was responsible for 43% of all coverage volumes while AM Radio produced 31% of all items and FM Radio 12%.

Online coverage was led by reporting on the announcement of Professor Harvey-Smith as the Australian Government Women in STEM Ambassador. Most mentions primarily focussed on Professor Harvey-Smith and often went into depth about her career and the Women in STEM Ambassador position. See [Lisa Harvey-Smith: Smashing galaxies and gender stereotypes](#) as an example.

Professor Harvey-Smith was named in the Sydney Morning Herald & The Age's [Good Weekend Who Mattered 2019](#) list, recognised as one of the people defining our nation.



### Key Messaging

Total Key Messages in Coverage

**263 items**

Proportion of Overall Coverage Volumes

Science is interesting and fun (143)

**143**

Build visibility and drive needed cultural and social change for equity in STEM (75)

**75**

We need to build a gender-balanced workforce supported by an inclusive workplace culture that values diversity (32)

**32**

STEM study and careers can provide diverse opportunities (7)

**7**

■ Favourable  
■ Neutral  
■ Unfavourable

STEM skills are skills for life (6)

**6**

On 27 November, Professor Harvey-Smith delivered the Science Meets Parliament National Press Club address, speaking about the importance of gender equity in STEM education and careers. Her address was aired live on ABC News.

Her address created huge interest online generating hundreds of conversations on social media, reaching over 130,000 impressions across the Women in STEM Ambassador and UNSW social media.

*[Impressions are the number of times people saw posts on social media.]*

Media report by AAP's Mediaverse

## OUR SOCIAL MEDIA FOLLOWERS

Lisa Harvey-Smith & the Office of Women in STEM Ambassador channels combined



**20,403**



**5,635**



**2,545**



**1,456**



## SOCIAL MEDIA

The Office officially launched the Women in STEM Ambassador social media channels to share information to a broader and targeted audience and to support Professor Harvey-Smith's Ambassador activities.

The Office aims to produce a diverse range of content, tailored for each social media channel targeting specifically girls, parents and carers, teachers and educators.

We produced a [wrap up video](#) of Professor Lisa Harvey-Smith's first year as the Women in STEM Ambassador, highlighting her key activities.

Women in STEM Ambassador  
@WomeninSTEMAu

What's being done to improve the visibility of women in STEM role models? 🤔

Watch [@lisaharveysmith](#) LIVE [@abcnews](#) tomorrow as she addresses the [@PressClubAust](#) on defying the gender stereotypes, STEM education & what we can all do to foster gender equity in STEM. [#SmP2019](#)



# 2020 Outlook

*As a leader in gender equity in STEM, we will continue to advocate for gender equity in STEM, encourage girls to pursue STEM careers and collaborate with the STEM sector to remove barriers to women's participation.*

Our work will be directed by our four pillars and reinforced by collaboration with our stakeholders.

## OUR KEY PROJECTS AND GOALS FOR 2020

- Trial national evaluation guidelines, supported by the Department of Industry, Science Energy and Resources.
- Work with participating national STEM organisations to trial anonymised review in resource allocation for research
- Deliver activities and resources around key events to engage parents/carers, educators and children
- Communicate with educators about gender equity in STEM education and promote best practice to reduce gender bias and stereotypes
- Deliver and evaluate the Women in STEM National Awareness Raising Initiative



