

Gender Equality in Academia Report:

Guidelines for STEM conference organisers

2021

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Introduction

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Introduction

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Building on the innovative and mixed-method research project "Gender Speaking Differences in Academia", this report investigates how good practices in academic conferences, especially at an organisational level, can advance gender equality and shape the scientific community into a more gender-inclusive environment.

As documented in the existing literature, gender bias and discrimination contribute significantly to the underrepresentation of women, women of colour, and sexual and gender minorities in the scientific world. Although most scientists would agree that success in science should solely be determined by the merit of one's contributions, success in STEM (Science, Technology, Engineering and Math) fields is still profoundly impacted by race, gender, socioeconomic status. Globally speaking, despite the higher participation rate of women in higher education and the overall tendency of women exiting the education system with higher qualifications compared to men, women's academic achievements failed to translate into a favourable position in the workplace. Our preliminary research on gender bias in science has identified scientific conferences, by their collective nature, to be the ideal opportunity to discuss the inequalities based on gender and to challenge them.

To this end, an interdisciplinary research team that holds expertise in both hard and soft science launched a pilot project during one of the most popular and influential annual conferences in the French bioinformatic community, the JOBIM (Journées Ouvertes en Biologie et Mathématiques) 2021 conference. The project focused on question-asking behaviours in academic conferences as means to reveal the potential barriers to visibility and equal expression for all genders. Thanks to the innovative methodological design of this project which combines quantitative and qualitative approaches, the research team can now provide evidence-based and practical suggestions for STEM conference organisers to ensure an inclusive, safe and friendly space for all conference attendees.

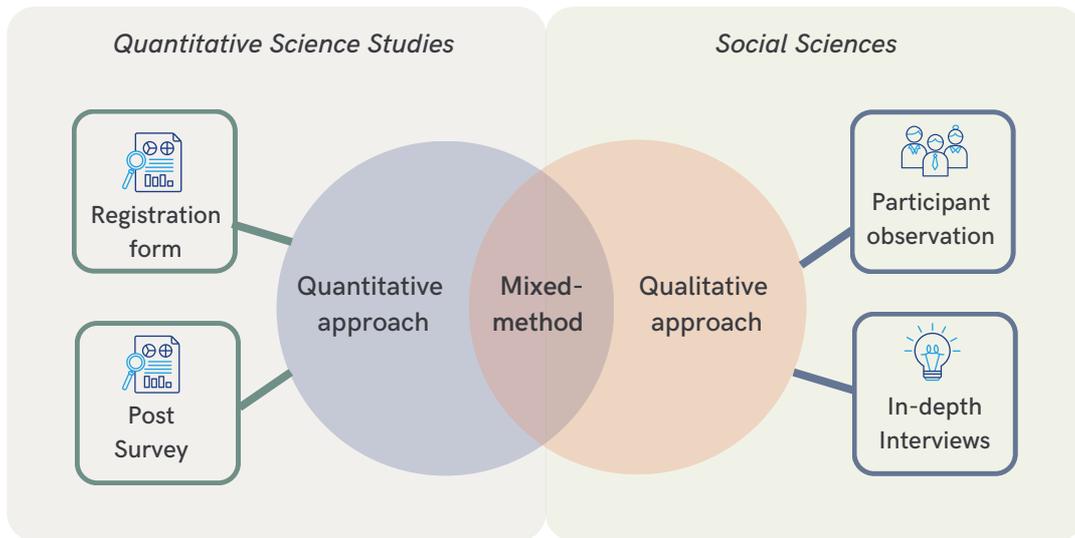
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**Project
Design**

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Project Design

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The research project adopted a mixed-method and evidence-based methodology to delve into gender-based disparity and bias in STEM conferences. While observation was used as a major data collection approach, online surveys and in-depth interviews were also significant means to broaden and enriching the research findings. The process of data analysis included both statistical modelling and qualitative coding. To be specific, the following are the major sources of data collection:

- 1 SFBI data on previous conferences
- 2 Registration form (N=525)
- 3 Zoom exports (26 sessions)
- 4 Live observations (156 observed talks)
- 5 Post-conference survey (N=152)
- 6 In-depth interviews (N=7)

A mixed-method and evidence-based research project at the interface between hard and soft sciences

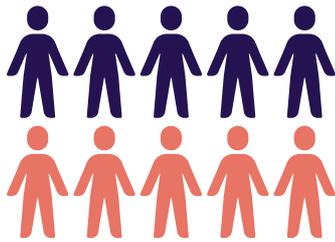
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**Research
Findings**

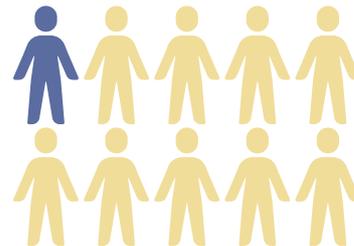
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Research findings

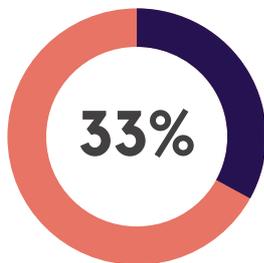
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Overall, JOBIM 2021 conference reached parity between female and male attendees. This women are even the majority among younger attendees (under 35).

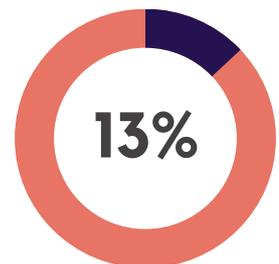


Based on the registration form, about **1 in 10** attendees self-identified as members of the LGBTQIA+ community.



Despite the binary gender parity in attendance, only **33%** questions were asked by female attendees during the conference. **No question** was asked by a non-binary, a transgender or an agender person.

Among attendees who asked 3 or more than 3 questions, only **13%** were women. Our observation study shows that a male question-askers was more likely to ask multiple questions than other question-askers.



Seniority and gender have significant effects on question-asking behaviours during STEM conferences

According to statistical modelling, a senior man would ask **9.2 TIMES** more questions than a junior woman, a non-binary, a transgender or an agender person..

Women commonly experience discrimination & harassment in the workplace and academic conferences, unfortunately

Survey data and interviews suggest that female STEM professionals commonly experience gender-based discrimination and sexual harassment.



"A senior colleague told me that during her PhD, her PhD advisor said that since we now have female researchers, their jobs as researchers will be disrespected".

- Anonymous male interviewee

"I had a very strange experience of hmm...harassment during my internship. Sexual harassment can happen to men, but I think it happened to me because I am a woman".

- Anonymous female interviewee

26% (4.6 more likely than men) of female and non-binary post-conference survey respondents have or might have experienced gender-based discrimination and/or harassment in conferences.



Receiving gender-based negative reactions may explain gender minority's lack of motivation to ask questions

Although 62% of attendees were unsure that gender has direct impacts on question-asking behaviours.



"I think the biggest barrier in my career path is self-confidence. Self-confidence is really impacted by how society reflects me as a woman and the ways genders are expressed".

- Anonymous female interviewee



Why is asking questions important anyway?

Most interviewees stated that self-advertisement or gaining visibility is the biggest motivation of attending academic conferences. The existing literature suggest asking questions to be an effective way to increase conference attendees' visibility.

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Guidelines

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Guidelines

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Spotlight the Code of Conduct

The Code of Conduct should highlight all the essential values of your conference organisation. Please make sure that the document is not only easily accessible and available in all concerned languages, but it is also shared actively with all stakeholders, including speakers and attendees. It is essential to make sure that detailed conference policies are acknowledged by members of organisation committee and hosting institution. In addition, it is encouraged to share your conference's Code of Conduct in more interactive and easy-to-read formats, such as infographics and quizzes.



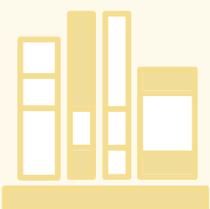
Keep track of gender statistics

We highly recommend organisers to record gender parity among organisers, speakers and attendees in conferences, especially in annual conferences. It is important to self-evaluate frequently and work towards improvement. With respect of diversity and inclusion, collection of such data requires the organisers to provide an extensive list of gender options instead of only men and women.



Observe your conferences

Academic conferences are a great opportunity to discuss and communicate on the topic of gender bias in science. One of the easiest and most effective way to raise such awareness and gain valuable insights is conducting observational studies (for example, on question-asking behaviours). You may use practical tips provided in our project as references to observe your conferences.



Adopt gender-sensitive language

Provide practical tools and advice for speakers, moderators and chairpersons to ensure that the use of language during the conference is gender-sensitive and gender-inclusive. For instance, avoid gendered pronouns when the person's gender is unknown. If possible, it is helpful to include examples of what gender-biased and gender-discriminatory communication is and how to avoid it.



Attention to discrimination & harassment

Raise awareness of gender-discrimination and sexual harassment through sharing information and developing an effective reporting system. Apart from re-examining the existing conference policies with attention to discrimination and harassment, conference organisers should make sure that clear and accessible tools of reporting violations of the policies are in place and shared with all conference participants prior to their attendance at conference. Depending on the size of the conference, appointing one or more safeguarding leads to observe and report inappropriate behaviours can be highly beneficial.



Seek diversity and inclusion expertise

Conference organisers are advised to include a diversity and inclusion consultant throughout the stages of conference planning, implementation and evaluation. An external consultant who has no connection with organisation committee or hosting institution can be especially beneficial in avoiding the potential "insider bias". Such role is expected to provide professional opinions, practical tools and actionable solutions.



Provide childcare support

The frequent lack of childcare support has barred many parents, especially mothers, from attending academic conferences. It is recommended to either provide childcare facilities at the conference or offer childcare funds to the needed participants if the conference takes place virtually. If the conference is unable to support all funding applicants, conference organisers can take into consideration several factors when selecting the final candidates, such as the applicants' gender, marriage status, salary level, seniority, and nationality.



Support minorities in question-asking

Based on previous literature and our research findings, conference organisers may consider taking the following actions to encourage women and other minorities to ask questions during conferences:

- If possible, moderators and chairpersons can give the opportunity of asking the first question after a talk to a junior female attendee (e.g., a female PhD student).
- A quick pause before starting the Q&A session may give attendees, especially those who are generally hesitant to ask questions, more time to construct their questions.
- Ensuring gender diversity and parity in speakers can also encourage female and other minority to attend conferences and ask questions during conferences.

5 Useful Resources

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Useful Resources

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For conference organisers:

Conference Diversity Calculator

<http://aanandprasad.com/diversity-calculator/?groupName=women&numSpeakers=20&populationPercentage=1>

Conference Bias Watch

<https://biaswatchneuro.com/category/conference-watch/>

For researchers:

CNIL data collection form examples (French)

<https://www.cnil.fr/fr/exemples-de-formulaire-de-collecte-de-donnees-caractere-personnel>

Gendered Innovations

<http://genderedinnovations.stanford.edu/index.html>

For everyone:

Project Implicit

<https://implicit.harvard.edu/implicit/education.html>

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Research
Team

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Research Team

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We are an interdisciplinary research team with expertise in Statistics, UX Design and Anthropology. We are connected by the same passion in feminism and gender equity in the STEM fields.



Dr. Hanna Julienne

is an engineer with a data science and statistical background. She has a long-standing interest in gender bias. She enjoys harnessing data to assess and understand gender based inequalities.



Eng. Rachel Torchet

is an engineer with a professional experience in front-end web development as well as a knowledge of UX methodology, interaction design and communication.



Junhanlu Zhang

specialises in conducting and managing interdisciplinary social science research projects. She is passionate about deconstructing gender bias and fostering social inclusion through blending quantitative and qualitative research perspectives and methodologies.



Acknowledgements

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Acknowledgements

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 - All survey respondents
 - All interviewees
-

We thank you all for your continued support in our efforts to make the STEM conferences an inclusive, safe, and friendly space for all.

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