Addressing the impact of the media on the gender gap in science: 2nd Commemoration of the International Day of Women and Girls in Science conference review

Conference International Day of Women and Girls in Science, United Nations Headquarters, New York City, U.S.A., 11 February 2017

Reviewed by **Emer Emily Neenan and Áine O'Neill**

Abstract This is a conference review of the 2nd Commemoration of the International Day of Women and Girls in Science, which had the theme *Gender, Science and Sustainable Development: The Impact of Media*. It was held in United Nations Headquarters, New York City, U.S.A., and a parallel event was held simultaneously in Valetta, Malta. There were 45 listed speakers from 24 countries, with a gender ratio of 2:1 in favour of women. The contribution of the media to socio-cultural barriers facing girls and women in STEM was well-illustrated. However, few actionable solutions were proposed.

Keywords Science and media; Women in science

Topic: the interplay of science and media must be examined

The second Commemoration of the International Day of Women and Girls in Science was held on the 10th of February 2017, at the United Nations (UN) Headquarters in New York City, U.S.A.. A parallel event took place at the Ministry of Social Dialogue, Consumer Affairs and Civil Liberties of Malta (hereafter: the Ministry), in Valetta, Malta. The events were connected by livelink. The commemoration was entitled *From Vision To Action*, and took the form of a conference entitled *Gender, Science and Sustainable Development: The Impact of Media*. The event was chaired by Minister of Social Dialogue, Consumer Affairs and Civil Liberties of Malta, Dr. Helena Dalli, and Royal Academy of Science International Trust (RASIT) Executive Director Princess Dr. Nisreen El Hashimite.

The focus on media impact was welcomed by many of the speakers. It was widely acknowledged that there is a public perception of science as masculine and performed by a "stereotypical scientist"; white, male, wearing a white coat, isolated in a lab. This stereotype has been consistently prevalent among all age groups from primary school children to college students [Thomas, Henley and Snell, 2006], since the 1970s [Ward, 1977], as assessed by tools such as the Draw-A-Scientist test developed by Chambers [1983]. Suzanne Shanahan of the Office of Information and

Communications Technology of the UN pointed out that men are portrayed as scientists five times more often than women in family films and four times more often in prime-time television [Smith et al., 2012]. This cultural perception of science, driven if not invented by the media, has a concrete impact on girls and young women, most obviously expressed in the speeches given by young girls themselves as representatives of Girls for Girls in Science.

Organisation: a last-minute change of venue (and continent)

The conference was a joint venture of RASIT and the Ministry. This is the second such commemoration of the International Day of Women and Girls in Science, officially recognised by the UN in 2016 with a conference entitled Transforming the World: Parity in Science.

The 2017 event appeared to be under-attended, with many of the seats in the UN conference room empty, and only ten attendees at the parallel event in Malta. Confusion over the location is likely to have negatively impacted attendance; the event was originally to take place in Valetta, Malta, with the late change in venue not widely publicised. Several of the attendees at the Malta parallel event only learned of the change in venue upon arrival in Malta.

Attendees and speakers: gender breakdown reveals more of politics than of science

Of 45 listed speakers, 29 were women or girls, or just under two thirds. A further four women spoke as unlisted interventions from the Maltese parallel event, via livelink. Most of the speakers could be divided into four categories: those speaking as UN officials or as members of UN subgroups, e.g. UNESCO (9 speakers), those speaking as scientists or on behalf of science-focused educational, industrial or research groups (15 speakers), those speaking as members of the media or media-focused groups (3 speakers), and those speaking as diplomatic representatives of a country (13 speakers). Five other speakers did not fit cleanly into any of these categories, including the organisers; Princess Dr. El Hashimite and Dr. Dalli.

Of the UN speakers, one third were men and two thirds were women, similar to the overall gender balance.

Female scientists were well-represented, which is to be expected given the theme of the event. Of the science-focused speakers, only 2 of 15 listed speakers were male, both representatives of youth groups; Boys For Girls In Science and Youth For Science. Female representatives of Girls For Girls In Science and Youth For Science also spoke. All adult scientists who spoke were women.

Similarly, all media representatives were women, but there were only three listed speakers (and one unlisted speaker) with media backgrounds or affiliation. There were more than twice as many female scientists as female media representatives, and no men of either background.

The majority of the men were to be found among the diplomats: of 13 listed speakers who spoke as political and diplomatic representatives of countries, 9 were men, or approximately 70%. Most were permanent representatives of a country to the UN; of 193 countries, only 39 are represented by a woman at the UN, or 20.2%.

Discussion: a conference of agreement requires more in-depth discussion

The format of the conference did not allow for much discussion or debate. Discussion was scheduled at the end of each session. However, as the conference had been cut from two days to one day and there were technical difficulties at the start of the day, discussion time was cut to ensure the conference ended on schedule. Given that every speaker was in agreement that it is both morally right and economically advantageous to ensure that women are given the same opportunities and recognition in science as men are, and that the media can and does play an important role in influencing cultural norms surrounding science, many of the speeches re-tread similar ground.

Many speakers commented on the lack of role models for girls in science, with several several speakers alluding to the fact that, when asked to identify a famous woman in science, many people can only name Marie Curie. The stereotype of the "typical scientist" came up repeatedly. Persistent inequalities were highlighted, such as the lack of women in high-level academic and scientific positions, and the gender pay gap [Shen, 2013]. A recent longitudinal study found a "significant departure between the earning profiles of men and women" in STEM fields over the first ten years of a scientist's career [Xu, 2015].

However, few speakers proposed specific actionable solutions to the socio-cultural barriers that women in science face. Potential actions that were mentioned included the following.

- Scientists should consciously mentor young women (Lakshmi Puri, UN). Mentoring has a significant effect on the likelihood of young academics pursuing a career in STEM fields [Curtin, Malley and Stewart, 2016], and both male and female academics are less likely to mentor female students [Curtin, Malley and Stewart, 2016; Moss-Racusin et al., 2012]
- Science teachers should celebrate successful women scientists and foster girls' confidence in science (Dr. Mary Gromko, National Science Teachers Association, U.S.A.). Research suggests that positive female role models in science can combat implicit biases (e.g. of science as masculine) and exposure to such role models is associated with pro-science career aspirations and attitudes [Young et al., 2013].
- Men in science should take care to credit female colleagues for their work (Chantal Line Carpentier, UNCTAD). In mixed-gender groups, men are often given disproportional credit [Sarsons, 2015; Haynes and Heilman, 2013].
- Institutions and governments should ensure access to specific training and support, and invest in mentoring and outreach that engages women and girls (Dr. Sandra Batista, Princeton University, U.S.A.).
- Programs highlighting female role models and challenging science-as-masculine stereotypes must target boys as well as girls (Dr. Tamara Hovorun, Kostiuk Institute of Psychology, Ukraine, and John Paul the Second Lublin Catholic University, Poland)
- Institutions and research groups that are approached by the media to provide scientific sources should be conscious of gender when recommending experts (Emer Emily Neenan, Trinity College Dublin, Ireland, & Dr. Shelley

Thompson, Bournemouth University, U.K.). There is a gender bias in the use of scientific experts in the media [Niemi and Pitkänen, 2017] which perpetuates the stereotype of the typical scientist as male.

Minister Dalli will take the points raised during the conference to the UN Commission on the Status of Women in March 2017.

References

Chambers, D. W. (1983). 'Stereotypic images of the scientist: The draw-a-scientist test'. *Science Education* 67 (2), pp. 255–265. DOI: 10.1002/sce.3730670213.

Curtin, N., Malley, J. and Stewart, A. J. (2016). 'Mentoring the Next Generation of Faculty: Supporting Academic Career Aspirations Among Doctoral Students'. *Research in Higher Education* 57 (6), pp. 714–738. DOI: 10.1007/s11162-015-9403-x.

Haynes, M. C. and Heilman, M. E. (2013). 'It Had to Be You (Not Me)!: Women's Attributional Rationalization of Their Contribution to Successful Joint Work Outcomes'. *Personality and Social Psychology Bulletin* 39 (7), pp. 956–969. DOI: 10.1177/0146167213486358.

Moss-Racusin, C. A., Dovidio, J. F., Brescoll, V. L., Graham, M. J. and Handelsman, J. (2012). 'Science faculty's subtle gender biases favor male students'. *Proceedings of the National Academy of Sciences* 109 (41), pp. 16474–16479. DOI: 10.1073/pnas.1211286109.

Niemi, M. K. and Pitkänen, V. (2017). 'Gendered use of experts in the media: Analysis of the gender gap in Finnish news journalism'. *Public Understanding of Science* 26 (3), pp. 355–368. DOI: 10.1177/0963662515621470.

Sarsons, H. (2015). *Recognition for Group Work (No. 254946)*. URL: http://scholar.harvard.edu/files/sarsons/files/groupwork.pdf.

Shen, H. (2013). 'Inequality quantified: Mind the gender gap'. *Nature* 495 (7439), pp. 22–24. DOI: 10.1038/495022a.

Smith, S. L., Choueiti, M., Prescott, A. and Pieper, K. (2012). 'Gender Roles & Occupations: A Look at Character Attributes and Job-Related Aspirations in Film and Television'. *Geena Davis Institute on Gender in Media*. URL: https://seejane.org/wp-content/uploads/key-findings-gender-roles-2013.pdf.

Thomas, M. D., Henley, T. B. and Snell, C. M. (2006). 'The draw a scientist test: A different population and a somewhat different story'. *College Student Journal* 40 (1), p. 140.

Ward, A. (1977). 'Magician in a White Coat'. *Science Activities: Classroom Projects and Curriculum Ideas* 14 (1), pp. 6–9. DOI: 10.1080/00368121.1977.9955322.

Xu, Y. (2015). 'Focusing on Women in STEM: A Longitudinal Examination of Gender-Based Earning Gap of College Graduates'. *The Journal of Higher Education* 86 (4), pp. 489–523. DOI: 10.1080/00221546.2015.11777373.

Young, D. M., Rudman, L. A., Buettner, H. M. and McLean, M. C. (2013). 'The Influence of Female Role Models on Women's Implicit Science Cognitions'. *Psychology of Women Quarterly* 37 (3), pp. 283–292. DOI: 10.1177/0361684313482109.

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