United Nations Educational, Scientific and Cultural Organization

Canadian Commission for UNESCO

Prizes & Awards:

closing the gender gap to ensure an equitable future for all academic talent

Prepared for the Canadian Commission for UNESCO
By Liette Vasseur and Jocelyn Baker
Ottawa, Canada, June 2021

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Executive summary

Prizes and awards matter in the academic profession. They validate scholarly contributions and generate visibility leading to further research funding opportunities and career advancement. Gender equity within the research community has improved considerably over the last several decades. Women achieve almost half of all PhD degrees conferred each year in Canada. The expectation would be to see women better represented in all spheres of academics including winning prizes, fellowships and awards. Unfortunately, a pervasive gender gap remains within most areas of the academic profession with the distribution of major research prizes, fellowships and awards predominantly going to men. The following table illustrates the areas of the academic profession where women share parity with men and where they are significantly underrepresented.

Where women have equal representation in the academic profession

- Undergraduate degrees conferred are on par with men;
- Graduate degrees (Masters and Doctorates) for non science, technology, engineering and math (STEM) fields are on par with men;
- Unemployment: Women and men PhD holders share the same average unemployment rate (lowest in Canada) but can vary by field with men doing better than women in every sector with the exception of education and visual arts;
- Earnings: When looking at overall Canadian wage trends, the gender gap is closing between men and women doctorates; however, wage equity gaps continue to be significant when examining individual fields of study, with men earning more than women in education and most STEM fields, particularly engineering where only 14% of registered engineers in Canada are women.

Where women are underrepresented in the academic profession

Careers

- Women comprise 23% of annual conferred PhDs in STEM fields in Canada;
- Women comprise 28% of full professorships within Canadian universities (70% of women enter PhD programs with the goal to become full professor, but only 18% will achieve this);
- Collaboration including panels: Men are more likely to collaborate with other men on research including representation at conferences (as speakers) and on panels;
- Men are significantly better represented than women in senior academic positions including administrators, directors, Chairs, boards, commissions and on decision-making committees.

Academic recognition

- Women comprised < 25% of the overall award recipients for all prizes examined in this report with the exception of the SSHRC Gold Medal which was awarded to women 44% of the time;
- Nominations for prizes and awards: Men are four times more likely to be nominated for awards than women, therefore receiving significantly more financial resources;
- Publishing, production, citations: Women publish fewer peer reviewed journal articles and book chapters than men (due to workload, family, resource allocation, discrimination, etc.).

Research shows women's scientific efforts are devalued when compared to men, with research funding allocations and rewards unequally distributed by gender;

- First and last author: For research papers, prestige is mainly for first or last authorship. Women are less often listed in the prestigious position of first author (represented as making the most significant intellectual contribution) or last author (represented as the supervisor or principal investigator). Looking at the highly regarded journals Nature and Science; women were listed as first author only 25% of the time and last author only 15% of the time;
- Citations: Women's publications are cited, read, and shared less than men's;
- Letters of reference: Men's letters tend to be longer, offer a high level of assurance by emphasizing accomplishment. Women's letters are shorter, focus on effort as opposed to achievement, often contain stereotyped language (such as "nice", "good manner"), and language known as "doubt raisers" - language that has negative connotations, not instilling confidence (such as "she does not have much teaching experience, but I am sure she will learn quickly").

Research goal

The empirical evidence clearly shows women scholars are underrepresented in almost every professional aspect including hiring, promotion, earnings, output, publications, funding, and awards, verifying that systematic institutional issues are at play. Women scholars win fewer prizes, receive less money, and are therefore denied the accolades and distinguishing benefits awards bring. Achieving a just and inclusive future for all, as stated in the 2017 UNESCO Recommendation on Science and Scientific Researchers (UNESCO, 2017), requires that action be taken to ensure that not only the research itself but all aspects of the academic world, including awards, be fair and equitable. This report explores what the future of prestigious prizes and awards in Canada (and globally) might look like. The research examined the literature and the nomination and selection processes of select prestigious academic prize and award portfolios in Canada and globally to identify barriers preventing women from being selected as laureates. This research explored opportunities and avenues of solutions to better facilitate a fair and equitable process to help ensure future top prize winners are the most deserving talent.

The following awards[1] were analysed over their program lifespan, looking at the percentage of laureates by gender:

- Nobel Prize,
- Lasker Award,
- NSERC Gold Medal,
- Gairdner Award,
- NSERC Steacie Award,
- Blue Planet Prize,

[1] The U.S. MacArthur Fellowship Program known as the "Genius Grant" was reviewed. As a non-research prize, it was not included in this analysis. As a highly coveted prize, it is awarded annually by the MacArthur Foundation to between 20 -30 extraordinarily talented and creative individuals, spanning across all areas of human activity. The purpose of the prize is to invest in the creative pursuits of the recipients to help further their potential and impact for all humanity (MacArthur Foundation, 2020).

- Killam Prize,
- Killam Research Fellowship, and
- the SSHRC Gold Medal.

The Sloan Fellowship Award was analyzed looking at the results for Canadian universities over the program lifespan. The NIH Pioneer Award was looked at as an example of improvement, as the program underwent gender bias reform in 2004-2005.

A significant gap exists between men and women laureates for all awards looked at. Women laureates were below 25% in all award programs apart from the SSHRC Gold Medal where women comprised 44% of all laureates. In the last 10 years, the number of women laureates has been trending upwards for the SSHRC Gold Medal, NSERC Gold Medal, Gairdner Award and the Steacie, Award. However, the majority of academic accolades are still going to men. A review of all award processes revealed barriers for women including stereotyping, discrimination, conscious (explicit) and unconscious (implicit) biases, and the underrepresentation of women as role models and decision-makers (e.g. as nominators, judges, oversight committee members, Chairs). All these barriers interact together, aggregating levels of impact and consequences. The following best management practices have been developed to better inform program administration processes to help close the awards and prizes gender gap. These prize and award considerations have been adapted from the scholarly literature and lessons learned from other prize and award programs.

Prize and awards considerations

1. Improve diversity of award process decision makers (including judges, referees, oversight committee members and Chairs), to ensure a range of skill sets, experience, gender, and race to promote a more inclusive and equitable process. Research shows diversity is known to increase objectivity, creativity, innovation, and fiscal responsibility but it can also foster a deeper respect and appreciation for different perspectives, merits, and skills;
2. Implement action-oriented equity, diversity, and inclusion (EDI) polices with mandatory training programs for prize managers. Research shows strong institutional commitments to EDI provides access to more talent, strengthens innovation, and increases financial and governance performance;
3. Improve awareness and education training regarding conscious (explicit) and unconscious (implicit) biases. The review of award processes from outreach through to laureate selection revealed barriers for women including stereotyping, discrimination, conscious and unconscious biases. If left unchecked, biases can become culturally accepted assumptions and norms further perpetuating the underrepresentation of women;
4. Increase visibility of women role-models and mentors at all stages of the award process. Education and awareness encourage change, but breaking stereotypes is more effectively done with role models and mentors;
5. Include fair and equitable outreach efforts, whereby all academic institutions (big and small) and their respective faculty receive the same level of engagement and information opportunities;
6. Promote training for gendered language implications and awareness, with the removal of gendered language from all award processes and documents (e.g., by using online tools or professional services);

7. Reform letters of reference through closed-ended processes with specific questions asked to mitigate gender bias. Letters of references have been shown to benefit men while raising doubts for women candidates due to the choices of language used in relation to the gender of the candidates;
8. Use specific and measurable evaluation and assessment criteria, based on current accomplishments and not on speculated future achievements.

About the authors

Dr. Liette Vasseur: Principal Investigator

UNESCO Chair on Community Sustainability: From Local to Global; President, Canadian Commission for UNESCO; Vice-chair (North America) and Lead (Ecosystem Governance Thematic Group) at the Commission for Ecosystem Management of the International Union for Conservation of Nature; Professor of Biology and member of the Environmental Sustainability Research Centre, Brock University ON, Canada

Liette Vasseur is a full professor in the Department of Biological Sciences and a member of the Environmental Sustainability Research Centre. Since 2014, she holds the UNESCO Chair on Community Sustainability: From Local to Global at Brock University. Her research is highly interdisciplinary, linking issues such as community-based ecosystem management, climate change adaptation and resilience, and sustainable agriculture. Her national projects are in the Niagara region and in Quebec (Baie St Paul). She works globally in the realm of community sustainability including her work in China, where she is a visiting scholar at Fujian Agriculture and Forestry University. When working in Ecuador, she focuses on community sustainability and ecosystem-based adaptation to climate change of rural native communities. Another work focuses on food security and gender issues in Burkina Faso and Senegal. As the former President of the Canadian Coalition of Women in Engineering, Science, Trades and Technology (CCWESTT), she is a strong proponent of the importance of mentoring women in STEM.

Jocelyn Baker: Project Coordinator

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Jocelyn is a researcher with the UNESCO Chair on Community Sustainability: From Local to Global. She holds an undergraduate degree in Fine Arts and Geography, with a diploma in Water Resource Management and GIS. She recently completed a Masters in Sustainability Science at Brock, looking at governance and management in Canadian Ramsar sites. She has been working in integrated natural resource conservation at the local community level in Niagara for the past 30 years. Jocelyn's early career focus was water quality improvement through the implementation of restoration Best Management Practices, her focus evolved to include Great Lakes remediation and restoration project management. As a Project Management Professional (PMP), Jocelyn is the Canadian Co-chair of the Niagara River Binational Ramsar Designation Steering Committee, working with local partners to secure the first transboundary (in the Americas) Wetland of International Importance Ramsar designation for the Niagara River.

Introduction

Alfred Nobel explicitly stated in his will that the worthiest individuals shall receive the Nobel Prize, and therefore it is critical to identify those who have made "the most important discoveries and have conferred the greatest benefit to humankind" (Nobel Prize, 2020a para. 1). In the academic path, women are underrepresented in almost every professional aspect including hiring, tenure, promotion, earnings, publications, impact, patents, funding, and awards (Larivière et al., 2011; West et al., 2013; Lynn et al., 2019). Sugimoto et al., (2013, p.212) report that "men dominate scientific production in nearly every country". Men publish more papers than women, are cited more often, are more likely to be the first or last author on research papers, and receive more awards than women (Larivière et al., 2011; Sugimoto et al., 2013; Lynn et al., 2019). Women's academic production tends to be more equal to men in countries with low academic and research outputs (Sugimoto et al., 2013). The reasons as to why women continue to be underrepresented in nearly all aspects of academia is due to compounded gender inequities including family, workload demands (division of labour), lack of access to resources (human and financial), rank within the academic community, lack of sufficient mentors and role models, and insufficient levels of available research funding and institutional support (Sugimoto et al., 2013).

The underrepresentation of women in academia is pervasive with significant gender equity gaps remaining (Sugimoto et al., 2013; Ma et al., 2019). One such gap is gender equity in the distribution of major academic prizes and awards. Worldwide, women research scholars win fewer prizes, and receive less money and less prestige than their male counterparts (Ma et al., 2019). The "pipeline theory" has been traditionally used to explain the underrepresentation of women along the academic path, including winning prizes and awards (Council of Canadian Academies, 2012; Lincoln et al., 2012). In this theory, women have only entered postgraduate academia in growing numbers in the last 30 years, "so the number of eligible women at the pinnacle of their careers is lower than the number of men. Followed to its logical conclusion, this idea would predict that, as more women enter science, the proportion of women receiving awards should increase, gradually approaching the percentage of men receiving the relevant awards.

However, while there has been a substantial increase in the proportion of women receiving doctoral degrees, the proportion of women receiving prizes remains low" (Lincoln et al., 2012 p. 309). "Men continue to win a higher proportion of awards for scholarly research than expected based on their representation in the nomination pool" (Lincoln et al., 2012 p. 307). This can be seen with the National Institute of Health (NIH) Pioneer Award, where in 2004 (the inaugural year) 20% of the nominees were women yet not a single woman won compared to the nine men who did (Carnes et al., 2005).

Although the underrepresentation of women along the academic path is multifaceted, with respect to winning prizes and awards Lincoln et al.'s (2012 p. 317) findings suggest "women are not winning, not because they are not being nominated, rather….the culturally held belief that women's scholarly efforts are less important than those of men. A consequence of this belief is that women continue to be disadvantaged with respect to the receipt of scientific awards and prizes, particularly for research". Prizes and awards matter. They validate scholarly contributions and generate public attention, thereby increasing visibility and personal recognition. They foster respect and prestige, leading to career advancement, tenure, and promotion (Ma et al., 2019). Because women win fewer awards, they have fewer opportunities to engage in more expensive (high impact) research areas, which in turn can negatively impact career advancement and future trajectories (Larivière et al., 2011; Sugimoto et al.,

2013; Ma et al., 2019). Alternatively, when compared to men, women are overrepresented in "non-research" prize categories such as education and mentorship, generating a false sense the gender gap is closing (Carnes et al., 2005).

Academic award and prize candidates should be judged solely on their credentials, not their sex (often termed gender), language or race. Award and prize portfolio managers need to ensure the pool of candidates represents all available academic talent, while not favouring or giving special leniency to one particular group. With these parameters in mind, this reflection paper looked at the current processes used for rewarding scholarly achievement. This research first explored gender equity within major prizes and awards globally (for comparative purposes) and within Canada. This was followed by an assessment of the extent women were represented within the entire award process from outreach, nomination, and application through to winner (laureate) selection. The assessment focused on gender underrepresentation but could also be potentially applied to language and race. Areas of gender bias, discrimination, and stereotypes within the distribution of major prizes and award processes were examined. Barriers discouraging and preventing women from being put forward for and receiving awards and prizes were identified. Finally, avenues of solutions and best management practices were suggested to encourage a more equitable awards process from beginning to end.

Approach

This research was informed by a targeted literature search and web-based document analysis looking mainly at major prize and award portfolios in Canada followed by a look at global examples for context and perspective. Global awards of interest included the Nobel Prize, the Lasker Award, the Blue Planet Prize, the U.S. NIH Pioneer Award, and the Sloan Research Fellowship. Canadian awards of interest included the Killam fellowships and prize, and prizes administered by NSERC, SSHRC and the Gairdner Foundation. Analyses looked at the entire spectrum of prize and award activities including outreach, promotion, nomination, application processes, selection criteria, decision-making structures and procedures through to final award decisions.

The current landscape - global overview

The following awards are considered the gold standard within their respective fields and were looked at for comparative and assessment purposes against the Canadian context.

- The Nobel Prizes and the Lasker Awards are considered two of the top prestigious academic and research prizes in the world (Charlton, 2007).
- The Blue Planet Prize is an esteemed international environmental award sponsored by the Asahi Glass Foundation.
- The United States National Institute of Health (NIH) Pioneer Awards are coveted biomedical awards.
- The Sloan Research Fellowship is considered to be one of the oldest and most prestigious research fellowships of its kind (Universities Canada, 2019).

All prizes are awarded on a competitive basis to scholars who have made substantial research discoveries and contributions in the fields of the humanities, social sciences, natural sciences, health sciences, and engineering.

Nobel Prize

The Nobel Prizes are a series of international prestigious science and research discovery awards established in 1895 by the Swedish engineer and chemist, Alfred Nobel. The Nobel Prize nomination procedure is by invitation. Each year, members of academic institutions, scientists, political figures and previous Nobel Prize winners are invited to submit the top global scientists for nomination who have made outstanding discoveries and contributions for the benefit of all humanity (Nobel Prize, 2020a). The Nobel Prize selection process is through committee, with the final decision made by the partnering Swedish and Norwegian academic institutions (Nobel Prize, 2020a).

Lasker Award

The Lasker Awards are prestigious awards created in 1945 by health activist and philanthropist Mary Lasker and her husband Albert Lasker to recognize the contributions of researchers, scientists, and public servants who have made major advances in disease prevention, diagnosis, treatment and cure. The awards are administered by the Lasker Foundation, with the award process by nomination (Lasker Foundation, 2020). The selection process is through a jury of distinguished scientists, with the final recommendation made by the Lasker Foundation (Lasker Foundation, 2020).

Blue Planet Prize

The Blue Planet Prize was established in 1992 by the Asahi Glass Foundation, in recognition of the Earth Summit and an acknowledgement of environmental conservation as a pressing world issue. The Blue Planet Prize is presented annually to two individuals or organizations to recognize outstanding achievements in scientific research who have made significant contributions to the resolution of global environmental problems. The prize process is through nomination, open to global individuals and groups with selection by the Asahi Glass Foundation.

Sloan Research Fellowship

The Sloan Research Fellowships were established in 1955 to annually award 126 early-career researchers with demonstrated capacity to become scientific community leaders through their research and scholarly contributions (Alfred P. Sloan Foundation, 2020). The Sloan Research Fellowship is awarded in physics, chemistry, mathematics, neuroscience, economics, computer science, and molecular biology. The Fellowships are administered by the Alfred P. Sloan Foundation, with nominations determined and submitted by the candidate's affiliated academic institution. This fellowship is open to early-career tenure track scientists and researchers in both the United States and Canada.

National Institute of Health Pioneer Award

The United States National Institute of Health (NIH) Pioneer Awards were created in 2004 to recognize top scientific achievement and innovative research (U.S. and non-U.S. citizens) in a wide range of fields including biomedical, social, physical, chemical, engineering, and math (The National Institute of Health, 2016). The Pioneer Award program supports individual scientists of exceptional creativity working on high-risk, innovative approaches to achieve high impact biomedical or behavioral research (The National Institute of Health, 2016). The proposed research must be new and differ substantially from existing research. The selection process is through nomination, with an oversight committee making final selections.

The current landscape - Canadian overview

In Canada, while many prizes and awards exist, the following were considered:

- the Killam Prize,
- Killam Research Fellowship,
- Gairdner Award,
- E.W.R Steacie Memorial Fellowship, NSERC Gold Medal and
- the SSHRC Gold Medal award.

These prizes are awarded on a competitive basis to research scholars who have made substantial contributions to scholarly research in the humanities, social sciences, natural sciences, health sciences, and engineering.

Killam Prize

The Killam Prize is awarded to Canadian scholars who have made significant impacts and contributions to scholarly research in the areas of humanities, social sciences, natural sciences, health sciences, and engineering (Canada Council for the Arts, 2020). The Killam Prize procedure is by nomination, with a highly competitive submission process including a letter of nomination, biography, letters of reference, and curriculum vitae detailing professional accomplishments, major publications, lead authorships, and citations (Canada Council for the Arts, 2020). Five prizes are awarded each year. The Killam Prize selection is through committee.

Killam Research Fellowship

The Killam Research Fellowships are awarded to outstanding Canadian scholars for the purpose of supporting ground-breaking research projects of broad significance and widespread interest in the humanities, social sciences, natural sciences, health sciences, engineering, or studies linking any of these disciplines. Fellowships are awarded annually, on a competitive basis to scholars of outstanding research ability, with substantial publications in their field (Canada Council for the Arts, 2020). The Killam fellowship is by competitive application through the scholar's academic institution, including a comprehensive research project description, letters of reference, and curriculum vitae detailing professional accomplishments including the number of major publications, lead authorships, and citations (Canada Council for the Arts, 2020). The Killam Research Fellowship selection is through committee.

Gairdner Award

The Gairdner Foundation's objective is to recognize major research contributions impacting human health (Gairdner Foundation, 2020). Seven awards are given each year in the categories of biomedical research and global health whereby candidates have made major scientific advances with a significant impact on health outcomes. Awards are open to global researchers through a nomination procedure. The application process includes letters of reference, curriculum vitae, full listing of published scientific contributions, significant honours and awards, citation list, and a comparative analysis of position relative to others in the field (Gairdner Foundation, 2020). The selection process is through committee structure.

E.W.R. Steacie Memorial Fellowship

The Steacie Memorial Fellowships are administered by NSERC. The Fellowships are awarded to enhance the career development of outstanding university faculty who are earning a strong international reputation for original research (NSREC, 2020a). The award procedure is through nomination by the candidate's university, with up to six nominations allowed for submission. Candidates must be early stage (holding an independent academic position for 10 years or less) academic researchers primarily based in the fields of natural science or engineering. The nomination process includes curriculum vitae and letters of references outlining the candidates research achievements, impacts, outreach, leadership, and a description of anticipated future research directions. The selection process is by committee composed of members from a variety of disciplines. Nominations are currently assessed according to established selection criteria.

NSERC Gold Medal

The Canada Gold Medal for Science and Engineering is NSERC's highest honour, recognizing excellence and influence in research contributions. It is awarded to an individual who has demonstrated excellence and influence in research conducted in Canada that has substantially advanced the fields of natural sciences or engineering (NSERC, 2020b). The award process is through nomination, candidates must be a scientist or engineer employed at a Canadian academic or research institution. The nomination process includes a curriculum vitae and six letters of reference detailing the most significant science and engineering contributions which demonstrate significant impact to society and industry. The selection process is by committee.

SSHRC Gold Medal Award

The Gold Medal is SSHRC's highest research honour, awarded for demonstrated leadership, dedication and originality in social sciences and humanities research and scholarship. The award is through nomination by the institution of the candidate. The nominated candidate's achievements in research must have significantly advanced understanding in their respective fields and must be contributing to the social, cultural, and economic lives of humanity (SSHRC, 2020). The award process is through nomination with curriculum vitae and letters of reference documenting the candidates research achievements. Selection is by committee.

Analysis

Global Prizes

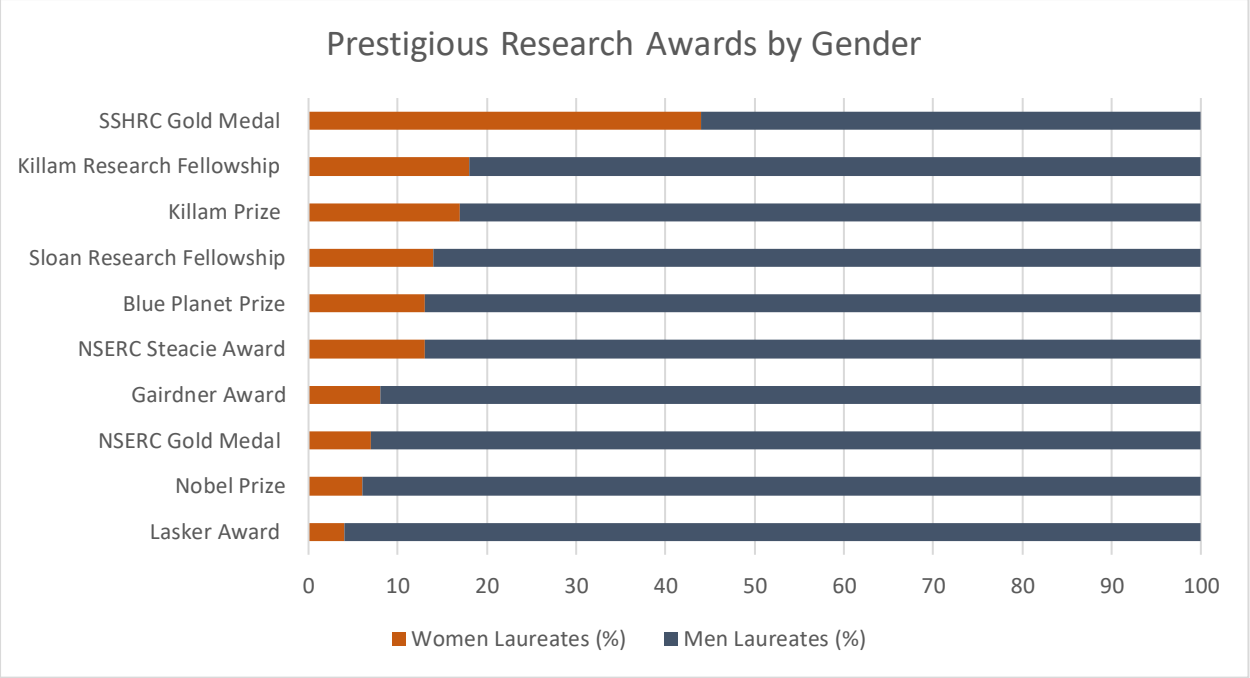

Figure 1: Percentage of laureates by gender for prestigious awards and prizes (over program lifespan).

The Nobel Prize, Lasker Awards, Blue Plant Prize and Sloan Fellowship laureate gender gaps between men and women are significant (Figure 1). Between 1946 – 2020, the Lasker Award for biomedical research was awarded to 169 recipients, only seven were women (Lasker Foundation, 2020). The Blue Planet Prize has been awarded to 54 individuals since its inception in 1992 with 48 laureates as male and only six females. The Sloan Fellowship has been awarded to 192 Canadian researchers since its inception in 1955 with 164 laureates as male and 28 as women. Women fall below 50% for all awards, including SSHRC Gold Medal, which applies to social science and humanities and where women have better representation (graduates and faculty).

Between 1901 and 2020, Nobel Prizes have been awarded to 919 candidates, with only 52 or 6% being awarded to women (Nobel Prize, 2020b). During the same timeframe, the Nobel Prize in physics has been awarded to 213 candidates, of which only three or 1.4% were women (Nobel Prize, 2020b). Not only do men outnumber women laureates by a ratio of almost 20:1, the "gender distribution in Nobel Prizes includes a bias against women with more than ~96% probability" (Lunnemann et al., 2019, p.3). They further note, within the Nobel Prize process, women do not share an equitable assessment with men and therefore "do not have equal chances to be awarded the Nobel Prize" resulting in the significant underrepresentation of women laureates. Although the Nobel Prizes are arguably the most famous and recognizable academic, scientific, and cultural awards globally, they are also one of the most controversial (Casadevall & Fang, 2013). Two decades ago, pressure started to build for the Nobel Prize to respond to growing equality concerns of recognizing women scientists (Rose, 2001). Accordingly, there has been a visible (although small) increase in women winning Nobel Prizes, with

almost half of all Nobel Prizes awarded to women taking place in the last two decades (Nobel, 2020b; Lunnemann et al., 2019). The increase of women Nobel Prize laureates has been primarily seen within the language and peace prize categories, concurring with Ma et al. (2019) findings showing that women tend to dominate in the non-research award fields and thereby create a false "positive image" of closing the gender gap.

In 2019, the Nobel academy openly acknowledged the underrepresentation of women among Nobel Prize laureates and have since implemented changes to encourage a more diverse range of nominees (Nature, 2020). Additional measures include more women representatives on selection committees, more women mentors to put forward candidate nominees, greater attention to gendered language in the nomination process (including considerations for equity and diversity) and increasing the number of candidates each nominator can put forward which has been shown to increase the diversity of choices (Nature, 2020). It has been suggested by prize and awards critics that committees should "evaluate nominees by comparing them with each other, rather than judging them separately, this helps evaluators to focus on quality rather than on demographic characteristics, which can reduce bias" (Nature, 2020). It is, however, difficult to assess the degree to which improvements have been made within the evaluation process as any information related to nominees and nominators is maintained as private records for a period of no less than 50 years according to the academy's by-laws (Nobel Prize, 2020a). Time will reveal whether these changes have resulted in gender equity improvements. If they have not, the Nobel academy is dedicated to going back to further change and refine their processes (Nature, 2020).

The Lasker Awards have often been referred to as the Nobel Prize of America, and have been used as a Nobel Prize predictor as over half of Lasker award recipients go on to eventually receive a Nobel Prize (Doherty, 2006). It is not unexpected then, to see a similar gender gap with few women winning Lasker Awards. Unlike the Nobel Prizes, the Lasker awards are not showing an upward trend even in the last 10 years in the number of women laureates within science categories (Lasker Foundation, 2020). According to the Lasker Foundation (2020), women are better represented in the service, mentorship, and philanthropist award categories, again aligning with the findings of Ma et al. (2019). The evaluation and nomination processes of the Lasker Awards are difficult to critique, as the available literature is limited. However, the awarding process itself has undergone several iterations, moving from a historical structure of multiple awarding institutions to a foundation structure in the 1980's (Lasker Foundation, 2020). In 1990, the award process was further reviewed following several controversies related to the underrepresentation of women (The Scientist, 2020). Although efforts are directed towards equity improvements to increase the visibility of women as laureates, there does not appear to be a specific strategy to look at gender gaps within the Lasker Awards portfolio (Lasker foundation, 2020).

Global case-study of reform

The NIH Director's Pioneer Awards were created in 2004 to recognize top scientific achievement and innovative research in the biomedical field and as part of the NIH's commitment to increasing the participation of women in science (Carnes et al., 2005). Public outcry in the U.S. ensued following the inaugural year where all nine laureates were men (Novak, 2005). Given the increasing gender distribution and known female innovators, it was apparent that "some aspect of the solicitation, evaluation, and selection process was carried out in such a way that advantaged men" (Carnes et al., 2005 p. 685). In 2005, the NIH award process was reviewed revealing many compounding factors

(gender bias, stereotypes, nepotism) leading to the underrepresentation of women (Novak, 2005; Carnes et al., 2005). In response, the following systems level improvements were made which resulted in an 46% increase in female laureates the following year (2005) with subsequent years showing better representation of women as laureates (The National Institute of Health, 2020).

1. **Decision making and committee structure reform**: To provide a more experienced and qualified oversight and decision-making structure, the award program was moved from the NIH director's office to the grant section of the National Institute of General Medical Sciences. An executive team comprising of two directors (1 man and 1 woman) along with a female NIH researcher redesigned the process to include more women and other minorities in all steps of the award process;
2. **Improved equity in the outreach and nomination process**: The Pioneer Awards moved to a self-nominating structure recognizing information tends to travel along gendered lines, with significantly more men represented in positions associated with nominating. Research shows men are more likely to nominate other men;
3. **Increased diversity of decisions makers**: In the first year of the awards, 94% of the referees (judges) were men. Program reform saw an increase of women judges from 6% to 40%. This also brought better attention to bias and gender discrimination in the evaluation process;
4. **EDI statement inclusion**: Equity language and statements were included into the updated nomination procedure and decision-making process as well as more women visible along the entire award process (role models, mentors and decision makers).

Canadian Prizes

Women received the SSHRC Gold Medal award 44% of the time between 2003 -2019, with seven awards going to women and nine to men (SSHRC, 2015; SSHRC, 2019). For the other studied Canadian major awards (Figure 1), a significant gap exists between men and women in numbers of laureates. Between 2002-2020, the Killam Prize was awarded to women 17% of the time, with the Killam Research Fellowship awarded to women 18% of the time (Canada Council for the Arts, 2015; Canada Council of the Arts, 2020). Between 1997-2016, the statistics for women nominees were equally low for both awards, with 13% and 20% women nominees for the Killam Prize and Killam Research Fellowship, respectively (Canada Council for the Arts, 2015).

The NSERC Gold Medal award was awarded to women 7% of the time between 1991 – 2019, with 29 awards going to men and only two awards to women (NSERC, 2020b) while the E.W.R Steacie Memorial Fellowship award went to 13% women (29) and 87% (195) men between 1965 – 2019 (NSERC, 2020a). Women received the Gairdner Award 8% of the time between 1959 – 2020 with the award given to 369 men and only 30 women (Gairdner Foundation, 2020).

As seen, apart from the SSHRC Gold Medal, there is a significant gender gap between men and women laureates for all analyzed Canadian major awards. This is even though gender equity within the research community (Canada and global) has improved considerably over the last several decades (Sugimoto et al., 2013). While the last century can be characterized as severely deficient in terms of women in academics, especially as prize laureates, the last decade has seen an upward trend (Sugimoto et al., 2013). For the Canadian situation, there is an increasing number of women comprising full-time academic teaching staff within Canadian universities, increasing from 13% in 1970, to 41% in 2018 (Statistics Canada, 2020). This upward trend is also seen in the number of women holding associate

professorship positions, 8% in 1970 increasing to 44% in 2018 with assistant professorships increasing from 28% in 1970 to 50% in 2018 (Statistics Canada, 2020). The gender gap at full professorship level remains significant with only 3% of women holding full professorship in 1970, increasing to 28% in 2018 (Statistics Canada, 2020).

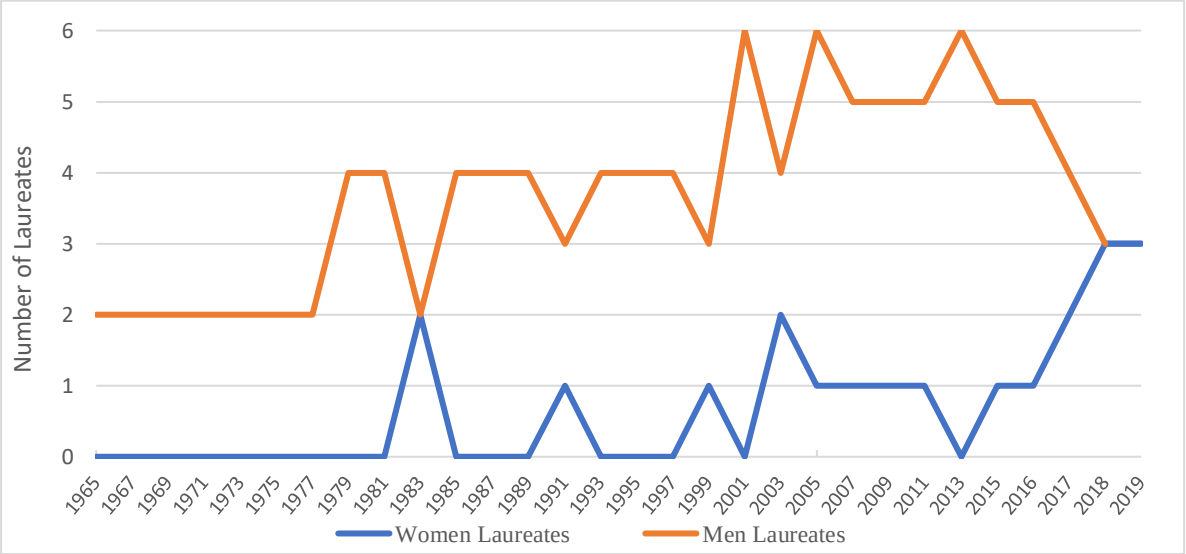

Figure 2: Upward trend of Steacie Award female laureates from 2013.

With Canadian women better represented at almost all levels of academic study and achieving almost half of all PhDs degrees (with the exception of STEM fields), the expectation would be to see an increase (last 10 years) in women being put forth for and winning major prizes and awards (Canadian Association of Postdoctoral Scholars, 2016). This expected increase has been seen for the NSERC Gold Medal, the SSHRC Gold Medal, and the Gairdner Award and is attributed to increased attention to EDI in the nomination process and the increased presence of women as decision-makers within the outreach and awarding process (Lincoln et al., 2012). The very recent upward trend can be seen for the Steacie Award (Figure 2).

For all Canadian awards and prizes assessed, a review of the selection process from outreach to nomination, application, committee review and final selection reveals the lack of female decision-makers and opportunities for gender bias, discrimination and stereotyping to creep in, consequently disadvantaging women from a fair and equitable process.

Despite improved EDI processes and increasing parity in PhD degrees conferred and professorship, there continues to be “systematic differences between the sexes within scientific and technology fields, and within the research community as a whole” (Larivière et al., 2011 p. 12). Gender bias, discrimination and stereotyping is still widespread in academia. Recently (2018), professor and physicist Alessandro Strumia lamented "physics was invented and built by men, it's not by invitation" while speaking to young female scientists at an international workshop on gender and physics (BBC, 2018, para 1).

Most academic accolades are still going to men, which is at odds with the upward trajectory of women occupying academic and research positions (Sugimoto et al., 2013). A review of award processes revealed barriers for women including stereotyping, discrimination, conscious (explicit) and unconscious

(implicit) biases, and the underrepresentation of women as decision-makers (judges, committees, Chairs). All of these barriers interact together, aggregating levels of impact and consequences (Aiston & Fo, 2020). The small but cumulative effects of gender bias along the entire award process can result in substantial negative impact on the ability of women to compete fairly for top academic and research prizes (Aiston & Fo, 2020). As Lincoln et al. (2012) note, the reasons for women's underrepresentation in academia is multifaceted; however, overarching evidence points to the cultural belief that women's work is not as important as men's, especially in research. The consequences of this way of thinking is far-reaching for women researchers and academics. With this in mind, the following best management practices are aimed at closing the awards and prizes gender gap, building upon the scholarly literature and lessons learned from the NIH, where it is acknowledged that award processes are perpetuating inequity.

Path forward: Identifying and addressing the factors driving biases

Actionable Equity, Diversity and Inclusion (EDI)

Shortly after the Nobel Academy openly acknowledged the underrepresentation of women as Nobel Prize laureates, the academy included greater considerations for equity and diversity (Nature, 2020). Strong commitments to EDI provide access to more talent, strengthens innovation, and increases financial and governance performance (Parker et al., 2015). The Government of Canada is very clear in its EDI expectations for institutions, agencies, and businesses, whereby all "must strive to put in place the right conditions for each individual so that they can reach their full potential, unimpeded by inequitable practices" (Government of Canada, 2019 para. 1). Commitment to equity statements is evident in the Gairdner Awards processes where the number of women laureates has tripled between 2001-2015. Recent improvements within SSHRC and NSERC awards over the past 5 -10 years can also be credited to EDI policies including the Tri-Agency's Statement on Equity, Diversity and Inclusion (NSERC, 2020c). In addition, SSHRC and NSERC have also implemented a cross-sectoral committee of academic, government and industry research representatives, from a variety of disciplines who follow established governance guidelines and protocols based on EDI principles.

One way to enhance inclusion may be for prizes and award granting bodies to incorporate actionable statements of EDI at the forefront of their outreach, programming, and application processes right through to their evaluation and steering committee activities. EDI statements, policies and procedures should not be viewed as a "tick-box" exercise, but rather as a powerful tool, to help ensure fair and equitable processes (Government of Canada, 2019). To be effective, EDI statements should be action oriented and contain clear examples of how EDI principles will be adhered to (Government of Canada, 2019). In some cases, it may be by enlisting the services of EDI experts and developing EDI programs that strongly align with the overarching program commitments with actionable and measurable mechanisms built in.

Bias – unconscious and conscious

Human behaviour, beliefs and attitudes are shaped by conscious and unconscious ways of knowing (Parker et al., 2015). Unconscious (implicit) biases are different then conscious (explicit) bias because they occur under the surface of conscious awareness, developing over the course of a lifetime of experiences (Parker et al., 2015). Women face barriers within award and prize processes rooted in biases, both conscious and unconscious, diminishing the evaluations of their scientific work (Urquhart-

Cronish & Otto, 2019). Gender biases, if left unchecked become "widely shared, culturally ingrained assumptions about the nature of men and women and contribute to unintentional discriminatory treatment of women" (Carnes et al., 2005 p. 685).

Recent attention has been paid to how these biases (established gender character traits) may impact decision-making (Carnes et al., 2005; Parker et al., 2015). What this means for women is that they are often assigned prescriptive characteristic traits or narratives defining them as collaborative, supportive and caring. Whereas for men, their prescriptive characteristic traits or narratives tend to define them as powerful, decisive, dominant, and strong. These unconscious biases lead to more favourable evaluations of men's credentials over women's, even when the credentials are identical (Carnes et al., 2005; Barres, 2006; Parker et al., 2015). Gendered biases influence all genders, meaning both men and women can allow unconscious bias to influence assessment and decision-making. This includes gender-on-gender bias, women can also make gendered assumptions about other women, further adding to the complexities of unconscious bias (Carnes et al., 2005; Parker et al., 2015). Because unconscious bias operates in the background of people's conscious state, it can happen without personal realization and go unchallenged. For this reason, unconscious bias continues to be a widespread issue even among those who have had equity and diversity training (Carnes et al., 2005).

Most people underestimate the role biases play in their day-to-day decision-making (Teal et al., 2011). Within the award nomination and selection process it is important to recognize the role biases can have and take efforts to mitigate and eliminate bias barriers. Solutions for the mitigation and elimination of unconscious and conscious bias could include the application of several strategies including sensitivity and awareness campaigns. Because unconscious bias is "without awareness" (Teal et al., 2011, p. 85), creating an on-going awareness training program would provide program staff and evaluation members the opportunity to become aware of their own biases. Creating an evaluation process which incorporates on-going "reflective and mindful practice", will help inform people about their own unconscious bias tendencies, and in turn lessen their negative impacts (Teal et al., 2011, p. 87). Because unconscious biases are developed over a lifetime of exposure, they will not be fully remediated with one-off training and awareness programs. Breaking down barriers will require long-term actionable commitments to EDI processes, with continual monitoring and improvement built into the process. Inclusion of EDI into NIH Pioneer Awards reform saw the move to a self-nominating format with strengthened equity policies built into the outreach and nomination process, including higher visibility of women involved in the award administration process (Novak, 2005).

Gendered language

Gendered language has "language characteristics associated with a particular sex or social gender" (Urquhart-Cronish & Otto, 2019 p. 443). As seen with gender characteristic traits, there is a wide body of research documenting gender variances and preferences within language (Gaucher et al., 2011; Parker et al., 2015). Gendered language elicits bias against women, whereby "women are perceived as more communal and interpersonally oriented than men, whereas men are more readily attributed with traits associated with leadership and agency" (Gaucher et al., 2011 p. 110). Gendered language within application and nomination processes can favour men over women by using masculine gendered language that appeals more to men than women. The presence of masculine language (strong, leader, high risk) has been found to discourage women from applying for competitive processes including jobs,

grants, scholarships, and awards (Urquhart-Cronish & Otto, 2019; Gaucher et al., 2011; Parker et al., 2015).

Language matters: it shapes the way people think and in turn informs people's actions. Gendered language, although subtle and often unnoticed, can have negative consequences on women within the competitive award landscape. All areas of award processes can exhibit gendered language deterrents including outreach and networking, nomination, application, letters of reference, and evaluation criteria (Urquhart-Cronish & Otto, 2019; Gaucher et al., 2011; Teal et al., 2011). Implications of gendered language also include women not feeling comfortable putting themselves forward as nominees and women not putting other women forward as nominees thereby aggregating an already gendered bias process (Urquhart-Cronish & Otto, 2019; Gaucher et al., 2011; Teal et al., 2011).

Gendered language is a barrier, one the NIH recognized was likely discouraging female applicants from their Pioneer Award process. Within the studied Canadian program portfolios, gendered language is evident at all steps. From program descriptions, promotion materials, application, and the nomination processes. Because men and women use language differently, language used within award programs should strive to be inclusive of all genders to avoid discrimination and stereotyping (Government of Canada, 2019). Common gendered language (favouring men) includes the words as noted above as well as the following: excellent, substantial, distinguished, exceptional, outstanding, competitive, and dominant.

Research confirms, men and women react differently to some language; with masculine wording shown to negatively affect women's appraisals of competitive processes such as prize and award applications and job advertisements. Gaucher et al. (2011, p. 119) found "masculine wording in job advertisements leads to less anticipated belongingness and job interest among women, which, we propose, likely perpetuates gender inequality in male-dominated fields". A recent engineering faculty job advertisement example from Brock University showcases how institutional level interventions can better support gender inclusivity initiatives. Engineering is a male dominated profession; less than 14% of Canadian professional engineers are women. In response to this knowledge, understanding inequality can be perpetuated in many ways, Brock University administrators structured the engineering faculty job application to ask for only relevant qualifications, masculine (gendered) language was removed and Brock's commitment to EDI was specifically stated. In addition, its new unique engineering program will strongly encourage women and people from underrepresented groups to apply.

To help award and prize administrators achieve a more equitable process, gendered language experts (including on-line gender language bias resources) could be utilized to review award and prize procedures including the nomination and application process to ensure the removal of gendered language barriers.

Self-promotion / Competitiveness

A growing field of study points to social and cultural implications disadvantaging women in competitive processes. Where competition and self-promotion requirements are part of award processes, men typically excel over women (Carnes et al., 2005; Urquhart-Cronish & Otto, 2019; Gaucher et al., 2011). Gender differences between men and women have been found to negatively influence women's abilities to seek nominations and to self-promote (Mohr, 2014; Gaucher et al., 2011). Women are also less likely to engage in competitive processes where they feel they do not meet 100% of the

requirements, whereas men will engage when they feel they meet 60% or less of the requirements (Mohr, 2014). This phenomenon is not related to lack of confidence as much as it is related to women's socialization (from a very early age) around instruction and rule following (Mohr, 2014; Babcock et al., 2017). Men and women view competition differently; men typically have higher appetites for competition whereas women are more risk adverse, having less interest in competitive environments (Morin, 2015).

Awards and prizes are competitive processes, and by their very nature are potential barriers for many women. The competitive process of awards cannot effectively be changed; however, what can be changed is the lens women are using to look at competitive processes. Reframing competitive processes can help encourage women to engage in self-promotion and competition. Raising awareness of gendered differences regarding perceptions of competitive processes such as awards, women could obtain a better understanding of the underlying psychology of why competitions may make them feel "uncomfortable". By bringing awareness to women as to why they engage in competitive processes differently than men (and that it is a social-cultural issue, not lack of confidence) can help break down this barrier and aid in self promotion (Barres, 2006; Teal et al., 2011). By placing greater attention on skills and merit, ensuring only relevant qualifications are asked for, tied to specific criteria with less emphasis on high-risk competitive processes (removal of male dominant gendered language), women may feel more comfortable nominating themselves and other women for prizes or awards. This also ties into the outreach and nomination process while ensuring more women are involved, as women will better engage in processes where they see other women as leaders and role models.

Outreach

Women are often disadvantaged during the outreach and promotion activities of the award and prize administration process (Lincoln et al., 2012). As the research has shown, women are less likely than men to self-promote and seek out award nomination opportunities, often leading to their exclusion during outreach campaigns. This contributes to men receiving more networking and engagement opportunities than women, often as the first to be sought out (usually by other men) during nomination requests, giving men a better advantage (Barres, 2006; Lincoln et al., 2012). Men are also more likely to be sought out for prestigious awards by men of similar image (affinity bias), another bias disadvantaging women in award processes (Barres, 2006; Kolehmainen & Carnes, 2018). Academic institutions that are known for producing world class scholars and researchers, most of whom are men, are at an advantage in the award solicitation process. "Information networks tend to run along gendered lines, men are most likely to contact men" thereby further creating barriers for women talent (Lincoln et al., 2012 p. 317; Kolehmainen & Carnes; 2018; Barres, 2006). Tendencies to focus outreach and promotion efforts on the research-intensive Canadian Universities as the "known" research commodities are likely feeding inequity. To ensure fair outreach and promotion activities, all academic institutions (large and small) should be provided with the same resources and opportunities. The information should be distributed to a diversity of faculty (men, women, minorities, etc.) within each institution to ensure a more diverse nomination result. Outreach timelines should be expanded to allow for a more robust nomination period, taking promotion equity into consideration. If face-to-face (virtual) or in person meetings are provided for one institution, they should be provided for all (Lincoln et al., 2012).

Mentors and role models

Education and awareness encourage change, but breaking stereotypes is more effectively done with role models (Council of Canadian Academies, 2012). The importance of mentors can not be overstated. The visible presence of accomplished women scientists and researchers is needed to change stereotypes of what top scientists and world class award winners look like (Kolehmainen & Carnes, 2018; Barres, 2006; Carnes et al., 2005;). Women empowering women, to apply for awards through example, will help raise women's own expectations for themselves (Barres, 2006). Women prize winners can inspire the next generation of women prize winners. Whenever possible, women laureates should be utilized in award outreach and promotion efforts to showcase what can be possible. Women role models and mentors should be visible at all stages of academic and research careers, including visibility within the prize and award landscape (Council of Canadian Academies, 2012). These recommendations come with the following caution - research shows women are more likely than men to participate in volunteer work that has little impact to career promotion and can distract from research production and impact and therefore career advancement (Babcock et al., 2017). Navigating requests should keep this in mind: since women are underrepresented in STEM in particular, a small pool of women is often routinely drawn from, further taxing already disproportionate workloads when compared to their male counterparts (Babcock et al., 2017).

Application / Nomination / Letter of reference

Within competitive processes, letters of reference are an important component usually carrying significant weight within the decision-making process. Research shows substantial use of gendered bias and bias language within letters of recommendation and nomination (Carnes et al., 2005). Gender bias, including gendered language, is particularly pervasive in academic processes where women's letters of reference tend to be shorter, contain emotionally toned language such as references to being caring, kind, and thoughtful (Trix & Psenka, 2003). Men receive longer letters of recommendation with high impact statements of character including language descriptors as exceptional, outstanding, and excellent (Trix & Psenka, 2003). Gender biased language within letters of reference can happen two ways; the first because the letter is written for a woman, the second is because of the gender of the person authoring the letter. Both men and women authors have been shown to evoke gender bias towards women in letters of recommendation (Trix & Psenka, 2003). This perpetuates stereotypes against women (i.e., as a nurturer, caregiver, organizer) putting them at a significant disadvantage in processes where men and women should be evaluated fairly (Carnes et al., 2005; Parker et al., 2015).

Because women tend to be associated with a more collaborative and communal style of language, and men tend to be associated with a more dominating language style, these considerations should be factored into all aspects of award processes (Urquhart-Cronish & Otto, 2019). Award program managers need to be aware of these gender stereotypes and differences in the way men and women use everyday language. Education and awareness are a key part of reform. By raising awareness of the role gender bias has within letters of references, and other nomination processes, barriers can be broken down (Carnes et al., 2005). As early mitigation is key, providing education to all involved can bring awareness about the potential for explicit and implicit bias to creep into the process through the choice of words. Applications and calls for nomination should contain instruction and information around the impact of gender bias on women candidates and how important it is to eliminate these barriers to create a fair and equitable process. Letters of reference should follow uniform structures addressing specific solicited questions, as opposed to ambiguous open-ended essays (Urquhart-Cronish & Otto, 2019). For example,

the NIH implemented closed-ended type letters of reference structures with referees asked to answer prescribed, specific questions regarding the candidate's credentials (The National Institute of Health, 2016).

Evaluation

A wide spectrum of challenges (competing obligations, workload, funding, lack of mentors and collaboration opportunities) combine together to negatively impact the career paths of women in academia (Larivière et al., 2011; Sugimoto et al., 2013; Lynn et al., 2019; Ma et al., 2019). When all challenges are factored together, men are better equipped to become higher academic producers (Sugimoto et al., 2013). Prize and award evaluations should be based on merit to uncover the most deserving talent. Award and prize evaluation processes tend to employ antiquated criteria including the number of publications and citations to assess impact and excellence (Sugimoto et al., 2013; Wolffram, 2018). This traditional way of assessing achievement heavily favours men giving them a verified advantage over women (Sugimoto et al., 2013). The best-qualified candidates may not have the highest number of publications and academic accomplishments. Rather, they could be a niche researcher in a small academic institution who took time away from work for family-related matters. The quality, not quantity of work should be the main element in determining who is the most qualified (Wolffram, 2018).

Although strengthening EDI efforts and policies are closing the gender gap across all academic sectors, "women's efforts continue to be perceived as less important or valuable than those of men" (Lincoln et al., 2012 p 308; Barres, 2006). This is further complicated by stereotyped images of what a major prize and award-winning researcher and scientist ought to look like, which is more often an image of a man then a woman (Kolehmainen & Carnes, 2018; Carnes et al., 2005; Lincoln et al., 2012). Multiple studies have shown when uncertainly exists within performance evaluation processes, men are viewed as being more competent and credible then women (Barres, 2006; Lincoln et al., 2012; Mohr, 2014). The characteristic trait that immediately triggers unconscious bias and stereotypes is gender because it is easy to visualize (Kolehmainen & Carnes, 2018). Men are unconsciously perceived to be a better "match about what a scientist, risk taker, and pioneer would look like and, thus, be afforded an immediate advantage" (Carnes et al., 2005 p.689; Kolehmainen & Carnes, 2018).

Evaluation criteria should be clearly defined, specific and measurable, and needs to move away from traditional ways of measuring and defining success and excellence, such as the volume of research production and output (Moore et al., 2017). Using the quantity of publications, citations, and lead (or last) authorship as assessment criteria immediately puts women at a known disadvantage (Sugimoto et al., 2013). A more equitable and contemporary way of accurately assessing talent should look at achievements as opposed to speculated potential, and also look at research impact (its effect beyond the academic world) as opposed to looking at the quantity of papers and book chapters produced. Only the necessary skills and qualifications should be asked for in the nomination or application and should serve as the benchmark for all applicants to be measured against. The assessment needs to be fair, and if "climbing a tree" is part of meeting the high standard, then it is incumbent upon award and prize portfolio managers to ensure all candidates can achieve the high standard. This will mean adjusting the pathways to be equitable, not by bringing special treatment or leniency. This may require EDI specialists to look at evaluation processes to ensure they are fair and free of barriers.

Steering committee

An area of significant reform for the NIH Pioneer Awards was within the selection committee structure. Lincoln et al. (2012) report that when men dominate selection committees, affinity bias is overwhelmingly responsible for men to receive favorable evaluations. Ensuring women are represented equally on prize committees, especially as Chairs, is particularly important. In its inaugural year, 60 of the 64 Pioneer Award selection committee members were men, including the committee Chair. The NIH reconfigured the committee to include a diversity of decision-makers (academic and non-academic), with a wide range of gender, age and race represented. The research shows that diversity is known to increase objectivity, creativity, innovation, and fiscal responsibility but it can also foster a deeper respect and appreciation for different perspectives, merits, and skills (Parker et al., 2015; Barres, 2006).

Major award and prize managers should ensure selection committees are highly diverse in all EDI areas. Bound by clear rules of engagement (codes of conflict and conduct), review processes need to be evidenced based (using relevant criteria) in order to remove bias. Education and training regarding the role of unconscious bias, stereotypes, and discrimination (especially in subtle forms) should be mandatory and on-going (not a one-time check box), grounded in science and evidence. Committee members should be "refreshed" often to prevent "group think" from creeping in and penalties should be considered for breaches of conduct such as the lobbying of committee members by nominators, institutions, and other interested parties. One aspect to ensuring inclusion is to allow all voices to be heard by allowing all members of the selection committee to have their turn to talk (and usually using a different order to give the floor to a person). Pairing committee members in small teams of mixed gender to present each nominee may allow for a more equitable and fair discussion regarding strengths and weaknesses of the nominee.

Final thoughts

An often-proposed solution to dealing with the gender gap within major prizes and awards is to create women-only awards. The literature suggests women-only awards can distract from the issue of underrepresentation of women by falsely indicating an increase in the number of female award recipients, thereby leading to the impression that the gender gap is closing (Lincoln et al., 2012). The danger of women-only awards is the further perpetuation of stereotypes and discrimination by suggesting women's contributions are inferior to men's requiring a different standard of assessment, further marginalizing women's scientific efforts (Lincoln et al., 2012).

Removing names and personal information of nominees or applicants from documents, known as the blind process, have proven effective for mitigating gender bias and discrimination in peer review, awards, and auditions. However, this has not been suggested as a viable option for assessing candidates within prestigious awards and prizes (Budden et al., 2008; Lincoln et al, 2012; Parker et al., 2015; Kolehmainen & Carnes, 2018) as top awards and prizes target the best talent, the work of whom would be well known and maintaining anonymity across all selection processes including committee members would be difficult (Lynn et al., 2019).

In 2015, Nobel Prize laureate Tim Hunt made sexist comments about girls crying in labs at a global science conference. His remarks lead to his resignation, even though he maintained his remarks were meant as a joke, which his wife (a feminist) insisted were meant in jest and taken out of context (The

Guardian, 2015). Hunt's remarks highlight the seriousness of unconscious bias and the reality of why many talented women do not fulfil their scientific potential because of gender discrimination. As Barres (2006, p. 134) points out, "remarkably, women are as likely as men to deny the existence of gender-based bias". Despite years of interventions geared at promoting equality in research, the gender gap remains wide. Mitigating the barriers that are known to activate gender disparities is key to creating fair and equitable processes for all genders. Most prestigious prize and award portfolio managers agree, the ultimate goal is to seek out and reward the best talent. Anything less devalues the entire award and prize culture and is a waste of talent.

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