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WARWICK CHEMISTRY

Invisible Women, Exposing Data Bias in a World Designed for Men

Parts 3 & 4

By Caroline Criado Perez

&

Breaking the Barriers, Women's Retention and Progression in the Chemical Sciences

A report by the Royal Society of Chemistry



DISCUSSION BOOKLET 2

"Women belong in all places where decisions are being made. It shouldn't be that women are the exception"

Ruth Bader Ginsburg

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All Diversity Book Club materials are brought to you as open access to enable you start your own club, through the hard work of the above individuals. We ask if you use these materials to keep the Acknowledgement Section in the Booklets you use and credit the Chemistry Department of the University of Warwick.



Thinking back - What challenged/surprised you from the chapters?

This could be something pertinent or something that really grabbed your attention and made you think twice.



Last session we look at “the default male”, the myth of meritocracy and how being gender-blind is not always the best option especially when it comes to snow, safety and STEM representation. This session we will consider how women have been ignored and excluded in the development of initiatives and products; and the result of this approach. Along the way we will also consider how Criado Perez ignores transgender and non-binary communities when discussing gender. Finally, we will discuss if Science itself has been biased by men dominating research and consider using Arnstein’s Ladder to enfranchise women and minority groups.

Discussion

How does the “Plough Hypothesis” link to unpaid work and the way output is measured? Re-read page 145-149

Think about who benefits when; the monetary value of a crop is measured verses calorific output (p. 147), or crop production is mechanised (p. 149).



How does the “Plough Hypothesis” and Criado Perez’s discussion exclude transgender and non-binary individuals? Re-read page 145-149

A more in-depth critique of “Invisible Women” by Criado Perez in relation to its transgender and non-binary individual “blindness” is discussed in the appendix (“Invisible transgender & non-binary individuals”).



What are some of the reasons given for not engaging with women?

Think about individuals, companies and institutions etc.



“Nevertheless, the main and repeated recommendation of the report was to fix the women, rather than the stoves. The women needed to be educated on how great the ‘improved’ stoves were, rather than stove designers needing to be educated on how to not increase women’s already fifteen-hour average working day.”

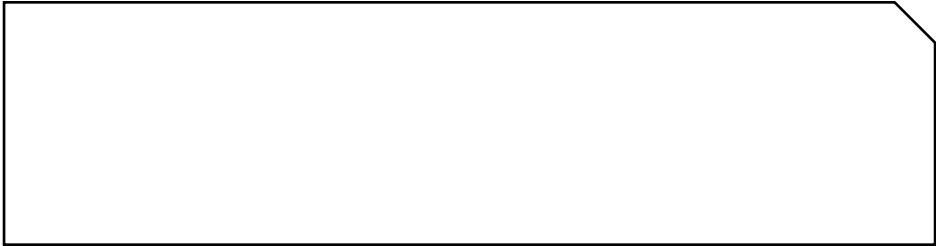
Page 153-154

“What women need, he said, was ‘lengthy training’ – if only women ‘were willing’ to submit to it.

Page 163

What are some of the outcomes, highlighted by Criado Perez, of not engaging with women?

A UK minister once said a “diversity of thought” was what matters.¹ Why is it important to have women and people from minority backgrounds participating in decision making and not just a “diversity of thought”? Is “diversity of thought” equal to a diversity of individuals?



“In conclusion, a more accurate headline for the report would be ‘Improved vehicle design brings down death rates in the seat most likely to be occupied by men, but who knows about death rates in the seat most likely to be occupied by women, even though we already know women are 17% more likely to die in a car crash.’”

Page 189-190

“They [doctors] are the products of a medical system which, from root to tip, is systematically discriminating against women, leaving them chronically misunderstood, mistreated and misdiagnosed.”

Page 196

What does the thalidomide scandal and the data gap on SARS (SARS-CoV, a coronavirus), show us about the attitudes to women in medical research?

It is notable that after the thalidomide scandal the FDA banned testing on women of childbearing potential – is this counterproductive? (p. 201) Are we collecting gender-disaggregated data for Covid-19 (SARS-CoV-2, another coronavirus)?²²



Reflecting

Does male dominance in the Sciences bias research and affect outcomes for female patients?

“...just 9% of chemistry professors in the UK are women. This means that between undergraduate study and reaching senior positions in academia, the relative proportion of female chemists drops by 35 percentage points.”

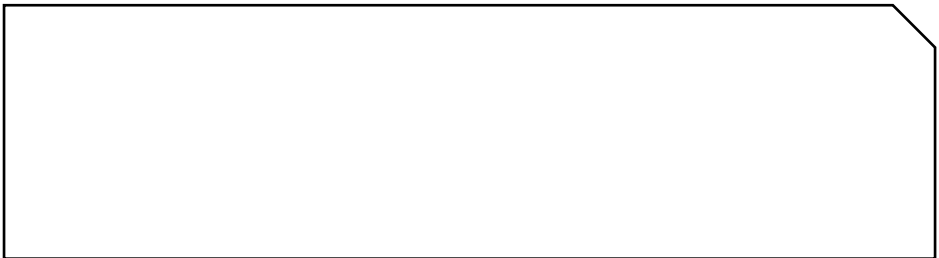
RSC Report³

“The widest pool of scientists results in the best science. Excluding or diminishing any section of society weakens science.”

RSC Report Respondent³

“Modifying experiments to include both males and females costs money and requires a duplication of time and effort—time that researchers might not have to spare or that might be better spent conducting other research—that is rarely practical or scientifically warranted.”

R. Douglas Fields in Scientific American⁴



Application – Arnstein’s Ladder (1969)

Sherry Arnstein developed a model for citizen engagement, often termed “Arnstein’s Ladder” after her.⁵ It is possible to place engagement activities, such as committees and workshops, and even organisations on this ladder to constructively map engagement, consider greater engagement and see who has power in decision making.

1 Manipulation and 2 Therapy. Both are non-participative. The aim is to cure or educate the participants. The proposed plan is best, and the job of participation is to achieve public support through public relations.

3 Informing. A most important first step to legitimate participation. But too frequently the emphasis is on a one-way flow of information. No channel for feedback.

Citizen Control
Tokenism
Nonparticipation

-
- 8. **Citizen Control**
 - 7. **Delegation**
 - 6. **Partnership**
 - 5. **Placation**
 - 4. **Consultation**
 - 3. **Informing**
 - 2. **Therapy**
 - 1. **Manipulation**

4 Consultation. Again, a legitimate step often delivered through, attitude surveys, neighbourhood meetings and public enquiries. But Arnstein still feels this is just a window dressing ritual.

5 Placation. For example, co-option of hand-picked ‘worthies’ onto committees. It allows citizens to advise or plan ad infinitum but retains for power holders the right to judge the legitimacy or feasibility of the advice.

6 Partnership. Power is in fact redistributed through negotiation between citizens and power holders. Planning and decision-making responsibilities are shared e.g. through joint committees.

7 Delegation. Citizens holding a clear majority of seats on committees with delegated powers to make decisions. The public now has the power to assure accountability of the programme to the leadership.

8 Citizen Control. Have-nots handle the entire job of planning, policy making and managing a programme e.g. neighbourhood corporation with no intermediaries between it and the source of funds.

Summary of Arnstein’s Ladder rungs adapted from David Wilcox⁶

Where do women, minority groups and you sit on Arnstein’s Ladder in the university and department?

Think about representation in your own department and university; how could women and minority groups be better engaged, enfranchised and represented? Note that a person’s place on Arnstein’s Ladder may vary by committee, meeting or role.

Additional Notes;

Invisible transgender & non-binary individuals

While Criado Perez provides an excellent discourse on the lived experiences of cis-women (i.e. women who were assigned female at birth), this is not the case for transgender and non-binary individuals. There has been some contention around the book within the public sphere for this reason, and In the spirit of the Diversity Book Club we wanted to highlight this.

Criado Perez, in the Preface, initially sets out to separate “sex” from “gender”;

“Throughout this book I will refer to both sex and gender. By ‘sex’, I mean the biological characteristics that determine whether an individual is male or female. XX and XY. By ‘gender’, I mean the social meanings we impose upon those biological facts – the way women are treated because they are perceived to be female. One is man-made, but both are real.”

Preface XIII-XIV

“Perceived to be female” here is trans-inclusive. However, Criado Perez does not follow this separation throughout the book, as explained by Siltha, a blogger reviewing Invisible Women, as quoted below:⁷

““The result is that when ‘brilliance’ is considered a requirement for a job, what is really meant is ‘a penis’.” [Page 100]

“This sentence makes it seem as if your genitals achieve something for you and give you privilege. What gives cis men privilege is how the world perceives them to be. Trans women or non-binary individuals with penises don’t get any of the privilege cis men get, because genitals have zero to do with that.

“British female police officers report being bruised by their kit belts; a number have had to have physiotherapy as a result of the way stab vests sit on their female body; many complain there is no space for their breasts.

[...] thirty-five years after women were first admitted to US military academies, that the first uniforms were designed that accounted for women’s hips and breasts.” [Page 127]

Not only women have breasts, and a bunch of cis women barely have breasts or have lost them. This could have been rephrased as “Due to not having space for their breasts, many British police officers...” and “accounted for hips and breasts”. Instead of that, Caroline Criado-Perez chooses a transphobic and non-inclusive language.”

Siltha also discusses how Criado Perez implies there are only two genders;

““He is the standard, unmarked gender, not the atypical (other) one.” [Page 15]

This quote, as the previous ones, assumes two genders, (perhaps inadvertently) erasing all non-binary individuals. If it’s bad getting ignored in meetings due to being a woman, imagine having to fight for your existence to be recognised, let alone fight for your rights in a society that denies your existence.”

Furthermore, Criado Perez's definition of "sex" is flawed – "sex" is not binary. "Sex" is determined by phenotypic (genitals, hormones etc) or genotypic (genetic makeup) sex characteristics.⁸ However, Criado Perez defines sex solely by genotype i.e. XX or XY karyotypes (a person's chromosomes); however there are multiple sex chromosome compositions beyond XX and XY. For example, XXY (Klinefelter syndrome affecting 1 in every 660 males)⁹ or X only (Turner syndrome affecting 1 in every 2000 females).¹⁰ Additionally, people can be genotypically male/female but phenotypically female/male, for example, XX male syndrome (de la Chapelle syndrome) where the person is phenotypically male despite an XX karyotype or XY androgen insensitivity syndrome where a person is phenotypically female but genotypically male. While ovotesticular disorder, where the person has both testicular and ovarian tissue, may have XX or XY karyotypes.

The sex of some of the above individuals may be defined as intersex, with the "Campaign for Intersex Inequality" estimating that 1.7% of the population are intersex or approximately "as common as having red hair".¹¹ By not discussing this within the book, even if not intended, Criado Perez, makes numerous individuals "invisible" too.

The booklet cited here,¹² by the RSC on trans-inclusive workplaces may be useful.

References;

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