Gender equity at scientific events

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European Society for Evolutionary Biology

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Women are underrepresented in academic science

Figure 6.1. Proportion of women and men in a typical academic career, students and academic staff, EU-28, 2007–2013

Source: She Figures 2015, European Union
Women are underrepresented in academic science, in France as well.

source: Bilan social et parité 2016, CNRS (01/2018)
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Why are women underrepresented in academic science?

- Legacy of the past, or
- Leaky pipeline?
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Shaw & Stanton (2012) Proc B (NSF data)
Why are women underrepresented in academic science?

► Legacy of the past, or
► Leaky pipeline?

Shaw & Stanton (2012) Procs B (NSF data)
Why do women leave more?

Deliberate choice or not, personal decisions, or feel like forced out.
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Behavioral differences

[King et al. (2018) Socius (/bioRxiv)]
Why do women leave more?

Deliberate choice or not, personal decisions, or feel like forced out.

Behavioral differences

Implicit bias

Recommendation letters [Trix & Psenka (2003) Discourse & Society]
Why do women leave more?

Deliberate choice or not, personal decisions, or feel like forced out.

Behavioral differences

Implicit bias

Perception of competence [Moss-Racusin et al. (2012) PNAS]

Fig. 1. Competence, hireability, and mentoring by student gender condition (collapsed across faculty gender). All student gender differences are significant ($P < 0.001$). Scales range from 1 to 7, with higher numbers reflecting a greater extent of each variable. Error bars represent SEs. $n_{\text{male student condition}} = 63$, $n_{\text{female student condition}} = 64$.

NB: the effect of faculty gender is not significant
Why do women leave more?

Deliberate choice or not, personal decisions, or feel like forced out.

Behavioral differences

Implicit bias

Test yourself!
Why should we care about the proportion of women among scientists?

- Fairness
Why should we care about the proportion of women among scientists?

- Fairness
- Better science, new ideas, diversity of approaches

Gender diversity leads to better science

Mathias Wullum Nielsen\textsuperscript{a,1}, Sharla Alegría\textsuperscript{b}, Love Börjeson\textsuperscript{c}, Henry Etzkowitz\textsuperscript{a,9}, Holly J. Falk-Krzesinski\textsuperscript{a,9}, Aparna Joshi\textsuperscript{a}, Erin Leahey\textsuperscript{a}, Laurel Smith-Doerr\textsuperscript{a}, Anita Williams Woolley\textsuperscript{a}, and Londa Schiebinger\textsuperscript{a}

Pick up any recent policy paper on women’s participation in science and you will find assurances that gender diversity enhances knowledge outcomes. Universities and science-policy stakeholders, including the European Commission and the US National Institutes of Health, readily subscribe to this argument (1-3). But is there, in fact, a gender-diversity dividend in science?

The data suggest that there is. Under the right “mechanisms for innovation” specifying why gender diversity matters for scientific discovery and what managers should do to maximize its benefits (Fig. 2). Encouraging greater diversity is not only the right thing to do: it allows scientific organizations to derive an “innovation dividend” that leads to smarter, more creative teams, hence opening the door to new discoveries.

Nielsen et al. (2017) PNAS
Why should we care about the proportion of women among scientists?

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Gender diversity leads to better science

Nielsen et al. (2017) PNAS

- Of Mice and Men

Sorge et al. (2014) Nature Methods
The importance of being a speaker

▶ Recognition of expertise and leadership

Principal Investigators should also be able to demonstrate a promising track record of early achievements appropriate to their research field and career stage, including significant publications (as main author) in major international peer-reviewed multidisciplinary scientific journals, or in the leading international peer-reviewed journals of their respective field. They may also demonstrate a record of invited presentations in well-established international conferences, granted patents, awards, prizes etc. For further information please see the ERC Work Programme 2018 and the ‘Instructions for completing Part B of the proposal’ in this document.

source: Information for Applicants to the Starting and Consolidator Grant 2018 Calls
The importance of being a speaker

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- Same influences for other committees (hiring, prizes)
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- Same influences for other committees (hiring, prizes)
- Personal benefit of being invited speaker
What previous studies have shown

DIFFERENCES IN THE PROPORTION OF WOMEN TO MEN INVITED TO GIVE SEMINARS: IS THE OLD BOY STILL KICKING?

J. Gurevitch

Stag Parties Linger: Continued Gender Bias in a Female-Rich Scientific Discipline

JOURNAL OF Evolutionary Biology

Fewer invited talks by women in evolutionary biology symposia

J. SCHROEDER1,2*, H. L. DUGDALE1,3,4*, R. P. J. JOHNSON1, A. W. SANTURE1, A. S. GRUBER1, D. M. BUEHLER6,7, J. SAUL6, L. PORTER6, A. P. J. JOHNSON1, A. W. SANTURE1, A. S. GRUBER1

The Presence of Female Conveners Correlates with a Higher Proportion of Female Speakers at Scientific Symposia

RESEARCH ARTICLE

Not “Pulling up the Ladder”: Women Who Organize Conference Symposia Provide Greater Opportunities for Women to Speak at Conservation Conferences

Stephanie Sardelis*, Joshua A. Drew

Gender Parity Trends for Invited Speakers at Four Prominent Virology

Speaking out about gender imbalance in invited speakers improves diversity

Robya S Klein, Rhonda Yaskuhl, Benjamin M Segal, Benzie E Dittel, Thomas E Lane, John R Bethea, Monica J Carson, Carol Celton, Susanna Rosi, Althea Anderson, Laura Piccio, Joan M Geverman, Etty N Benveniste, Melissa A Brown, Seema Kaushalya Tiwari-Woodruff, Tajje H Harris & Anne H Cross

Omissions of qualified women scientists from major meeting programs continue to occur despite a surge in articles indicating persistent gender-discriminatory practices in hiring and promotion, and calls for gender balance in conference organizing committees.
What is the proportion of women in the field of evolutionary biology?

In previous studies

- All participants of a given congress
- Faculty members at a number of institutions
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In previous studies

- All participants of a given congress
- Faculty members at a number of institutions

Our estimate

- Calculations already done
- Computed from lists of members
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In previous studies

- All participants of a given congress
- Faculty members at a number of institutions

Our estimate

| Society | Student | Postdoc | Other | Other+Postdoc | All members |
|---------|---------|---------|-------|---------------|-------------|
| ESEB    | 0.54 (461) | NA      | NA    | 0.38 (983)    | 0.43 (1444) |
| SSE     | 0.52 (848)  | 0.51 (271) | 0.31 (1414) | 0.34 (1685) | 0.40 (2533) |
| ASN     | 0.55 (428)  | 0.51 (108)   | 0.24 (688)  | 0.28 (796)   | 0.37 (1224) |
What is the proportion of women in the field of evolutionary biology?

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Overall, *32%* women.
(ESEB non-student, ASN post-Postdoc, SSE post-Postdoc)
Data sources: Evoldir ads

### Conferences:

| Conference Name | Date          | Location |
|-----------------|---------------|----------|
| Aachen University | Mar 25-29     | Germany  |
| Berlin University | Apr 2-6       | Germany  |
| Cologne University | Apr 7-11    | Germany  |
| Dresden University | Apr 12-16    | Germany  |
| Freiburg University | Apr 19-23   | Germany  |
| Hamburg University | Apr 24-28    | Germany  |
| Heidelberg University | May 1-5    | Germany  |
| Karlsruhe University | May 6-10   | Germany  |
| Kiel University | May 11-15     | Germany  |
| Leipzig University | May 16-20    | Germany  |
| Magdeburg University | May 21-25  | Germany  |
| Mannheim University | May 26-30   | Germany  |
| Munich University | Jun 2-6       | Germany  |
| Nuremberg University | Jun 7-11   | Germany  |
| Paderborn University | Jun 12-16  | Germany  |
| Regensburg University | Jun 17-21  | Germany  |
| Berlin University | Jun 22-26    | Germany  |
| Stuttgart University | Jun 27-30   | Germany  |
| Berlin University | Jul 2-6       | Germany  |
| Berlin University | Jul 7-11      | Germany  |
| Berlin University | Jul 12-16     | Germany  |
| Berlin University | Jul 17-21     | Germany  |

### Courses:

| Course Name | Date          | Location |
|-------------|---------------|----------|
| Berlin University | Apr 1-5     | Germany  |
| Berlin University | Apr 6-10    | Germany  |
| Berlin University | Apr 11-15  | Germany  |
| Berlin University | Apr 16-20  | Germany  |
| Berlin University | Apr 21-25  | Germany  |
| Berlin University | Apr 26-30  | Germany  |
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| Berlin University | Jun 1-5    | Germany  |
| Berlin University | Jun 6-10   | Germany  |
| Berlin University | Jun 11-15  | Germany  |
| Berlin University | Jun 16-20  | Germany  |
| Berlin University | Jun 21-25  | Germany  |

Screened 435 ads, included 272 ads.
Data sources: Evoldir ads

- April 2016–September 2017: Conferences and Workshops Courses
- 752 ads screened, 249 ads included.
- Two categories:
  - Conferences (Workshops, Conferences, Colloquia, …)
  - Courses (teaching events)
Data sources: Evoldir ads

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- 752 ads screened, 249 ads included.
- Two categories:
  - Conferences (Workshops, Conferences, Colloquia, …)
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Data sources (cont.): Symposia data

Symposia at ESEB, SMBE and Evolution congresses, summer 2017

- 67 symposia
Data sources (cont.): Symposia data

Symposia at ESEB, SMBE and Evolution congresses, summer 2017

67 symposia

Longitudinal data: ESEB and Evolution-SSE symposia, 2001-2017
Protocol

- Data collection:
  - Number of announced invited speakers (total, women),
  - Number of organizers (total, women),
  - Country, …

and for contemporary data:
Protocol

▶ Data collection:
  ► Number of announced invited speakers (total, women),
  ► Number of organizers (total, women),
  ► Country, ...

and for contemporary data:

▶ Survey of Organizers

▶ Questionnaire

EO study

Barcelona: Physics of Evolution Jan 18-18

Based on the information available in the e-mail sent on Oct 14, and on the conference website, we counted:

| #Invited_Total | #Invited_Women | #Organizers_Total | #Organizers_Women | #ScientificCommittee_Total | #ScientificCommittee_Women |
|---------------|---------------|-------------------|-------------------|---------------------------|--------------------------|
| 23            | 4             | 1                 | 0                 | 4                         | 1                        |

Q0: Are these numbers correct?
(Invited = Invited) and accepted the invitation, i.e., people actually coming to the conference)

- Yes
- No

If there are errors, please change the entries of the table above.

Q1: When you finalized the list of invited speakers, were you aware of what was the proportion of invited women (17.3% according to our census)?

- Yes
- No

Q2: Was the gender of the researchers a criterion that you took into account when you established the list of people to invite?

- Yes
- No

Q3: Were there Equal Opportunity (EO) guidelines that you had to follow regarding the number or proportions of invited women?

- A given proportion of women was imposed
- A given proportion of women was suggested
- No specific guidelines

Q4: If there were EO guidelines (suggested or imposed), please detail them in the text box (e.g., what proportion of women):

Q5: The raw data of the study will be shared on the digital repository Dryad. Do you accept your replies to Questions Q1, Q2, Q3, Q4 to be included in the analysis and hence shared on Dryad?

- Yes
- No

The study will run until July 2017. Please check this box if you wish to be informed about its outcome.

Please click on Submit when you are done.
Protocol

Data collection:
▶ Number of announced invited speakers (total, women),
▶ Number of organizers (total, women),
▶ Country, ...

and for contemporary data:
▶ Survey of Organizers
▶ Questionnaire
▶ 1 reminder email

---

| #Invited_Total | #Invited_Women | #Organizers_Total | #Organizers_Women | #ScientificCommittee_Total | #ScientificCommittee_Women |
|----------------|----------------|------------------|------------------|---------------------------|---------------------------|
| 23             | 4              | 1                | 0                | 4                         | 1                         |

G0 Are these numbers correct?
(Invited = invited and accepted the invitation, i.e., people actually coming to the conference)
☐ Yes
☐ No
If there are errors, please change the entries of the table above.

G1 When you finalized the list of invited speakers, were you aware of what the proportion of invited women (17.39 % according to our census)?
☐ Yes
☐ No

G2 Was the gender of the researchers a criterion that you took into account when you established the list of people to invite?
☐ Yes
☐ No

G3 Were there Equal Opportunity (EO) guidelines that you had to follow regarding the number or proportions of invited women?
☐ A given proportion of women was imposed
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Protocol

- Data collection:
  - Number of announced invited speakers (total, women),
  - Number of organizers (total, women),
  - Country, ...

and for contemporary data:

- Survey of Organizers
  - Questionnaire
  - 1 reminder email
  - Overall reply rate: 65.8%.
Results
Proportions of female invited speakers

Conferences: Not different from \( \text{three.pnum}/\text{two.pnum} \) \% baseline

Congress symposia: Higher than \( \text{three.pnum}/\text{two.pnum} \) \% baseline

Courses: Lower than \( \text{three.pnum}/\text{four.pnum} \)
Proportions of female invited speakers

Conferences: Not different from 32% baseline
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Courses: Lower than 32% baseline
Positive effect of the proportion of women among organizers on the proportion of female invited speakers

Conferences

Congress symposia
Positive effect of the proportion of women among organizers on the proportion of female invited speakers

**Conferences**

**Congress symposia**

Interpretation: conscious or unconscious; men favoring men...
Taking gender into account when choosing whom to invite has a positive effect on the proportion of female invited speakers.

Conferences: Not different from 32% baseline.
Taking gender into account when choosing whom to invite has a positive effect on the proportion of female invited speakers.

Conferences: Not different from 32% baseline.

Did you take gender into account when choosing speakers?
Diversity of perception of guidelines for congress symposia

|                | ESEB (n=24) | SMBE (n=15) | Evolution (n=5) | 0.0 | 0.2 | 0.4 | 0.6 | 0.8 | 1.0 |
|----------------|-------------|-------------|-----------------|-----|-----|-----|-----|-----|-----|
|                | No          | No+Comment  | Suggested       |     |     |     |     |     |     |

Were there Equal-Opportunity [EO] guidelines that you had to follow regarding the number or proportions of invited women? 

- A given proportion of women was imposed
- A given proportion of women was suggested
- No specific guidelines

For further details, please refer to the table above.
Diversity of perception of guidelines for congress symposia

“Were there Equal-Opportunity [EO] guidelines that you had to follow regarding the number or proportions of invited women?”

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- No specific guidelines

ESEB (n=24)  SMBE (n=15)  Evolution (n=5)
Diversity guidelines have a positive effect on the proportion of female invited speakers
Diversity guidelines have a positive effect on the proportion of female invited speakers
Another small effect

Conferences

Number of invited speakers

Proportion of female invited speakers

Proportion of female organizers

75%
50%
25%

A possible solution: Public lists of female scientists, e.g. Diversify EEB
A possible solution: Public lists of female scientists, e.g. Diversify EEB
What about quotas?

- Most diversity statements are not about quotas;

source: http://evolutionmontpellier2018.org/equal-opportunity

"Choosing the best people irrespective of gender"

Defining "best"

Excellence never the sole criterium (network, sociability...)

(Gheaus (/two.pnum/zero.pnum/one.pnum/five.pnum) J. Applied Philosophy)

Token women
What about quotas?

- Most diversity statements are not about quotas;
- Awareness vs. quotas

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What about quotas?

► Most diversity statements are not about quotas;
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► “Choosing the best people irrespective of gender”
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    (Gheaus (2015) J. Applied Philosophy)

- Token women
Men can help as well

No thanks PMWC2017 - I don't want to go to your $&#@/#( #manel #yammm #biased meeting phylogenomics.blogspot.com/2016/09/no-tha...
Men can help as well.
Men can help as well.
Society issues

Loison et al. (2017) European Educational Research Journal
Society issues

Loison et al. (2017) European Educational Research Journal
Society issues

Loison et al. (2017) European Educational Research Journal
Take-home messages

- Disparity of proportion of women across types of events:
  - Conferences: Not different from baseline,
  - Congress Symposia: Higher than baseline,
  - Courses: Lower than baseline;
- Positive effect of the proportion of women among organizers on the proportion of female invited women;
- Disparity of proportion of women within Conferences, depending on whether gender was taken into account by the organizers;
- Diversity guidelines have a positive effect on the proportion of female invited speakers.
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- Disparity of proportion of women within Conferences, depending on whether gender was taken into account by the organizers;
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![Graph showing the proportion of female invited speakers over years and number of symposia](image-url)
“La question de l’inégalité des sexes est éminemment politique. Ce modèle inégal est la matrice de tous les autres régimes d’inégalité.”

The topic of gender inequality is eminently political. This unequal model is at the origin of all other inequality regimes.
Thanks for your attention!