Research Intelligence

Gender in the global research landscape - where are we and what can Elsevier do?

Maria de Kleijn, Senior Vice President Analytical Services
Why Elsevier on gender in science?

1. Introduction – the ‘state of play’ in Elsevier

2. Elsevier Foundation, supporting advancing women in science

3. Embedding equality practices in publishing and conferences

4. Elsevier’s information analytics contributions
1. State of play in Elsevier

1. Equal pay for equivalent work
2. Recruitment and promotion
3. Leadership development, training and mentoring
4. Flexible working conditions
5. Organizational culture
2. The Elsevier Foundation – advancing women in science

2016 – 2018

• OWSD Elsevier Foundation Awards for Early Career Women Scientists in Developing Countries

• Portia Ltd Strategic Partnership to promote the Gender Summits as an action oriented platform.

• GenderInSITE promoting STI for development or gendered innovations in the South.

New Scholars Program 2006 - 2015: 10 years, 50 grants, ca $2.5 million

A decade of best practice in gender equity programs for academia, the New Scholars grants were given family friendly policies, career skills, dual career issues, recognition awards, benchmarking studies, and boosting professional visibility through childcare grants.
2. Gender equality in our core processes: diversity for panelists at Elsevier conferences

Invited speakers at Elsevier’s 50 annual conferences

<table>
<thead>
<tr>
<th>Year</th>
<th>Male (%)</th>
<th>Female (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>2016</td>
<td>81%</td>
<td>19%</td>
</tr>
<tr>
<td>2017</td>
<td>76.23</td>
<td>23.76</td>
</tr>
</tbody>
</table>
3. Equality in our core processes: publishing. Examining sources of bias

- Choosing and inviting peer reviewers  
  - 21% Women
- Editorial Board members  
  - 27% Women
- Inviting authors to write (e.g., Reviews)  
  - 26% Women
- Choosing which uninvited submissions to consider  
  - 13% Women (senior authors)

- All measures were lower than minimum benchmark (28% women)
- Worst bias in author-initiated article suggestions
- Women accept referee invitations at the same rate as men
- The least bias was found in the editorial board (27% women) and in published authors (26% women), which are both editor-driven.
3. Equality in publishing. What to improve, and how to improve it?

- Continue to collect and monitor data.
- Consider what barriers may decrease self-promotion for women researchers.
- Move past the “usual suspects” when inviting authors and reviewers.
- Ask ourselves if we have considered all equally qualified women before inviting authors and reviewers.
- Consider making composition aspirational.
Gender in the Global Research Landscape

Analysis of research performance through a gender lens – across 20 years, 12 geographies, and 27 subject areas

REPORT RELEASE EARLY 2017
Gender disambiguation methodology

Scopus

genderize.io

NamSor

Social Media
Female researchers

37% of all active authors in the Netherlands

(2013-17)

Proportion of women and men (among named gendered author profiles)

<table>
<thead>
<tr>
<th>Region</th>
<th>Period</th>
<th>Women</th>
<th>Men</th>
<th>Total</th>
<th>Women %</th>
<th>Men %</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU28</td>
<td>1996-2000</td>
<td>343,946</td>
<td>732,359</td>
<td>1,076,305</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td></td>
<td>2011-2015</td>
<td>965,025</td>
<td>1,389,772</td>
<td>2,354,797</td>
<td>41%</td>
<td>59%</td>
</tr>
<tr>
<td>United States</td>
<td>1996-2000</td>
<td>310,666</td>
<td>696,947</td>
<td>1,007,613</td>
<td>31%</td>
<td>69%</td>
</tr>
<tr>
<td></td>
<td>2011-2015</td>
<td>705,579</td>
<td>1,071,606</td>
<td>1,777,185</td>
<td>40%</td>
<td>60%</td>
</tr>
</tbody>
</table>
Output and career stage - example Netherlands
Citation impact - similar for men and women

Field-weighted citation impact per seniority, NL

- greater than 10 years: 1.8
- 5 to 10 years: 1.8
- less than 5 years: 1.7
Men tend to collaborate more internationally...
... and tend to be more mobile

International Mobility

19% of all Dutch researchers are migratory (staying abroad longer than two years), yet only 25% of this group are women.

Higher mobility of researchers is generally linked with higher productivity and impact. Removing barriers to mobility among Dutch women researchers is likely to have a positive impact.
Women tend to more interdisciplinary research

<table>
<thead>
<tr>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOP 10% INTERDISCIPLINARY SCHOLARLY OUTPUT AS A SHARE OF TOTAL SCHOLARLY OUTPUT</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>EU28</th>
<th>Brazil</th>
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<tbody>
<tr>
<td>68,285</td>
<td>2,681</td>
</tr>
<tr>
<td>128,128</td>
<td>3,632</td>
</tr>
<tr>
<td>159,635</td>
<td>18,276</td>
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<tr>
<td>253,927</td>
<td>22,070</td>
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<table>
<thead>
<tr>
<th>United States</th>
<th>Japan</th>
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<tbody>
<tr>
<td>49,013</td>
<td>11,733</td>
</tr>
<tr>
<td>99,981</td>
<td>36,667</td>
</tr>
<tr>
<td>104,210</td>
<td>17,126</td>
</tr>
<tr>
<td>175,943</td>
<td>43,517</td>
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</tbody>
</table>
Key findings

• The proportion of women among researchers is around 40% in most countries we studied.

• Women tend to publish slightly fewer papers than men on average, which may be due to career stage; however, their citation impact is similar to men’s.

• Women seem to collaborate internationally less than men, and are less internationally mobile.

• Women are underrepresented in patent applications and in academic-corporate collaboration.

• Women tend more to interdisciplinary research than men.
What’s next - She Figures 2018

Bibliometric indicators 2015

• Number of publications per gender
• International collaborations per gender
• Impact of publications as indicated by journal based Average Ratio of Impact Factor (ARIF) per gender
• Gender Dimension in Research Content (GDRC)

Bibliometric indicators 2018 provided by Elsevier

• Number of publications per gender,
• National, Intra-EU and International Collaborations per gender,
• Impact of publications as indicated by article based Field-Weighted Citation Impact (FWCI) per gender,
• Sex and Gender Dimension in Research Content (SGDRC)

New:
• Trajectory of authorship rates during career development
Thank you