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TALENT

A framework for action in scientific publishing

Improving inclusion and diversity
in the chemical sciences

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Background and purpose

This framework for action has been developed by the Royal Society of Chemistry with the aim of encouraging progress on inclusion and diversity in scientific publishing. It is primarily intended as a tool for use by editorial decision-makers to help increase inclusion and diversity amongst editors (both RSC editorial staff members and our external editors), reviewers and authors.

Our framework was developed in collaboration between RSC Publishing and RSC Inclusion and Diversity teams. The idea of a framework specifically for scientific publishing was inspired by the *Diversity and Inclusion Progression Framework for Professional Bodies*, published in 2016 by the Royal Academy of Engineering and the Science Council.[1]

The format and content of our framework were informed by a series of one-to-one interviews with authors, editors and reviewers. This was overseen by an RSC staff working group, and by an external advisory group of authors, editors and reviewers. The end result is a framework which is new and bespoke to scientific publishing.

Definitions and references

We define:
- 'inclusion' by people feeling that they belong in the world of chemical sciences;
- 'diversity' by anything that can make us different from others. This includes (but is not limited to) demographic background such as gender, ethnicity, age, disability, as well as areas such as socio-economic status, education and neurological status;[4]
- 'RSC Publishing Board' as the Board which oversees the publishing strategy of the RSC, keeping under review performance against strategic goals, delivery against financial targets and monitoring the quality of science published and the publishing policies used across the operations whilst being mindful of the reputation of the organisation. The Board is part of the RSC's external governance structure;
- 'editors' (unless otherwise stated) as both RSC editorial staff members and external editors.

This framework references the following work:

1 *Diversity and inclusion progression framework for professional bodies*. Royal Academy of Engineering and Science Council. **raeng.org.uk/publications/other/diversity-progression-framework**

2 *Is publishing in the chemical sciences gender-biased? Driving change in research culture*. Royal Society of Chemistry. **rsc.li/gender-bias**

3 *Is there a gender gap in chemical sciences scholarly communication?* Day et al. *Chemical Science*, 2020. DOI: 10.1039/C9SC04090K

4 *Inclusion & Diversity*. Royal Society of Chemistry. **rsc.li/inclusion-diversity**

5 *Collaborating with People Like Me: Ethnic Coauthorship within the United States*. Freeman and Huang. *Journal of Labor Economics*, 2015, 33, S289-S318 doi.org/10.1086/678973

6 *Why Diversity and Inclusion Matter: Quick Take*. Catalyst. **catalyst.org/research/why-diversity-and-inclusion-matter**

Using the framework

This framework maps out the steps required to improve outcomes on inclusion and diversity at all stages of the scientific publishing process, encouraging stakeholders to action those steps.

It comprises two parts: *Building the Foundations* and *Opportunities for Action*. Each part has four sections containing actions in three progressive levels.

1

Building the foundations

| Making the case |
| Establishing leadership |
| Defining the problem |
| Establishing accountability |

2

Opportunities for action

| Increasing diversity |
| Addressing bias |
| Changing processes |
| Setting standards |

Level 1: *Initiating*
Taking foundational steps.

Level 2: *Developing*
Making progress with robust action.

Level 3: *Engaging*
Increasing action, engagement and collaboration to shift behaviours.

The levels provide a general understanding of performance, and enable identification and prioritisation of actions. It is not necessary to undertake actions sequentially. However, the more robust the foundations, the more likely the success of any specific intervention.

The framework is intended to:
- enable RSC senior leaders, editors and editorial boards to evaluate their performance and progress on inclusion and diversity overall, and at the level of individual journals;
- encourage conversations amongst senior leaders, editors and editorial boards about performance and progress on inclusion and diversity;
- support RSC senior leaders, editors and editorial boards to plan and prioritise next steps on inclusion and diversity;
- encourage authors, reviewers, editors and readers to take specific actions to improve inclusion and diversity in scientific publishing;
- encourage conversation and partnerships between scientific publishers, to collaboratively support progress on inclusion and diversity in scientific publishing.

Framework contents

Part one of the framework is called *Building the Foundations*. The content has been developed to help senior leaders, editors and editorial boards to establish robust foundations for success in progressing inclusion and diversity in scientific publishing.

(1) Building the foundations – overview

Making the case

Increasing inclusion and diversity in scientific publishing contributes to the quality and innovation of research, and inspires and attracts the next generation of chemists.[2] However, conversations with authors, editors and reviewers suggest that not all of those involved in scientific publishing are convinced there is a need for change. Taking the steps in this section will make a targeted case for action.

Establishing leadership

Any significant change on inclusion and diversity requires the influence, support and engagement of the most senior leadership in an organisation. The steps in this section make sure that the commitment of senior leaders to change is clear to authors, reviewers and editors.

Defining the problem

Even where a compelling case for action has been developed, not everyone shares the same understanding of what the specific 'problem' of inclusion and diversity in scientific publishing is that needs to be addressed. The steps in this section help the user to define the problem and identify priorities for action.

Establishing accountability

Progression requires the engagement of multiple stakeholders. It is not always clear who is – or feels to be – accountable or responsible for improving outcomes on inclusion and diversity. The steps in this section help to increase clarity about responsibility and accountability for inclusion and diversity in scientific publishing.
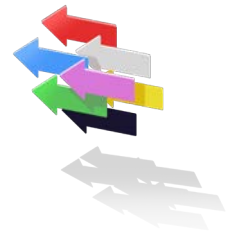
Part two of the framework is called *Opportunities for Action*. This has been developed to help senior leaders, editors and editorial boards implement specific interventions designed to make progress on inclusion and increase the diversity of reviewers, editorial decision-makers and authors in scientific publishing.

(2) Opportunities for action – overview

Increasing diversity

Our data[2, 3] show differences in the likelihood of article acceptance depending on the gender of authors, reviewers and editors. Notably, women are at a disadvantage compared to men when disseminating their research.[4] One of the opportunities for action to address this is to focus on increasing the diversity of authors, reviewers and editors.

Addressing bias

Our data[2, 3] show that there are subtle differences in decision-making by reviewers and editors depending on gender at each stage in the publishing process. The same is expected in relation to other demographics such as geography. Increasing inclusion and diversity in publishing requires action to mitigate both the risk and the impact of bias in decision-making. The actions in this section respond specifically to RSC evidence.

Changing processes

Data published by RSC[2, 3] show that there are subtle differences in decision-making by reviewers and editors which impact on authors at each stage in the publishing process. Alongside action to mitigate both the risk and the impact of bias in individual decision-making, there are also changes that may be made to long-established processes in scientific publishing. These steps identify potential alternative processes.

Setting standards

We define creating a culture of inclusiveness as establishing behaviours that support and create an environment where people feel they belong. Setting standards for an inclusive culture contributes to increasing the diversity of voices within scientific publishing; there is evidence of links between an inclusive culture and an individual's and organisation's performance.[5]

Building the foundations

Making the case

Increasing inclusion and diversity in scientific publishing contributes to the quality and innovation of research, and inspires and attracts the next generation of chemists.[2] However, conversations with authors, editors and reviewers suggest that not all of those involved in scientific publishing are convinced there is a need for change. Taking the steps in this section will make a targeted case for action.

Initiating

Identify the key decision-makers and influencers who need to understand and be convinced by the need for action on inclusion and diversity in scientific publishing.

Ask them about the kind of arguments that they find most persuasive, and about their concerns and any resistance to taking action on inclusion and diversity in publishing.

Review examples of the case for change on inclusion and diversity published by other journals, science bodies, publishing companies, scientific organisations and other sectors of interest, as well as the RSC's own overarching case.[4]

Developing

Working with key stakeholders, develop a bespoke case for change that addresses the compelling arguments as well as their concerns.

Share a trial communication of the case for change with a wider group of authors, editors and reviewers, refining the messaging if necessary.

Make sure the case for change on inclusion and diversity is endorsed by RSC senior leaders, including the RSC Publishing Board and editorial boards.

Engaging

Develop a communications plan for the case for change, ensuring that it is communicated widely to authors, editors and reviewers.

Engage authors, editors and reviewers in continuing to gather qualitative and quantitative evidence of the difference that increasing inclusion and diversity in publishing make, in order to keep the case for change up-to-date and compelling.

Establishing leadership

Any significant change on inclusion and diversity requires the influence, support and engagement of the most senior leadership in an organisation. The steps in this section make sure that the commitment of senior leaders to change is clear to authors, reviewers and editors.

Initiating

Views of senior leaders need to be taken into account in developing a compelling case for increasing inclusion and diversity in scientific publishing. Make sure that any case has been endorsed and championed by the RSC Publishing Board and editorial boards (also see 'Making the case').

Develop a clear ambition for inclusion and diversity in scientific publishing, agreed by RSC senior leaders. Communicate this vision alongside the case for change.

Identify at least one named individual on the RSC Board of Trustees to champion on inclusion and diversity in scientific publishing.

Developing

Ensure inclusion and diversity are integrated into the strategic plans and business priorities for RSC Publishing.

Make sure a plan of action to deliver on the vision and ambition for inclusion and diversity in RSC Publishing is agreed by RSC senior leaders.

Include in the plan of action the development of inclusive leadership skills and behaviours for RSC senior leaders and members of governance.

Engaging

The organisation's performance on inclusion and diversity in scientific publishing must be measured, monitored, reported to and regularly discussed by RSC senior leaders and governance.

Secure the commitment of RSC senior leaders and governance to influence and form partnerships with other scientific publishers, to scrutinise processes on inclusion and diversity and to share learning.

Establishing leadership

Defining the problem

Even where a compelling case for action has been developed, not everyone shares the same understanding of what the specific 'problem' of inclusion and diversity in scientific publishing is that needs to be addressed. The steps in this section help the user to define the problem and identify priorities for action.

Initiating

Collate and review any internal data currently available on the demographic diversity of authors, editors and reviewers (as a minimum, gender and nationality).

Collate and review any internal qualitative insights on barriers to publishing experienced by authors, by gender and nationality.

Developing

Gather and monitor data on inclusion and diversity in relation to authors, editors and reviewers.

Further analyse inclusion and diversity data in specific areas, for example:
- authorship status;
- outcomes of peer review.

Decide on priorities for action, basing decisions on both quantitative and qualitative data.

Decide on success metrics that will indicate that progress is being made.

Engaging

Consider what the data indicates about how each journal compares against others in terms of inclusion and diversity of authors, editors and reviewers. Also consider this for RSC Publishing as a whole.

Report annually on performance against success metrics to RSC senior leaders.

Defining the problem

Establishing accountability

Progression requires the engagement of multiple stakeholders. At present it is not always clear who is – or feels to be – accountable or responsible for improving outcomes on inclusion and diversity. The steps in this section increase clarity about responsibility and accountability for inclusion and diversity in scientific publishing.

Initiating

Ensure RSC Publishing Board and all editorial boards are clear on their overall responsibility and accountability for progress on inclusion and diversity.

Define the specific responsibilities and accountabilities on inclusion and diversity for different groups.

Developing

Define the specific responsibilities and accountabilities on inclusion and diversity for individual editors, and other publishing staff.

Make sure editorial board performance on inclusion and diversity is routinely measured, monitored and reported to RSC Publishing Board.

Engaging

Define any explicit responsibilities and accountabilities on inclusion and diversity for reviewers.

Regularly communicate accountabilities and responsibilities on inclusion and diversity both internally and externally.

2

Opportunities for action

Increasing diversity

Our data[2, 3] show differences in the likelihood of article acceptance depending on the gender of authors, reviewers and editors. Notably, women are at a disadvantage compared to men when disseminating their research.[4] One of the opportunities for action to address this is to focus on increasing the diversity of authors, reviewers and editors.
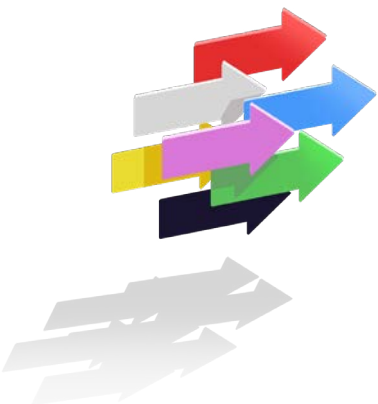
Initiating

Ensure the strategy for RSC Publishing overall, and for individual journals includes a clear evidence-based statement of commitment to greater diversity in publishing outcomes for example by gender and geography, in addition to – not in place of – scientific excellence.

Review and revise as necessary the appointment process for all editor positions (working with internal stakeholders when appropriate) to make sure inclusion and diversity are taken into account in, for example, role descriptors, advertising, and candidate assessment.

Review and revise as necessary the appointment process for editorial boards to ensure appointments are made from the widest possible talent pool. Make the diversity of editorial boards an explicit consideration when seeking nominations and issuing invitations.

Developing

Develop a plan to demystify and communicate the publishing process to new authors, targeting those from under-represented groups.

Review and revise as necessary the identification, invitation and appointment process for new reviewers to make sure appointments are made from the widest possible talent pool.

Encourage authors to recommend reviewers from under-represented groups.

Provide regular awareness-raising on unconscious bias in decision-making for editorial boards, all editors and reviewers.

Engaging

Review and revise as necessary the process by which authors are encouraged and commissioned, to ensure diversity is taken into account in addition to – not in place of – scientific excellence.

Develop a plan to routinely monitor and report on the diversity of authors, reviewers and editors.

Addressing bias

Our data[2, 3] show that there are subtle differences in decision-making by reviewers and editors depending on gender at each stage in the publishing process. The same is expected in relation to other demographics such as geography. Increasing inclusion and diversity in publishing requires action to mitigate both the risk and the impact of bias in decision-making. The actions in this section respond specifically to RSC evidence.

Initiating

Make a clear and explicit statement of intent to minimise and mitigate the impact of bias in decision-making on diversity in publishing overall and for each journal.

Communicate this statement of intent to authors, reviewers and editors.

Criteria for decision-making by reviewers and editors must be clear, transparent and non-biased. Action should be taken to mitigate the risk of unconscious bias in the decision-making process.

Developing

Develop awareness -raising tools to communicate the meaning and impact of unconscious bias in decision-making in publishing.

Use the tools to make sure all new and existing editors and reviewers are made aware of the impact of unconscious bias in decision-making in publishing.

Routinely publish author contribution statements to increase transparency, and ensure authors receive appropriate credit.

Share with editors inclusion and diversity data and analyses (for example, article rejection rates by gender).

Engaging

Issue regular and routine reminders to reviewers and editors on the impact of unconscious bias in decision-making.

Discuss and agree both individual strategies and a collective plan to address bias with the full editorial team.

Addressing bias

Changing processes

Data published by RSC[2, 3] show that there are subtle differences in decision-making by reviewers and editors which impact on authors at each stage in the publishing process. Alongside action to mitigate both the risk and the impact of bias in individual decision-making, there are also changes that may be made to long-established processes in scientific publishing. These steps identify potential alternative processes.

Initiating

Make a clear and explicit statement of intent to review, trial and adapt standard publishing processes, to achieve the RSC's vision and ambition on inclusion and diversity in scientific publishing. (see 'Making the case' and 'Establishing leadership').

Review existing quantitative and qualitative data to identify processes that appear potentially vulnerable to bias or that could be adapted to better support inclusion and diversity.

Gather and review any evidence on the effectiveness of process changes that have been trialled by other journals and publishers.

Developing

Identify potential process changes to be trialled overall, by individual journals, or with external partners. Some process changes to consider:

- open and transparent peer review;
- double-blind reviewing;
- team rather than individual review and decision making;
- processes for improving participation of authors, reviewers and editors with disabilities.

Work with key stakeholders to agree process changes to be trialled, and to design and evaluate the trial process.

Engaging

Based on the outcomes of any trial, work with key stakeholders to agree implications for longer-term process change.

Communicate evaluation findings internally and externally with a view to exchanging learning and ideas, and building partnerships for further change.

Changing processes

Setting standards

We define creating a culture of inclusiveness as establishing behaviours that support and create an environment where people feel they belong. Setting standards for an inclusive culture contributes to increasing the diversity of voices within scientific publishing; there is evidence of links between an inclusive culture and an individual's and organisation's performance.[5, 6]

Initiating

Identify the key people that will need to understand and be convinced by the need to set standards for inclusive behaviour in scientific publishing.

Review existing guidance on the conduct of authors, reviewers, editors and editorial boards published by other journals, scientific bodies, publishing companies and scientific organisations, as well as the RSC, for any content relating to inclusion.

Developing

Working with key stakeholders, develop a shared understanding of the meaning of 'inclusive behaviour' and 'inclusive culture' in scientific publishing.

Define and communicate the inclusive behaviours and conduct expected of authors, reviewers and editors by RSC Publishing. These may relate to written conduct (for instance, ensuring reviews are non-biased, constructive and encouraging) or in-person conduct (for instance ensuring inclusive behaviour in meetings and committees).

Communicate the standards of conduct for an inclusive culture to all authors, reviewers and editors.

Engaging

Working with key stakeholders, establish a process for addressing behaviour that does not meet agreed standards.

Develop mechanisms to monitor and report on progress and challenges towards an inclusive culture.

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