APSA Diversity Hackathon Citation Team
Michelle L. Dion, Sara McLaughlin Mitchell, and Jane Lawrence Sumner (team leaders)

Motivation
Our team considered a range of hackathon deliverables – ranging from a list of recommended best practices around citations for authors, instructors, editors, departments, or professional associations to a schematic or prototype of a new website or web-based tool to promote citation equity.

Our team's participation in the Hackathon is motivated, in part, by our on-going work about citation practices in research. An informal overview of our work is available in this Q&A following publication of our work in *Political Analysis*. PA also invited several scholars to reflect on our findings, and you may find their responses interesting as well. You might also want to check out Jane's GBAT site, which can be used by authors, editors, or instructors to check the gender and ethnic balance of their reference lists and syllabi.

Team participants (some participated the full session, others dropped in for a short time)
Susan Allen
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Ultimately, our team produced the following deliverables:
- A list summarizing key findings from the literature;
- A list of the types of data the discipline should collect to monitor progress;
- A list of actions that political scientists can do to promote greater citation equity; and
- An assignment for graduate seminars to promote critical reflection by students as they develop their own citation practices

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What we know: Evidence and resources
Background Literature
Motivation: Citations to scholarly work have many career and financial payoffs. Yet who succeeds in the citation market varies. In many disciplines like political science, women's research is cited less often than men's research.

Is research by women cited less frequently than research by men in the same discipline?

In some fields, women have fewer overall (or per article) citations.
- Economics (Ferber 1988; Ferber and Brun 2011); Ecology (Cameron et al 2016);
- Political Science (Dion and Mitchell 2012; Maliniak et al 2013; Mitchell et al 2013); Library and Information Sciences (Håkanson 2005);
- Linguistics and Sociology (Leahey et al 2008);

- Health and Natural Sciences (Aksnes et al 2011; Beaudry and Lariviere 2016);
- Even in some female dominated disciplines (e.g. social work with 65% female faculty; Carter et al 2017)

In some fields, there are no differences in men's/women's citations.
- Public Administration (Corley and Sabharwal 2010);
- Economic History (Di Vaio et al 2012);
- Spanish science PhDs & Danish scientists (Borrego et al 2008; Nielsen 2015);
- Criminal Justice (Stack 2002);
- Forestry and Geography (Slyder et al 2011)

In other disciplines, women accrue more cites to their work than men.
- Biochemistry (Long 1992); Construction studies (Powell et al 2009)

Why is women's work cited less in research studies or course syllabi?

Matthew effect
- Men publish more research & accrue more citations; more central in citation networks. (Rossiter 1993; Reece-Evans 2010; Maliniak et al 2013)
- Indices like h-index are especially prone to gender biases in fields where men generate a higher quantity of publications (Symonds et al 2006).
- Scholars trained to focus on contributions by male scholars.

Maltilda effect (Rossiter 1993) Women's contributions are recognized less often or ignored in fields dominated by male scholars.
- Women less represented in bibliographies, textbooks (Hardt et al 2017; Colgan 2017), syllabi (Cassesse et al 2012), etc.
- Women cite their own work less often than men (Maliniak et al 2013; although we do not find this pattern in our data) and self-citations increase future citations (Hutson 2006; Ghiasi et al 2016).
- Networking issues (e.g. edited volumes)
- Contagion effects from looking at others' reference pages
- Subconscious/implicit gender biases

Does the critical mass of female scholars in a research field alter the gender citation gap?

Women's work less visible in fields where they are a minority of the larger group. Critical mass (Ferber 1988; Ferber & Brun 2011) Women must reach a certain percentage of scholars in a field before their research is cited as often as men's.
- In fields like mathematics where most scholars are men, everyone cites work by men.
- In fields like sociology where the balance of male and female scholars is relatively even, the gender gap in citations is diminished (or disappears).
- Dion, Sumner & Mitchell (2018) shows evidence in favor of critical mass and Matilda effects. Analysis of all articles published between 2007-2015 in: 3 political science journals. Political Analysis (male dominated area), American Political Science Review

(disciplinary), Politics & Gender (female dominated area); 3 methods journals in the social sciences; Econometrica, Political Analysis, Sociological Methods & Research. Findings: Consistent with previous work (Dion & Mitchell 2012; Mitchell et al 2013; Sumner 2016), they find that female scholars are more likely to cite the work of female scholars than their male or mixed-gender peers. As fields becomes more gender diverse, women's work becomes cited more often; Matilda effect persists (e.g. 14% gap for Politics & Gender). When women coauthor with men, their citation patterns are similar to those of all male author teams.

- Reducing implicit biases in citation practices (Morrow-Jones & Box-Stef. 2014)

Data we need:

- Data on the pipeline for diversity to continually update new baselines for representation.
- Baseline data for various subfields (though must use caution because it can be seen as a minimum).
- Data on gender balance in citations in Annual Reviews of Political Science, Oxford Handbooks, comp reading lists
- Gender representation and citations by cohort
- Text analysis of journal reviews for gendered language
- See if percentage of women published increased after ISQ/ISR teams implemented gender citation policies

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Recommended best practices or actions

For professional associations
- Providing demographic data on members, sections, caucuses
- Have standard reporting categories for underrepresented groups in journal annual reports
- Create best practices for addressing gender (and other) citation gaps in promotion and tenure processes
- In newsletters (timed to class prep), include recent works/articles in section journals and ensure it is gender and racially balanced.

For publishers
- What algorithms are used to suggest related articles? Do these perpetuate gender/race/other citation biases?
- Can we get CUP, OUP, and other publishers of political science journals to help provide information about how suggested articles are generated and how these relate to downloads, citations, etc?

For journal editors:
- Add a box that you confirm answer to "Have you reviewed your citations to make sure that they are representative of the researchers in your field?"
- Ask authors to suggest reviewers and prompt them to ensure that the reviewers are representative of researchers in your field (or alternatively ask that they include a minimum number of reviewer suggestions from underrepresented groups); Could journals prompt for 3 men/3 women and ask for 3 minimum for submission?

- Use the GBAT tool (**https://jlsumner.shinyapps.io/syllabustool/**) to check reference lists and report results to authors when appropriate, allowing authors to revise their bibliography (ISQ is using the tool, and ISR has an explicit policy in which they will add 100 citations to correct imbalances).
- Consider using the journal's own data to report to authors what percentage of submitted articles cite more women over the last year
- Put a limit on self-citation (since men cite more than women)
- Ensure that Editorial Boards and reviewers are representative of the gender and racial diversity of those working in the area

For journal reviewers:
- Use the GBAT tool (**https://jlsumner.shinyapps.io/syllabustool/**) for papers you review and report results in review (perhaps in comments to the editors), although the onus should be on journals/authors to check this information
- Consider the gender balance in citations in the papers you review & suggest that authors add references for underrepresented groups

For departments:
- Take into account gender biases in citations, publications, and teaching evaluations in annual review processes
- Department officers (chair/head, DGS, DUS, placement director, etc.) receive training about these issues
- Promote publications of faculty and students from underrepresented groups on department websites and social media sites

For tenure letter writers/tenure and promotion committees:
- Alternative measures of impact?
- Use Google Scholar rather than Web of Science citation counts, when citation counts are needed
- Include cautions about gendered nature of citation and use of citation counts to measure impact and cite studies to support these patterns
- Consider public policy or community impacts as research impacts

For textbook authors:
- Integrate women's research into important textbooks in our subfields (Cassesse et al 2012)
- Ensure that the representation of underrepresented groups is not siloed (sidebars, separate chapters) or only problematized in texts but also normalized as part of mainstream politics (e.g. highlight important political actors who are female, racialized minorities, LGBT+ status outside context of their "identity")

For graduate chairs:
- Use the GBAT tool (**https://jlsumner.shinyapps.io/syllabustool/**) to review comprehensive exam reading lists
- Encourage faculty teaching core graduate courses to use the GBAT tool (**https://jlsumner.shinyapps.io/syllabustool/**) to review their syllabi

For graduate advisors/supervisors:

- Actively recruit women and members of underrepresented groups into disciplinary subfields; ensure that co-authorship opportunities are distributed equally across graduate student groups
- Educate yourself on how to be a good ally (http://www.macartan.nyc/comments/poor-allies/)
- Cite and promote students' work on social media
- Check your reference letters for gender bias (https://www.tomforth.co.uk/genderbias/)

For instructors (particularly graduate):
- Make sure syllabi have balance of "classic" works (more likely to be by men) with recent work that is more likely to be gender (or racially/ethnically) balanced
- Use the GBAT tool (**https://jlsumner.shinyapps.io/syllabustool/**) for your syllabus and use the tool on student assignment bibliographies (with advance warning that you will do so)
- Add assignments to courses that require students to research who is doing work in a field to identify the range of scholars working on a topic (Sumner 2017 suggestion)
- Raise awareness of this issue with graduate students in appropriate contexts

For members of underrepresented groups:
- Self-cite whenever appropriate
- Send "pay it forward" emails after conferences recognizing the good work of others

For allies:
- Promote work by women and members of underrepresented groups by sending it to other colleagues & blogging about it
- Actively recruit women and members of underrepresented groups into disciplinary subfields, informal networks, conferences, workshops

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PROPOSED ASSIGNMENT FOR GRADUATE STUDENTS IN RESEARCH DESIGN CLASS OR AS FIRST STEPS IN RESEARCH PAPER ASSIGNMENT IN THREE PARTS

Week 1: Identify a research question that you will be writing on and find N (suggested 10) scholars working in this area. For each, give their name, university, where they got their PhD, rank (assistant, associate, etc.), a 2-5 sentence description of what they work on, and citation for their three most recent relevant papers and their most-cited relevant paper.

Week 2: Is this list representative of the individuals working on this topic and how do you know? What does it mean to be representative? What are the consequences of a non-representative list?

Week 3: Correct or add to your list to create a representative list.