# Improving Women's Advancement in Political Science: What We Know About What Works 

## ONLINE APPENDIX

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## Scope and Method of Review

We established three key criteria for the scope of our literature review. 1) We only include studies published in journals or books since 2008. 2) We only include studies that evaluate the effectiveness of an intervention, meaning some intervention was implemented and the outcomes evaluated relative to a comparison group that was not subject to the intervention. 3) Because there is no gender gap among undergraduates (half of political science undergraduates are women), we omit studies of undergraduate recruitment or retention and look only at interventions targeted at improving women's outcomes in graduate study or later career stages. That said, we do include some exceptions in the tables below but clearly note them as such.

We gathered studies using several approaches, including: 1) reviewing every article published in PS: Political Science and Politics over the selected timeframe, 2) searching existing online repositories, annotated bibliographies, or published reviews, 3) keyword searches, 4) suggestions from scholars, and 5) tracing work that cites or is cited by any research identified in prior steps of the process. The sources examined in step 2 include: APSA and AEA Committee on the Status of Women in the Profession websites, newsletters, and reports; Buckles (2018) review article; and bibliographies listed at http://web.apsanet.org/cswp/scholarship/ and https://docs.google.com/document/d/1QRcQU4RSizlu-HxDY2uZxYp4EmYslmvm9BMtcd-

RUis/edit. For step 3, research assistants were instructed to search many variations of the following example keywords: "gender political science profession", "women's advancement political science", "gender gap social science", "gender gap academia", "women’s advancement social science."

Table A1 provides a list of all published work meeting the above criteria specifically in political science. For the reader's information, we also include a separate table, Table A2, which
lists the published studies we encountered that describe interventions in Political Science but which do not include evaluation relative to a comparison group. Table A3 provides a complete list of studies we encountered in any discipline beyond political science that met our criteria, as well as some that did not meet the criteria but are noted as such.

Because of the limited scope of studies specific to political science, we extend our review to other disciplines. Although there can be substantial differences in the structure and expectations of academic disciplines, women face enough similar obstacles for research in these fields to be informative to political science. The vast majority of such studies have been conducted in economics or STEM fields, where gender imbalances are even greater than those in political science. In practice, economics has the largest gender gap in the social sciences and has accordingly produced the most research on improving academic women's outcomes. Because of the comparable structure and close relationship between economics and political science, we view the work in economics as informative. Other social science fields, such as sociology and psychology, are female-dominated or have minimal gender gaps and therefore do not have widespread disciplinary conversations or extensive research on this issue.

Lab sciences, by contrast, often observe gender gaps in undergraduate matriculation into the major, and have a very different model of graduate training than political science. Undergraduate education is beyond the scope of our review, so we do not include the substantial body of work from these fields regarding attracting and keeping women in undergraduate majors. We only include research about graduate students to the extent that it reflects common gender differences rather than structural features of disciplinary training design. For example, while the resilience training described by Bekki et al (2013) is specific to scenarios for STEM graduate students, we anticipate that women graduate students in political science also face psychological
obstacles related to confidence and resilience, and would benefit from equivalent training in their field.

However, we also anticipate that while women in different fields undoubtedly face unique challenges, many of the institutional and psychological barriers women face are common across fields. For example, mirroring the dismissal of women as experts in political science (Beaulieu et al. 2017), women in STEM fields are perceived as less competent as men, and are less likely to be hired as lab managers - even by female PIs (Moss-Racusin 2012; see also Sheltzer and Smith 2014). Further, having children imposes a greater penalty on academic advancement for female than male scientists, indicating that women in both STEM and nonSTEM fields face similar challenges reconciling family considerations with the tenure clock (Ceci and Williams 2011). Finally, the gendered nature of professional networks in predominantly-male fields poses similar problems across disciplines. Male STEM faculty are more likely than female STEM faculty to be in same-gender professional networks, and female STEM faculty are more likely to consider gender a factor in gaining access to networks ( Xu and Martin 2011). Therefore, although there can be substantial differences in the structure and expectations of academic disciplines, there are enough similar obstacles facing women for research in these fields to be informative to political science.

One important difference between STEM fields and political science is that some research has demonstrated bias in favor of hiring women in STEM fields (Williams and Ceci 2015), while women in political science may face obstacles at the hiring stage (APSA 2016). The hiring studies conducted in STEM and described in the main text of the article assume a disadvantage for female candidates in the hiring process, but that disadvantage may be diminishing in STEM fields for reasons other than the intervention. Therefore, studies of hiring
interventions may have variance across disciplines and may not be completely applicable to political science.

## Appendix Works Cited

Buckles, Kasey. 2019. "Fixing the Leaky Pipeline: Strategies for Making Economics Work for Women at Every Stage." Journal of Economic Perspectives 33 (1): 43-60.

Beaulieu, Emily, Amber E. Boydstun, Nadia E. Brown, Kim Yi Dionne, Andrea Gillespie, Samara Klar, Yanna Krupnikov, Melissa R. Michelson, Kathleen Searles, and Christina Wolbrecht. 2017. "Women Also Know Stuff: Meta-Level Mentoring to Battle Gender Bias in Political Science." PS: Political Science and Politics 50 (3): 779-783.

Ceci, Stephen J., and Wendy M. Williams. 2011. "Understanding Current Causes of Women's Underrepresentation in Science." PNAS 108 (8): 3157-3162.

Moss-Racusin, Corinne, A., John F. Dovidio, Victoria L. Brescoll, Mark J. Graham, and Jo Handlsman. 2012. "Science faculty's subtle gender biases favor male students." PNAS 109 (41): 16474-16479.

Sheltzer, Jason M., and Joan C. Smith. 2014. "Elite Male Faculty in the Life Sciences Employ Fewer Women." PNAS 111 (28): 10107-10112.

Williams, Wendy M., and Stephen J. Ceci. 2015. "National hiring experiments reveal 2:1 faculty preference for women on STEM tenure track." PNAS 112 (17): 5360-53.

Xu, Yonghong Jade, and Cynthia L. Martin. 2011. "Gender Differences in STEM Disciplines: From the Aspects of Informal Professional Networking and Faculty Career Development." Gender Issues 28 (3): 134-154.

Table A1: Published Research on Interventions in Political Science, since 2008

| Citation | Brief Description of Intervention | Comparison <br> Group? | Random <br> Assignment? | Overall <br> Effect |
| :--- | :--- | :--- | :--- | :--- |
| Barnes, Tiffany D., and Emily Beaulieu. 2017. <br> "Engaging Women: Addressing the Gender Gap in <br> Women's Networking and Productivity." PS: <br> Political Science and Politics 50 (2): 461-466. | Visions in Methodology: Women- <br> only methods and mentoring <br> workshop | Yes | No |  |
| Peterson, David A. M., Lori A. Biederman, David <br> Andersen, Tessa M. Ditonto, and Kevin Roe. 2019. <br> "Mitigating Gender Bias in Student Evaluations of <br> Teaching." PLOS ONE 14 (5): e0216241. | Statement in student evaluation <br> instructions recognizing the role of <br> gender bias | Yes | Yes | Positive |
| Unkovic, Cait, Maya Sen, and Kevin M. Quinn. <br> 2016. "Does Encouragement Matter in Improving <br> Gender Imbalances in Technical Fields? Evidence <br> from a Randomized Controlled Trial." PLOS ONE <br> 11 (4): 1-15. | Email invitations to grad students <br> encouraging applications to the <br> Society for Political Methodology <br> annual meetings | Yes | Null | Yes |

Table A2: Published Research on Interventions in Political Science that Lack Comparison Groups in Evaluation

| Citation | Brief Description of Intervention | Comparison Group? | Random Assignment? | Overall Effect |
| :---: | :---: | :---: | :---: | :---: |
| Beaulieu, Emily, Amber E. Boydstun, Nadia E. Brown, Kim Yi Dionne, Andrea Gillespie, Samara Klar, Yanna Krupnikov, Melissa R. Michelson, Kathleen Searles, and Christina Wolbrecht. 2017. "Women Also Know Stuff: Meta-Level Mentoring to Battle Gender Bias in Political Science." PS: Political Science and Politics 50 (3): 779-783. | Women Also Know Stuff: Disciplinewide effort to boost visibility of women's expertise | No | No | Positive |
| Bos, Angela L., and Monica C. Schneider. 2012. "Mentoring to Fix the Leaky Pipeline." PS: Political Science and Politics 45 (2): 223-231. | New Research in Gender and Political Psychology: Women-only research and mentoring workshop | No | No | Positive |
| Brown, Nadia E. 2019. "Me Too Political Science: An Introduction." Journal of Women, Politics \& Policy 40 (1):1-6. <br> *Citation is to an introduction to a special edition of a symposium in the Journal of Women, Politics, \& Policy. This special edition was reprinted as a book by Routledge Press in 2020 under the title Me Too Political Science, with Nadia E. Brown as editor. | Efforts by the Women's Caucus for Political Science, branded \#MeTooPoliSci, to bring awareness to sexual harassment in political science and discuss solutions | No | No | Positive |
| Cassese, Erin C., and Mirya R. Holman. 2018. "Writing Groups as Models for Peer Mentorship among Female Faculty in Political Science." PS: Political Science and Politics 51 (2): 401-405. | Virtual women's peer mentorship and writing group (established by participants in New Research in Gender and Political Psychology) | No | No | Positive |

Table A3: Cross-Disciplinary Published Research on Interventions with a Control Group, since 2008

| Citation | Brief Description of Intervention | Field | Unit of Observation | Random? | Overall Effect | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Antecol, Heather, Kelly Bedard, and Jenna Stearns. 2018. "Equal but Inequitable: Who Benefits from Gender-Neutral Tenure Clock Stopping Policies?" American Economic Review 108 (9): 2420-41. | Gender-neutral tenure clock-stopping policies | Economics | Men and women hired in top-50 econ departments | No | Negative |  |
| Bagues, Manuel, Mauro Sylos-Labini, and Natalia Zinovyeva. 2017. "Does the Gender Composition of Scientific Committees Matter?" American Economic Review 107 (4): 1207-1238. | The number of women on faculty promotion evaluation committees in Italy and Spain | Multidisciplinary | Candidates for academic promotion in Italy and Spain | No | Null, negative in some cases |  |
| Bekki, Jennifer M., Mary Lee Smith, Bianca L. Bernstein, and Caroline Harrison. 2013. "Effects of an Online Personal Resilience Training Program for Women in STEM Doctoral Programs." Journal of Women and Minorities in Science and Engineering 19 (1): 17-35. | Online resilience training for women in graduate school | STEM | Recruited graduate student women | Yes | Positive |  |
| Bilimoria, Diana, and Xiangfen Liang. 2012. Gender Equity in Science and Engineering: Advancing Change in Higher Education. New York: Routledge. | Meta-analysis of the effects of the first two waves of NSF ADVANCE grant programs | Multidisciplinary | Universities | No | Null |  |
| Blau, Francine D., Janet M. Currie, Rachel T.A. Croson, and Donna K. Ginther. 2010. "Can Mentoring Help Female Assistant Professors? Interim Results from a Randomized Trial." American Economic Review 100 (2): 348-352. | CeMENT: Women-only mentoring and networking research workshop | Economics | Women economists who applied to the program | Yes | Positive |  |


| Bohnet, Iris, Alexandra Van Geen, and Max <br> Bazerman. 2016. "When Performance <br> Trumps Gender Bias: Joint Versus Separate <br> Evaluation." Management Science 62 (5): <br> 1225-1234. | Joint evaluation: <br> Compare qualifications <br> of two candidates side- <br> by-side, rather than <br> evaluating each <br> candidate separately | N/A |  | Undergraduate <br> lab subjects |  |
| :--- | :--- | :--- | :--- | :--- | :--- |


| Carnes, Molly \& Devine, Patricia \& Isaac, Carol \& Manwell, Linda \& Ford, Cecilia \& ByarsWinston, Angela \& Fine, Eve \& Sheridan, Jennifer. 2012. "Promoting Institutional Change Through Bias Literacy." Journal of Diversity in Higher Education 5:63-77. <br> Carnes, Molly, Patricia G. Devine, Linda Baier Manwell, Angela Byars-Winston, Eve Fine, Cecilia E. Ford, Patrick Forscher, Carol Isaac, Anna Kaatz, Wairimu Magua, Mari Palta, and Jennifer Sheridan. 2015. "Effect of an Intervention to Break the Gender Bias Habit for Faculty at One Institution: A Cluster Randomized, Controlled Trial." Academic Medicine 90 (2): 221-230. | Diversity training workshop for department faculty | Science, Medicine, \& Engineering | Departments, and faculty in departments | Yes | Mixed |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Carrell, Scott E., Marianne E. Page, and James E. West. 2010. "Sex and Science: How Professor Gender Perpetuates the Gender Gap." Quarterly Journal of Economics 125 (3): 1101-144. | Instructor gender in undergraduate STEM courses | Multidisciplinary | Undergraduate students | Yes | Positive | * |
| Cundiff, Jessica \& Zawadzki, Matthew \& Danube, Cinnamon \& Shields, Stephanie. 2014. "Using Experiential Learning to Increase the Recognition of Everyday Sexism as Harmful: The WAGES Intervention." Journal of Social Issues 70 (4): 703-721. <br> Zawadzki, Matthew J., Stephanie A. Shields, Cinnamon L. Danube, and Janet K. Swim. 2014. "Reducing the Endorsement of Sexism Using Experiential Learning: The Workshop Activity for Gender Equity Simulation (WAGES)." Psychology of Women Quarterly 38 (1): 75-92. | WAGES: Game-based diversity training protocol | Multidisciplinary | Undergraduate lab subjects | Yes | Positive |  |


| Dennehy, Tara C., and Nilanjana Dasgupta. 2017. "Female Peer Mentors Early in College Increase Women's Positive Academic Experiences and Retention in Engineering." PNAS 114 (23): 5964-5969. | Female peer mentors assigned to undergrad female engineering students | Engineering | Undergraduate students | Yes | Positive | * |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Feeney, Mary K., Margarita Bernal, and Lauren Bowman. 2014. "Enabling Work? FamilyFriendly Policies and Academic Productivity for Men and Women Scientists." Science and Public Policy 41 (6): 750-764. | Family friendly policies: Status of Women report, Parental Leave, Tenure Clock-stopping, On-site childcare, Spousal hiring | Multidisciplinary | University faculty | No | Mixed |  |
| Li, Hsueh-Hsiang. 2018. "Do Mentoring, Information, and Nudge Reduce the Gender Gap in Economics Majors?" Economics of Education Review 64: 165-83. | Information about grade distribution, encouragement for highachieving students to continue, and peer mentoring activities | Economics | Undergraduate students | Quasi | Mixed | * |
| Main, J. 2014. "Gender Homophily, Ph.D. Completion, and Time to Degree in the Humanities and Humanistic Social Sciences." The Review of Higher Education 37 (3): 349375. | Ph.D. mentoring and advising practices, including same-gender mentorship for women | Humanities | Graduate students | No | Positive |  |
| O'Meara, KerryAnn, Audrey Jaeger, Joya Misra, Courtney Lennartz, Alexandra Kuvaeva. 2018. "Undoing Disparities in Faculty Workloads: A Randomized Trial Experiment." PLOS ONE 13 (12): e0207316. | Four-part intervention regarding equitable distribution of service assignments, notably a transparent "dashboard" of department faculty workloads | STEM | Academic departments | Yes | Positive |  |


| Pietri, Evava S., Erin P. Hennes, John F. Dovidio, Victoria L. Brescoll, April H. Bailey, Corinne A. Moss-Racusin, and Jo Handelsman. 2018. "Addressing Unintended Consequences of Gender Diversity Interventions on Women's Sense of Belonging in Stem." Sex Roles 80 (910): 527-547. | Diversity training program; includes intervention to prevent women from being alienated or discouraged by training | STEM | General population adults; academic scientists | Yes | Mixed |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Roberts, Seán G., and Tessa Verhoef. 2016. "Double-blind Reviewing at EvoLang 11 Reveals Gender Bias." Journal of Language Evolution 1 (2): 163-167. | Introduction of doubleblind review for the Journal of Language Evolution | Linguistics | Published authors in selected journals | No | Positive |  |
| Sheridan, Jennifer T, Eve Fine, Christine Maidi Pribbenow, Jo Handelsman, and Molly Carnes. 2010. "Searching for Excellence and Diversity: Increasing the Hiring of Women Faculty at One Academic Medical Center." Academic Medicine 85 (6): 999-1007. <br> Fine, Eve, Jennifer Sheridan, Molly Carnes, Jo Handelsman, Christine Pribbenow, Julia Savoy, and Amy Wendt. 2014. "Minimizing the Influence of Gender Bias on the Faculty Search Process." In Gender Transformation in the Academy, edited by Vasilikie Demos, Catherine White Berheide, and Marcia Texler Segal. UK: Emerald Group Publishing. <br> Carnes, Molly, Patricia G. Devine, Linda Baier Manwell, Angela Byars-Winston, Eve Fine, Cecilia E. Ford, Patrick Forscher, Carol Isaac, Anna Kaatz, Wairimu Magua, Mari Palta, and Jennifer Sheridan. 2015. "Effect of an Intervention to Break the Gender Bias Habit for Faculty at One Institution: A Cluster | WISELI: Gender bias training for faculty | Medicine \& STEM | Departments, and faculty in departments | Yes | Mixed |  |


| Randomized, Controlled Trial." Academic <br> Medicine 90 (2): 221-230. |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| Smith, Jessi L., Ian M. Handley, Alexander V. <br> Zale, Sara Rushing, and Martha A. Potvin. 2015. <br> "Now Hiring! Empirically Testing a Three-Step <br> Intervention to Increase Faculty Gender | Three-part bias-reduction <br> intervention in the hiring <br> process: Toolkit, <br> Training, and peer faculty <br> advisor for each search <br> Diversity in STEM." BioScience 65 (11): 1084- | STEM | Academic job <br> searches | Yes |
| 1087. |  |  |  |  |$\quad$| Positive |  |
| :--- | :--- |
| Stepan-Norris, Judith, and Jasmine Kerrissey. <br> 2015. "Enhancing Gender Equity in Academia: <br> Lessons from the ADVANCE Program." <br> Sociological Perspectives 59 (2): 225-245. | Equity Advisors: senior <br> faculty assigned to <br> oversee equity in all <br> aspects of search \& hiring <br> process |

*These intervention evaluations are targeted at undergraduate recruitment and retention, and so are beyond the scope criteria of the review. We include them in this table because they are mentioned in the main text of the article as suggestive evidence for the importance of peer mentoring and role models.
**These interventions are unpublished, and so beyond the scope criteria of the review. We include them in this table because they are briefly mentioned in the main text of the article as suggestive evidence for mechanisms or conditions discussed in the paper.

