GENDER & TEAM SCIENCE:

Toward Improving Effectiveness of Research Collaboration

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Creating a Culture of Collaboration at George Washington University (C3@GWU)

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"Team research, especially interdisciplinary research, is characterized by synergies among experts that can transform both scholars and scholarship"

– John Cacioppo, PhD, the Tiffany and Margaret Blake Distinguished Service Professor in Psychology, The University of Chicago, from the Arete Initiative website http://arete.uchicago.edu/ (2010)
My Background

- Connecting researchers and resources in pursuit of large collaborative projects
- Curate the 2K+ Team Science reference library
- Published primary research findings that inform effective collaboration
- Developed and taught one of the very first-ever Team Science graduate courses, co-developed an online Team Science course
- Chaired the Science of Team Science Conference for 3 years
- Team science consultant for almost two dozen US universities
- Involved with the US, UK and Canadian team science initiatives
- EiC AWIS Magazine
- Advise on the development of Elsevier’s collaboration-related products
The Challenge

- Both interdisciplinary research and collaboration in science are on the rise
- Team Science produces more highly impactful research
- Despite decades of efforts, disparity persists between participation of men and women in science
- H2020 includes an explicit objective: “Gender balance in research teams.”
- Small body of research literature on gender and team science
- Paucity of the application of the research to policy and practice
The Opportunity

THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

HORIZON 2020

NSF
The Foundation

- Gender Differences in Research Collaboration
- Gender Diversity and Team Productivity/Performance
- Gender Differences in Expertise Recognition and Evaluation of Performance
- Collaboration Strategies and Networks
Gender Differences in Research Collaboration

- Real or Perceived Gender Differences in IDR Participation
- Bibliometric approach to examine gender differences in the propensity to collaborate by fields, disciplines, and forms of collaboration
- Experiences that stretch a person may foster the ability to work in teams
Gender Diversity and Team Productivity/Performance

- Gender differences in scientific productivity (scientific publishing) and lack of research collaboration
- Gender heterogeneity on teams and relationship to higher quality output
- Gender diversity has a positive effect on team processes and performance
Expertise Recognition and Evaluation of Performance

- Differential expertise recognition of individuals in groups by gender
- Role of gender in recognizing expertise and contribution to a team
- Gender composition of teams impacts performance evaluation (team effectiveness)
- Recognition of women’s contribution to collaborative work
Collaboration Strategies and Networks

- Gender as a predictor of network centrality
- Collaboration and gender equity
- Gender differences in network reach
- Gender, network, connectedness, and success
Coauthor reach by gender
Collaboration analysis

Researcher Key
- Northwestern University
- University of Chicago
- Fermilab
- Argonne National Laboratory
- Overview of research performance (outputs, quality, and impact) through a gender lens;
- Gender comparison of social aspects of research, including leadership, collaboration, and mobility
International collaboration

- US has relatively low shares of papers reflecting international collaboration for both women and men.

- Scholarly output reflecting international collaboration increased for all comparators as a proportion of total scholarly output.

- For all, women’s scholarly output is less likely to result from international collaboration than men’s.
IN THE END

“Whatever women do they must do twice as well as men to be thought half as good. Luckily, this is not difficult.”

– Charlotte Whitton, Canadian feminist and mayor of Ottawa
ACTUALLY, IT IS MORE DIFFICULT...
The Charge

- Translate Empirical Evidence Into Policy and Practice
  - Commitment for change because research indicates that both gender equity and research collaboration lead to better science
  - More research to identify problems and potential causes
  - Research and evaluation for intervention development, testing, and implementation
  - Forums for sharing information and effective practices
FOR MORE INFORMATION
Presentation References

- Joshi, A. (2011). Role Models, Black Sheep, or Queen Bees?: The Effects of Women's Incongruent Status on Expertise Recognition in Groups (Champaign, IL: University of Illinois at Urbana-Champaign).
SciTS Listserv

- The **Science of Team Science (SciTS) listserv** facilitates conversation among individuals who are engaged in, studying, or managing team science, in the US and internationally. The listserv is maintained collaboratively by the SciTS Team at the National Cancer Institute, Division of Cancer Control and Population Sciences, Behavioral Research Program (http://cancercontrol.cancer.gov/brp/scienceteam) at the NIH.

- **TO SUBSCRIBE:** Send an email with a blank subject line to: listserv@list.nih.gov. The message body should read: subscribe SciTSlist [your full name]. Please do not include the brackets. For example, for Robin Smith to subscribe, the message would read: subscribe SciTSlist Robin Smith. You will receive a confirmation email.

- **TO POST TO THE LISTSERV:** Send an email to SciTSlist@list.nih.gov. Any subscriber may post to the list.

- **TO VIEW THE ARCHIVES:** To view the archives of all previous postings, go to: http://list.nih.gov/archives/SciTSlist.html

- **TO RECEIVE MESSAGES IN A DAILY DIGEST:** The default setting sends you each message as it is posted to the listserv. To receive one daily digest, instead, go to: http://list.nih.gov/cgi-bin/wa.exe?SUBED1=SciTSlist&A=1 and select “digest” as your subscription type.

- **TECHNICAL PROBLEMS WITH YOUR SUBSCRIPTION?** Contact the list administrator, Judy Kuan, at: kuanj@mail.nih.gov. Please be sure to state that your email is in reference to the SciTS listserv.
National Academies Consensus Report

- Assembling the science team
- Leadership, education and professional development for science teams
- Institutional and organizational structures and policies to support science teams
- Areas where further research is needed to help science teams and groups achieve their scientific and translational goals

National Research Council

NATIONAL ACADEMY OF SCIENCES

TEAM SCIENCE

ENHANCING THE EFFECTIVENESS OF

BOARD ON BEHAVIORAL, COGNITIVE, AND SENSORY SCIENCES
DIVISION OF BEHAVIORAL AND SOCIAL SCIENCES AND EDUCATION

NSF
"Team science" is becoming increasingly common across all fields of research. Teams spanning different specialties/disciplines and geographical centres are often needed to tackle contemporary...
Team Science Toolkit

An interactive website to help you support, conduct, and study team-based research.

Discover what resources are available...

"The Toolkit provides a wealth of resources for team scientists, including practical tools to use with your colleagues, such as team assessment guides and training resources."

—Holly Falk-Krzesinski, Vice President, Global Academic & Research Relations, Elsevier

www.teamscienteoolkit.cancer.gov
Report and Other Materials

- **Download the Report & Infographic**
  - [https://www.elsevier.com/research-intelligence/campaigns/gender-17](https://www.elsevier.com/research-intelligence/campaigns/gender-17) – Infographics

- **Access the References**
  - Public **Mendeley** group, a powerful community resource for anyone to join and contribute

- **Gender & Research Resource Center**
  - Dynamic resource with information about gender and women in STEM activities, initiatives, and programs
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