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WOMEN AS LEADERS IN SCIENCE AND TECHNOLOGY INTENSIVE GOVERNMENT AGENCIES

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UNDERSTANDING THE GLOBAL IMPACT OF SCIENCE, TECHNOLOGY, AND INNOVATION ON SOCIETY

THE CONTEXT

Competitive Context
- Can't leave anyone's talents behind

Women in science and engineering
- We know lots about what discourages women in research careers.
- We know a fair amount about women as leaders in universities (and research institutions?)
- We know almost nothing about women as leaders in STI intensive government agencies.

Why is it important?
- Would those agencies make different decisions if there were more women at the top?
- Would they operate differently?
- Would having more women in these leadership positions attract more women into the full range of science and engineering career options?
- **In short, does it matter who leads?**

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The research reported here explored three related hypotheses

(1) that organizational context influences the representation of women in an agency;

(2) that women affect policy processes and outcomes in distinctive ways; and

(3) that their presence in policy processes and outcomes in turn affect agency organizational contexts.

Note: "women more likely to…" limited to

- U.S. women
- statistical tendencies, not individual behavior

EXPECTATIONS

DRAWN FROM THE LITERATURE, INCLUDING ON WOMEN AS LEADERS IN OTHER ORGANIZATIONS

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Some provide fewer opportunities than others, less attractive.

Women are more productive in networked organizations than hierarchical ones. (Smith-Doerr and Whittington, 2008)

Masculine contexts are likely to be harsh environments for women.

At token levels, women may be

- Isolated

- Stereotyped

- Under performance pressures

- Role encapsulation

Women are sometimes "narrow, nitpicky" managers because they have so little power. (Kanter, 1977)

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Changing policy processes:

- more collaborative and inclusive (Carroll, 2001)

- incorporation of more sources of information (Carroll, 2001)

May bring in different perspectives (Longino, Wajcman)

- But there are gender differences outside "women's" issues

- Different issues and orientations (Rhoten and Pfirman 2007; (Uriate, et. al., 2007: 72)

  - more problem oriented and interdisciplinary

  - more interested in people than things

  - more attracted to advancing knowledge that benefits the community

Work towards diversity (Page 2007; Carroll 2001)

- cognitive

- identity

In masculine environments,

- First's or only's may be "exceptional" in influence

Tipping point may be at about 30% after which…

Experiences of individual women may change

- Voices more likely to be heard

- Active discrimination less likely

- Less isolation

- But possibly push-back as well

Processes may take on the characteristics described above.

- More inclusive and community-oriented

THE PEOPLE WE TALKED TO

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THE SAMPLE

Included six STI-intensive agencies (3 masculine, 3 gender neutral)

Started with the Plum Book

Clinton: 1996, 2000

Bush: 2004, 2008

Men outnumbered women by about 2.5 to 1.

	Total	Women	Men	
Agency C	197	46	151	23%
Agency E	426	81	345	19%
Agency F	163	53	110	33%
Agency H	459	173	286	38%
Agency N	72	19	53	26%
Agency U	344	87	257	25%
Total	1661	459	1202	28%

FINAL INTERVIEW SET

Ended with 35 interviews, 7 men, 28 women
16 STEM PhDs; 7 attorneys
PhDs more likely to come through university leadership.

Agency	Clinton	Bush		Clinton	Bush	
	Female	Female	Total	Male	Male	Total
Agency C	4	1	5	1	0	1
Agency E	2	2	4	1	1	2
Agency F	3	2	5	1	1	2
Agency H	1	3	4	0	0	0
Agency N	3	2	5	1	0	1
Agency U	2	3	5	0	1	1
TOTAL	15	13	**28**	4	3	**7**

Interviews professionally transcribed, analyzed with Nvivo.

GOALS

HOW THE PEOPLE WE INTERVIEWED
DESCRIBED THEIR GOALS COMING
INTO THEIR GOVERNMENT JOBS

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GOALS (1)

Clear difference between men and women

Men focused on specific mission of the agency, for example,

- *I went in with pretty clear ideas about regulatory programs that had worked well, and those that had not worked well, and based on that learning tried to reform. [KHF03]*

Some women also expressed goals of this sort, particularly in masculine environments (twice as likely as in gender neutral ones). For example,

- *I was very interested and very concerned about making an impact on securing, and accounting for, and protecting fissile materials and nuclear weapons in the former Soviet Union. So that I would say was definitely my premier motivation coming into government as the political appointee to the [X] administration. [KHF39]*

Others mentioned a general sense of service, for example,

- *I was there to lend service and I believed in that. [KHF2]*

- *I knew how important it was for government to be able to speak well during a crisis. [KHF15]*

Women also mentioned the opportunity to provide leadership as something that attracted them into their positions.

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Most frequent category of goals for women: building or repairing community, e.g.,

- *I saw an opportunity to develop and expand a new field that was particularly pertinent for women both in terms of health and careers. [KHF30]*

- *My goal there was just to learn as much as I could about [X agency] and communicate that to my community to help them and help people starting out in my field to understand more about how to approach the process of applying for awards and writing proposals and succeeding. My goal really was to help the people behind me to move forward. [SC1]*

- *[B]efore I got to the agency [the agency head] had actually been listening to the voices in the regulatory offices … and had basically told my predecessor … and me that [we] didn't have much time … to get [our office] aligned otherwise there would be budgetary consequences and building those relationships within the agency and making sure that we had alignment between the regular goals as much as we could. [SC2]*

- *So I was recruited in to help the path of re-engineering [a set of R&D programs] and that was my focus. [SC8]*

Twice as likely in gender-neutral environments as masculine ones.

LEADERSHIP STYLES

SELF DESCRIPTIONS
AND DESCRIPTIONS OF AN INFLUENTIAL WOMAN IN THE AGENCY

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Men and women both saw their own styles as collaborative.

- *My style was to be as inclusive of the various stakeholder groups. And by that, I mean it in a broader sense of the word - agency employees, … NGO organizations, industry - to try to reach out as broadly as possible and listen to as many points of view. And frankly one of the reasons I did that, was because I saw part of my role as X's chief of staff, it was to be a sort of listener in chief. … [SC12]*

Men sometimes mentioned propensity for conflict or confrontation as a factor.

- *If I'm going to fight with somebody, I'm going to be very careful. Now, it doesn't mean that I wouldn't. There are times where you just say, "To heck with it. I'm not putting up with this." … there were numerous times where I would be mentoring [against confrontation] -- and more times than not it was the women, because it is a tough environment for them, particularly [field] where there are a lot of smart kids. [KHF8]*

Women on themselves: assertive, consultative, decisive, nurturing, solution-oriented, thoughtful, supportive of their staff, urged them to think big, open communication style, encouraged exchange of ideas without a political agenda.

Men did not offer generalizations on differences between men and women in style; women sometimes did.

LEADERSHIP STYLES OF OTHERS

Asked about style of most influential woman in the organization.

What positions they held:

- In gender-neutral environments, someone on senior leadership team, often the agency head.

- In masculine environments, often a senior administrative or support staff member.

"Administrative" qualities valued:

- knowing the players

- including the "old-timers"

- realizing politically what needed to be done

- presenting things in the most effective ways, given the political scene.

Masculine environments: wisdom and judgment

Gender-neutral environment: "tactical brilliance at driving tough issues"

Could form opposition to women entering in higher leadership roles.

BRAINS: NOT QUITE PARALLEL

MASCULINE ENVIRONMENTS

"Smart"

_____

"very logical thinker, very objective person … very much a scientist through and through."

GENDER NEUTRAL ENVIRONMENTS

"Brilliant"

"Amazingly deep intellect"

_____

"excellent scientist, with broad knowledge"

Note: "Objective" never mentioned in these environments.

IS SMARTER BETTER?

Being "smart" had its ups and downs. From a masculine environment comes this description:

- *But she was just very smart and she was usually the smartest person in the room, which sometimes could work against her because nobody likes the smarty-pants. Women, I think, sometimes are like that - that they tend to be more sharing of information and really about the facts, instead of just-- sometimes men just don't sweat the details. She would sweat the details. [KHF15]*

And from a gender-neutral one:

- *She was a master of the details. I've never seen anybody that could work at that level as a manager of the entire agency, obviously, who was also as sharp on the details. We would go in to brief her on something, and it seemed inevitable that she would know more about the law or that particular subject than the people who were briefing her. It was truly remarkable. ... And she used that mastery to very good effect in working with the White House [where political counter-forces had a voice]. We had to fight those battles within the White House. [SC10]*

TOUGH IS MOSTLY GOOD

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MASCULINE ENVIRONMENTS

Strong

Decisive

Gives clear directions

"So she was -- I have to say she was tough. She was tough, and she would not back down. ... It was very exciting to watch her not back down. And I say not back down because she was very gracious, she's a wonderful lady and she just didn't take "no" if there was something that she truly believed in that would work for the Department." [KHF28]

GENDER NEUTRAL ENVIRONMENTS

Strong

Decisive

Gives clear directions

"The woman's just brilliant and she's tough as nails. In addition, understanding the more soft-path relationship stuff, she was able to go toe to toe with the most ardent foe. She's the complete package." [SC4]

From gender-neutral environments:

- *She was a tough woman, but people used to say she was bitchy. She wasn't bitchy; she got stuff done. She was very nice to me. She had a lot of respect, but if you didn't do what she asked, she was all over you just like a man would be, but people called her bitchy. She was never bitchy. [KHF5]*

- *... She was just incredibly good. She had been at her position for a long time. Now, if you ask a lot of people in the agency, they would say, "Oh, my God. She's too tough. I mean, she drives me nuts because she's too tough." But I really appreciated her because [followed by a story of the individual's personal kindness, implemented through action to keep the agency's work going]. [KHF19]*

INCLUSION VS. BRIDGING

MASCULINE ENVIRONMENTS

Not mentioned

_____

Instead, placed in roles that made social connections:

"She really bridged over and tried to communicate with a lot of the folks who sometimes would have closed doors."

"... worked well behind the scenes, establishing good relationships"

GENDER NEUTRAL ENVIRONMENTS

Collaborative, inclusive styles valued

_____

- "collaborative"

- "hands-on, interpersonal"

- "made the rounds frequently"

- kept people informed

- involved everyone

- made sure all voices were heard

- worked well with the opposition

- "persuasive, gentle leadership style that made good things happen."

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MASCULINE ENVIRONMENTS

Solution oriented

Effective

"Her emphasis was always, how do you know that you're making a difference and how can you explain to me clearly what you're doing? And where are you really going? And if you need help, where do you need help? She was just very clear and articulate about it. And she would help you. She would come and help you."

GENDER NEUTRAL ENVIRONMENTS

Solution oriented

Effective

I don't think she's all that popular but I think that X does what X [believes] is particularly advantageous to the [organization] as a whole. So she looks at the big picture and not the small picture so she angered a lot of people. [KHF4]

PERSONALITY

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MASCULINE ENVIRONMENTS

- Very smart, very good, very measured

- Very sweet, very outgoing, very dynamic personality

- Poised

- Graceful

- Calm, productive

- Diplomatic

- Didn't lose temper

- Very demanding in a good way

- "She wasn't threatening – wasn't threatening."

GENDER NEUTRAL ENVIRONMENTS

- Quiet and assertive

- Positive, succinct

- Didn't talk just to talk

- Adept at explaining things

- Outspoken (not used in a positive way)

- Taskmaster

- Humorless

- Palace guard around her, not accessible

- Abrasive.

"It took me a while to understand that even though she was sometimes abrasive, it really didn't mean that she didn't like you or that she didn't agree with you. She could agree with you and be abrasive." [SC6]

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MASCULINE ENVIRONMENTS

- She grew up in a system when it was pretty hard for women to get ahead. [KHF8]

- She had the ability to work in a very male-dominated, technically-focused organization and get the best out of people.

- For a Presidential appointee, a woman who has never been in the military to go over there [to the Department of Defense] and be very successful is really saying something.

- It was very, very tough and I think that-- yeah, they would have beat up on a male too, but I don't think it would have been as brutal. [KHF15]

GENDER NEUTRAL ENVIRONMENTS

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SUPPORT FOR WOMEN

MASCULINE ENVIRONMENTS

Worked to hire women

Mentored women

_____

I think some people, like women, tried to pull her more into "more traditional women's issues", and if it wasn't part of our agenda she wasn't going to-- she didn't want to let people do that to her. She was setting the agenda, and it was what her agenda was. and she looked at it. It wasn't male or female. This is what the president wanted to get done. [khf15]

Another role model thought all women should not "come back to work" until their kids were old enough; got advice from the next generation not to push that model. [khf18]

GENDER NEUTRAL ENVIRONMENTS

Worked to hire women

Mentored women

_____

Sometimes reinforced with attention from the top.

ACHIEVEMENTS

WHAT THE WOMEN WE INTERVIEWED
IDENTIFIED AS THEIR ACHIEVEMENTS

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ACHIEVEMENT CATEGORIES

Inputs – increases in resources

Processes – for example, changes in stakeholder relations, communications, staff morale or teamwork

Products – regulations passed; documented improvements in outcomes

Programs – new programs established

Quality improvements – accountability, improved data, etc.

SURPRISING PATTERN

	Masculine	Gender-neutral
Inputs	1	3
Processes	18	13
Products	6	12
Programs	3	5
Quality improvement	3	6

DISCUSSION AND CONCLUSIONS

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Personal advice:

If you are a "tough" woman, head for a masculine environment and make sure you have your technical knowledge base strong. If you go to a gender-neutral environment, expect to have to use all your diplomacy and consultation skills.

If you have a consultative style, you will probably fit better in a gender-neutral environment. Pay attention to organizational change processes and go slowly. In masculine environments, you may need to sharpen your elbows in order to lead, because many around you will be more comfortable with you in supporting roles.

Does it matter who leads? YES

- Goals and styles are likely to be different.

- Women are likely to achieve more in gender-neutral environments.

How to get there: Put women into leadership roles and support them there.

QUESTIONS?

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