

Research on Bias and Assumptions

Assumptions Shape the Review Process

We all like to think that we are objective scholars who judge people based entirely on their experience and achievements, but copious research shows that every one of us brings a lifetime of experience and cultural history that shapes the review process.

“... as we become aware of our hypotheses, we replace our belief in a just world with a view of the world in which bias plays a role. Since this is a state of affairs we wish were otherwise, we prefer not to acknowledge it. But we can learn.”

Virginia Valian

The results from controlled studies in which people were asked to make judgments about subjects demonstrate the potentially prejudicial nature of the many implicit or unconscious assumptions we can make. Examples range from physical and social expectations or assumptions to those that have a clear connection to hiring, even for faculty positions.

It is important to note that in most of these studies, the gender of the evaluator was not significant, indicating that both men and women share and apply the same assumptions about gender.

Recognizing biases and other influences not related to the quality of candidates can help reduce their impact on your search and review of candidates. Spending sufficient time on evaluation (15-20 minutes per application) can also reduce the influence of assumptions.

Individuals May Not Fit the Generalization

- When shown photographs of people of the same height, evaluators overestimated the heights of male subjects and underestimated the heights of female subjects, even though a reference point, such as a doorway, was provided (Biernat et al.).
- When shown photographs of men with similar athletic abilities, evaluators rated the athletic ability of African American men higher than that of white men (Biernat et al.).

These studies show how generalizations that may or may not be valid can be applied to the evaluation of individuals (Bielby and Baron). In the study on height, evaluators applied the statistically accurate generalization that men are usually taller than women to their estimates of the height of individuals who did not necessarily conform to the generalization. If we can inaccurately apply generalizations to characteristics as objective and easily measured as height, what happens when the qualities we are evaluating are not as objective or as easily measured? What happens when the generalizations are not accurate?

“To evaluate other people more accurately we need to challenge our implicit hypotheses . . .we need to become explicitly aware of them . . .”

Virginia Valian

Evaluation Bias

- When rating the quality of verbal skills as indicated by vocabulary definitions, evaluators rated the skills lower if they were told an African American provided the definitions than if they were told that a white person provided them (Biernat et al.).
- When asked to assess the contribution of skill and luck to successful performance of a task, evaluators more frequently attributed success to skill for males and to luck for females, even though males and females succeeded equally. (Deaux and Emswiller).
- Evidence shows that perceived incongruities between the female gender role and leadership roles cause two types of disadvantage for women: (1) ideas about the female gender role cause women to be perceived as having less leadership ability than men and consequently diminish women's rise to leadership positions, and (2) women in leadership positions receive less favorable evaluations because they are perceived to be violating gender norms. These perceived incongruities lead to attitudes that are less positive toward female than male leaders (Eagly and Karau; Ridgeway).
- Evaluators who were busy, distracted by other tasks, and under time pressure gave women lower ratings than men for the same written evaluation of job performance. Sex bias decreased when they were able to give all their time and attention to their judgments, which rarely occurs in actual work settings. **This study indicates that evaluators are more likely to rely upon underlying assumptions and biases when they cannot/do not give sufficient time and attention to their evaluations (Martell).**

Biases in Academic Contexts

- A study of postdoctoral fellowships awarded by the Medical Research Council in Sweden, found that women candidates needed substantially more publications (the equivalent of 3 more papers in *Nature* or *Science*, or 20 more papers in specialty journals such as *Infection and Immunity* or *Neuroscience*) to achieve the same rating as men, unless they personally knew someone on the panel (Wenneras and Wold).
- A study of over 300 recommendation letters for medical faculty at a large American medical school in the 1990s found that letters for female applicants differed systematically from those for males. Letters written for women were shorter, provided "minimal assurance" rather than solid recommendation, raised more doubts, and portrayed women as students and teachers while portraying men as researchers and professionals. All letters studied were written for successful candidates only. (Trix and Psenka).
- In a national study, 238 academic psychologists (118 male, 120 female) evaluated a résumé randomly assigned a male or a female name. Both male and female participants gave the male applicant better evaluations for teaching, research, and service experience and both were more likely to hire the male than the female applicant. (Steinpreis, et.al.) Another study showed that the preference for males was greater when women represented a small proportion of the pool of candidates, as is typical in many academic fields (Heilman).

Assumptions and Biases in the Search Process

Biases and assumptions can influence your search in the following ways:

- Women and minority candidates may be subject to different expectations in areas such as numbers of publications, name recognition, or personal acquaintance with a committee member. (Recall the example of the Swedish Medical Research Council.)
- Candidates from institutions other than the major research universities that have trained most of our faculty may be under-valued.
- The work, ideas, and findings of women or minorities may be undervalued or unfairly attributed to a research director or collaborators despite contrary evidence in publications or letters of reference. (Recall the biases seen in evaluations of written descriptions of job performance, and the attribution of success to luck rather than skill.)
- The ability of females or minorities to run a research group, raise funds, and supervise students and staff of different gender or ethnicity may be underestimated. (Recall social assumptions about leadership abilities.)
- Assumptions about possible family responsibilities and their effect on the candidate's career path may negatively influence evaluation of a candidate's merit, despite evidence of productivity. (Recall studies of the influence of generalizations on evaluation.)
- Negative assumptions about whether female or minority candidates will "fit in" to the existing environment can influence evaluation.

When assumptions "that cultural, racial, ethnic, and gender biases are simply nonexistent [in] screening and evaluation processes, there is grave danger that minority and female candidates will be rejected."

Caroline S.V. Turner

Practices to Enable Equity—Reviewing Applicants

- Learn about research on biases and assumptions. Consciously strive to minimize their influence on your evaluation of candidates.
- Develop criteria for evaluating candidates and apply them consistently to all applicants.
- Spend sufficient time (15-20 minutes) evaluating each applicant.
- Evaluate each candidate's entire application; don't depend too heavily on only one element such as the letters of recommendation, or the prestige of the degree-granting institution or post-doctoral program.
- Be able to defend every decision for rejecting or retaining a candidate.
- Periodically evaluate your decisions and consider whether qualified women and underrepresented minorities are included. If not, consider whether evaluation biases and assumptions are influencing your decisions.

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Diversity of experience, age, physical ability, religion, ethnicity, race, and gender contributes to the richness of the environment for teaching and research.

NOTE: This information came from an informational packet developed by WISELI at the University of Wisconsin, Madison.



Gender Schemas & the Advancement of Women

Dr. Virginia Valian, author of **“Why So Slow? The Advancement of Women,”** and professor of Psychology and Linguistics at Hunter College and the Graduate Center of the City University of New York (CUNY) presented two talks on Accountability Principles for Chairs and Senior Administrators, which also included discussion of relevant gender-based research, (funded in part by an NSF PAID grant).

The following are excerpts from her talk with Department Chairs.

Gender Schemas & Accumulation of Advantage

“The two main concepts that I put together... are the notion of gender schemas... and the notion of the accumulation of advantage. The short answer to the question why women aren’t better represented in leadership positions in academia and the professions generally is that gender schemas result in our slightly but consistently undervaluing women in the professional domain and overvaluing men in lots of small ways. Those instances of under evaluations and over evaluation add up over time so that women accumulate advantage more slowly and over time they fall further and further behind men. These instances of evaluation, incorrect evaluations, and error-ridden evaluations occur equally by males and females. These errors occur despite people’s best intentions and sincere commitment to egalitarian ideals.”



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“The problem that has concerned me the most is the advancement of women. Women, as you know, are getting degrees in very high numbers in all fields and increasing in almost all fields except in computer science, but that is not matched by an equivalent rise in positions like chairs, deans, provosts, and president. Nor is it matched by women getting awards from organizations like the American

Psychological Association or the Association of Psychological Sciences or the National Academy. So the advancement of women remains slow, relative to their numbers, and it’s that that I want to address.”

What Are Gender Schemas?

“Gender schemas are largely non conscious hypothesis we all have about the different characteristics of males and females. We see females as nurturing, as communal, and as doing things out of concern for other people.

And we see males as capable of independent action, doing things for a reason, and getting down to the business at hand. We have schemas about everything, every social group defined by race, age, sex, social class, and roles. So students have schemas about what it is to be a professor. And people have schemas about what it is to be a scientist. And for most professions, the schema that people have for being a professional person overlaps much more with the schema for being male than it does with the schema for being female. So we

take requirements to be successful for most fields as being capable of independent action, doing things for a reason, and getting down to the business at hand.”

Gender Schemas in Action

“The first experiment (I will discuss) is by Heilman (2004) and her colleagues. When people didn’t know what the results of the totally bogus performance review was, both males and females rated the man as more competent than the woman and rated them as equally likeable. The competence rating part of it, simply replicates many previous experiments in which both men and women, when the data are ambiguous, rate men as more competent than women. In the condition where the person has gotten a stellar performance review, males and females equally rated them. So they were rated equally competent given this unambiguous evidence, but they rated the men as more likeable than the women. And they rated the women as more hostile than the men. So that was the new twist to this experiment, and what [it suggests] is that for competent women who were violating the gender schema for women, the price that they pay ... is to be perceived as unlikable. And she (Heilman) then did a follow up experiment in which people had to decide what benefits people should get and she crossed likeability and competence and found you want to give more things to people who are more likeable. Women who aren’t liked aren’t going to get things, and they’re partly not going to be liked just if they’re successful. So it’s a difficult position for women to be in.”

Shifting Standards to Justify Decisions

“The second experiment that I’ll mention is by Norton (2004) and his colleagues. It demonstrates how people shift their standards in

order to justify a choice that seems reasonable to them ahead of time. And in this case, it’s gender that determines what seems reasonable ahead of time. This has a lot of bearing on search committees, and promotion and tenure committees. In this experiment, subjects were given dossiers of five people who were supposedly applying for a job in construction engineering and what they were doing was pitting education and experience against each other. So of the five candidates, only two were clearly competitive. One of them had a post engineering certificate, as well as an engineering degree, and the other person didn’t have that. But what the other person had was four more years of work experience than the person who had education. So which are you going to go with? Education or experience? On search committees, you’re frequently faced with those kinds of decisions, things that are not completely comparable. So in one condition, people were identified just by initials and in that case the students, (these were male undergraduates), the students 75% of the time chose the person who had more education. When male names were attached, again 75% of the time, they picked the person who had more education. But that is when a male name was attached to the person who had more education and a female name was attached to the person with more experience, they picked the male and they justified the choice by saying this person had more education. When that was flipped and the person who had more education was the *woman*, and the person who had more experience was the *man*, now less than half the time did people pick the person who had more education. It was actually less than 45% of the time. Now many fewer people said that education was a reasonable criterion. If you have sat on search committees, this might be familiar to you. The same kind of characteristic may be seen as a plus, or not

“Gender schemas are largely non conscious hypothesis we all have about the different characteristics of males and females.”

so much as a plus, depending on who has that characteristic. So these are cases where gender schemas are openly telling you what ought to be the case, and they're affecting the kinds of evaluation that you're making even though you intend to be completely fair."

Schemas in Letters of Recommendation

"There's one more experiment along these lines. This is a study by Trix and Psenka (2003) in which they analyze letters of recommendation that had been written for successful candidates to a large Midwestern medical school.

These were people who were hired as MD's or PhDs in the medical school. And they did a number of quantitative analyses. I'll just tell you about some of the qualitative ones. For men, the letters of recommendations had a denser group of adjectives like outstanding, brilliant, creative, and so on --adjectives that they call out 'stand out' adjectives. Those were more densely represented in letters for men, than letters for women. Letters for women had more adjectives that they call 'grindstone adjectives': careful, conscientious, meticulous, hard-working, reliable, and responsible. Things that are good, but if they occur in the absence of these other terms, just makes you think the person works really hard to overcome not being so smart. And then the third category they had, they called 'doubt raisers'. So these were things that would raise doubts about the candidates and these were more frequent in letters for women than letters for men. One example is 'she has a rather challenging personality.' Another example is what they call the boomerang effect: 'she excelled at every task that she chose to take on.' So when you're

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on a search committee and you are evaluating the dossiers, you are likely ... to be reading letters that are inadvertently more positive for men than they are for women, which in turn affects how you rate people. So there are a lot of traps for the unwary here."

Mountains Out of Molehills

"A lot of things happening to women are very small things like somebody not being paid attention to in a meeting, or somebody making a suggestion that nobody follows up on. So those everyday occurrences, which if a women notices, she is likely to be told 'not to make a mountain out of a mole hill'. And that's where the notion of accumulation of advantage comes in, because what it says is mountains are mole hills piled one on top of the other. So how do you become successful? You become successful by parleying small gains into bigger gains. If you don't get your share of small gains, you can't create big gains out of them. There's a computer simulation by Martel (1996) and his colleagues [where] they simulated an eight-level hierarchical organization, and they put equal numbers, 50/50 percent females and males at the bottom. And then they had a promotion process that would take somebody from one level to the next. And the promotion process was biased against women to a degree that accounted for 1% of the variance. And so they then repeated this promotion process until they completely turned over the fictitious organization and now the top was

65% male and 35% female. So their point was that a tiny amount of bias, repeatedly encountered, amounts in the long haul to a mountain of advantage or disadvantage depending on what side you're on. So it's like compound interest, evolution, any small thing that repeats over time. The way I put these two notions together is *gender schemas result in all of us slightly undervaluing women and overvaluing men* in lots of these small occasions and sometimes not so small like in the letters of recommendation. And over time, that results in many fewer women being in positions of high status and responsibility than men."

Listening is Key

"One thing that's behind the general principles is the idea that you're going to make mistakes. We're all going to make mistakes because gender schemas are not going to go away anytime soon. We're all walking around with them. We're all making decisions on the basis of them and so we're going to make the wrong decision a fair percentage of the time, and what we want to do is put in place procedures that are going to help us correct the mistakes we're going to make, or not make them to begin with. Ok, so one other thing here is as a Chair, you get a lot of people complaining to you about a lot of things a lot of the time. And so you really don't want to hear more of those complaints, but I think it's really useful to talk to the people in your department to find out

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what their complaints are with respect to gender and to try to listen quietly and not defensively to what they have to say. They don't necessarily know what the problem is, but

they're a good place for you to start. They might say things that you can decide aren't really the problem, but it's useful for you to know what they perceive the problem to be. I have been on site visits where we first talk to

the women and they have a very well articulated list of problems, and then we talk to the men, senior men usually, and as one of the people on our recent site visits said, it's as if they're in two different organizations. So the men think everything is fine to the best of their knowledge, and there are no outstanding problems. There are certainly no problems that affect women differently from them. And the women have a laundry list of things that affect women differently than men. There's no way that you can know about those unless you ask people to tell you. And some people will only talk to you one-on-one because they don't want anybody else to know, and some people are only going to want to talk to you as members of a group because they will otherwise feel intimidated. So I think your job is to listen non-defensively and not to tell people all the reasons that they're wrong about what they're saying, but to register what they're saying, to take notes and to get back to them about what you've decided to do and what not to do and why. So I think showing respect for the opinions of [minority members] in your depart-