

Notes on “Why so slow? The Advancement of Women” by Virginia Valian

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- Why so few women in position of prestige and power?
- Why so slow? their individual advancement (for those who make it), the collective advancement.
- Our question: in academia, why so few female full professors? (and in some cases why so few women at all?)

- Glass ceiling refers to the scarcity of women at the top
- Glass: invisible factors
- Ceiling: keeps people down despite their competences
- Glass ceiling: not going to disappear overtime

Explanations that we know are not fully explanatory or incorrect

- Demographic explanation: old men vs young women: it will get better with time. It doesn't.
- Societal explanation: unequal distribution outside work (women without children/unmarried women advance slower and less than their male peers; women with children publish more than women without children).
- Women have less abilities (dying out, but still often proposed for STEM disciplines). Abilities change with training and culture and are hence not intrinsic (Japanese girls consistently outperform US men in Math and science standardized tests, for example).

Explanations that we know are not fully explanatory or incorrect (2)

- Lack of interest in positions of power and achievement (interests change; they are labile depending on circumstances).
- Women earn lower salaries because fail to negotiate, they do not promote themselves. (When women negotiate and promote themselves they either don't succeed or elicit negative reactions.)
- Overt bias and discrimination: not in many societies, in most cases.

- Gender-biased perceptions and schemata are cultural, not gender-specific. We are all concerned (with a small exception for older women who, in recent statistics, seem to have changed their biases).
- Academic careers are hard for everybody: there is gender discrimination and inequity only if there is a differential in difficulty that is due to gender.
- We live and work in a binary logic world, when we argue that women are undeservedly under-represented, we inevitably argue that men are undeservedly over-represented.

- Biases due to gender schemas create small advantages for men and small disadvantages for women.
- Accumulation of advantages and disadvantages over time.
- Men are systematically overrated, women are systematically underrated.

The Accumulation of Advantage and Disadvantage

- Very small differences in treatment pile up and result in large disparities in salary, promotion and prestige.
- Computer simulation of hypothetical organisation
 - 8 hierarchical levels
 - bottom: equal number of men and women
 - overtime a certain percent is promoted one level up
 - tiny bias of 1 percent promotion for men
 - After a few iterations of simulation, the top rank of the hierarchy has 65 percent men.
 - This is an underestimate as it assumes that all women will be promoted.
- We are mistaken in telling women not to make a mountain of a molehill. Mountains are molehills, piled up.

$$P(h|D) \approx P(D|h)P(h)$$

- $P(h)$ = prior probability of the hypothesis h
- $P(h)$ is the **bias**
- $P(h|D)$ = probability of h given D , posterior probability
- $P(D|h)$ = probability of D given h , likelihood

- Men: active, assertive, independent, task-oriented.
- Women: nurturing, collegial, communal, expressive.
- Gender schemas are prototypes, or stereotypes, that provide a useful default framework.
- They are bundle of traits, that an individual can possess in different combinations, but that collectively define the two genders.
- IMHO: Since the publication of the book, advances have been made in awareness of these stereotypes, but changes in behaviours have not always followed.

Gender Schemas and Professional Evaluation

- We have perceptions/ideas of what is a good example. People say 2 is a better example of an even number than 736.
- Schemas arise from intrinsic traits (woman, nurturing) or extrinsic observations (statistical preemption).
- Statistical preemption:
 - if all high-ranking professions are dominated by men, then men will be a better example of the profession
 - women entering the profession then are a less “good example” of the profession
 - there is lower expectation of professional achievement
- Consequences: women are underestimated or correctly estimated but seen as the exception.

Gender Schemas and Professional Evaluation (2)

- Schemas can match or clash
- Assistant vice-president of aircraft company
- Description of male vs female vice-president; task: rate how competent, rate how likeable
- Other variable: performance review (both excellent reviews)
- Results
 - No performance review: men more competent, men and women equally likeable
 - Performance review: men and women equally competent, women less likeable

- We all have gender schemas. Subjective costs add to the objective costs of gender schemas.
- Differential perception of success and failure: ability, effort, luck and ease of task.
- Women (others and self) are more likely to attribute success to luck and ease of task; failure to lack of ability.
- Women's perception is rational: their advancement is more unpredictable and less correlated to ability and effort.
- If one cannot attribute successes to ability and effort, then one does not learn from it and does not accrue advantage from it in the eyes of others.

Why are schemas so entrenched?

- Schemas are informal hypotheses, they are affected by confirmation bias. Confirmation bias is the human tendency to seek information that confirms an hypothesis and discount information that does not (belief preserverance).
- Gender schemas respond to physical and biological differences. Sexes are dichotomous, so gender traits are perceived as mutually exclusive.
- Human tend to reason from extremes (SVM, parasitic gaps) because they seek categorisation.

Why are schemas useful?

- Give rise to expectations
- Interpret behaviour in a way consistent with schema
- Supply explanation when data is missing or ambiguous

How do schemas play out?

Evaluating men and women: perception of leadership (1)

- Rate successful managers on ninety-two different traits. A second group rates women in general on same qualities. A third group rates men on same qualities.
- Successful managers and men's ratings were similar; successful managers and women were different.
- If rating successful female or successful male managers, only leadership changes: women are seen as having less leadership, but being more bitter, quarrelsome and selfish.

Evaluating men and women: perception of leadership (2)

- People sitting around a table: two on each side, one at the head, working on a project. People sometimes all men, all women or mixed.
- College students asked to identify leader of group.
- Always identify person, man or woman, at head or table if same-sex group. In mixed-sex groups, if head of table man always leader, if woman not always leader, equally often another man.

Evaluating men and women: perception of competence (1)

- Famous study replicated several times: send out approx 150 resumes to heads of psychology department. Same resumé, changed name of person. Ask to rank resumé on professorial scale.
- For women the mode was assistant professor, for men (tenured) associate professor.
- Either men are overrated or women are underrated.

Evaluating men and women: perception of competence (2)

- Perception of success due to ability. Subordinates evaluate female managers as positively as male managers.
- Supervisors or outsiders attribute success of highly successful female managers more to luck than for men, and more to ability for men.
- For moderately successful, there was no difference.
- A moderate amount of success is seen as within the abilities of women, else it is luck (this explanation preserves the gender schema).

Evaluating men and women: perception of assertiveness (1)

- Laboratory study on people's uncontrolled facial reactions to male and female actors trained to act as leader, co-leader or non-leader.
- Both men and women react negatively to women's leaders and especially if their style was pleasantly assertive (rather than friendly or cooperative).
- When women actively adopt an assertive role, they are perceived more negatively than men (bossy).
- Meetings were videotaped and normed by external experts: men and women leaders were found to have no difference on any scale (aggressiveness, cooperativeness).
- One difference that was found is that the women leaders had to talk longer as they elicited less attention (transparent woman syndrome).

Evaluating men and women: perception of assertiveness (2)

- Teaching evaluations are also known to be biased.
- Historian Benjamin Schmidt's recent text analysis of 14 million rankings on the website ratemyprofessor.com showed substantial differences in the words students used to describe men and women faculty in the same field: men were more likely to be described as “knowledgeable” and “brilliant”, women as “bossy” or “helpful.”

Evaluating men and women: the size of the pool

- Evaluation: manager or lab applicant, performance ratings (two separate studies)
- Gender does not matter if pool is $> 50\%$ female; women's ratings worse than men if $< 10\%$ of pool; somewhat less negative if between 10 and 20% .
- Same judgments for men and women evaluators.

- Both women and men react to lack of positive attention and underestimation.
- Our perception of ourselves is in part based on a history of other people's views.

- People identify with their group and devalue activities in which their group does not or is not expected to do well.
- Groups become specialised in interests and abilities: gender segregation of subdisciplines.
- Men and women consistently show same level of self-esteem, achieved by comparing within the group.

Effect on self : expectations and alternatives

- Before a test women who had been told that women do worse than men did worse than some who had not been told (replicated for race).
- Women in certain fields are at a higher risk of failure, if they lack role models or explicit encouragement.
- Women at the bottom of the performance scale have higher attrition rate than men (who lack alternative schemas).

Effect on self : equity, entitlement and perception of bias

- Expectation and self-perception shape what people think they are entitled to.
 - Small task, you are told you did a bit better than your partner, you are given a small amount, 5\$, to split as you see fit.
 - Men divide up equitably, (i.e. proportional to performance), women divide it equally
 - You are told your partner did better: both men and women divide equitably, but men keep more than women.
 - There is no fixed amount: both men and women award equitably to the partner; but women award themselves less than men and less than partners who did well.
 - If the amount is fixed, women work longer to earn it than men.

Effect on self : denial of personal disadvantage

- Women make on average 60 to 85 percent of a man's salary, yet they consistently do not express dissatisfaction with their earnings. Yet, when asked about women pay in general, they are dissatisfied.
- Everybody sees oneself as an exception. Why?
 - Women compare themselves to other women.
 - If they work in male-dominated field, they experience a conflict between aspiration and accuracy of perception
 - Realisation of discrimination salvages self-esteem, but raises anger, resentment and hopelessness, it interferes with collegial relationships and generates a constant state of conflict.
 - Hence, deny unfairness in the particular and move it to the general. This allows optimism, retains faith in hard work and merit and eliminates inner conflict.
 - Successful women often take the second route.

Gender schemas: interpreting success and failure

- Factors that lead to discount good professional performance
- Gender-based attribution: what we view as causes of success and failure: ability, effort, luck, and nature of the task.
 - When a man succeeds, success is attributed to ability and effort. His present success is linked to his past successes and accrues advantages of abilities and effort and reduces luck and ease of task.
 - When a woman succeeds in a male-dominated workplace, her success is less likely to be attributed to ability, more often to luck, effort or ease of task. Success is looked upon as singular and does not accrue advantage (and labelled lucky, over-achiever or undertaking only easy tasks).
- These differences have been replicated in 60 experiments.

- Failure. Studies show that
 - men's failures are less likely to be attributed to lack of ability, but to bad luck or low effort.
 - for women it is more likely to be attributed to lack of ability or too difficult task

Understanding our own success and failure

- If schemas are a form of categorisation and cognitive generalisation, then it should not apply to ourselves. But it does.
 - Men have unrealistic expectations of success and are over-entitled.
 - Among female and male postdocs who received prestigious fellowship: 70% of the men considered themselves of above-average scientific ability, while only 52% of the women.
 - For women the experience of things going wrong when your best judgement says it should go well undermines confidence in one's judgement.
 - Too little too late undermines *flexible perseverance* (key to success) and can be seen as lack of ability.

- Based on what we have seen of gender schemas, we expect women to do less well than men well in academia. They do.
- There are important differences in the career paths of men and women: they earn less money, are promoted and tenured more slowly, and work at less prestigious universities (departments).
- Progress has been very slow, sometimes none, sometimes there have been reversals.
- We concentrate on highly-educated women in academia.
- Aggregate data for size of sample; cohort data for comparison.

- Regardless of institution and rank women have lower salaries than men (80%) .
- The disparities are progressive and increase as we go up the ranks.
- In some cases overall salaries have decreased as more women have joined low paying fields than high paying fields.
- Salary percentage of women compared to men has basically not changed in the last 35 years: salary disadvantage 7% P. assistant/associate; 12% full professor (AAUP).

- All kinds of quantitative analyses show that women spend a greater percentage of their time than men teaching, advising and doing administration (token woman in all committees).
- The same disparities are seen in science and engineering as in humanities and social sciences.

Women in Academia: Sexism and nepotism in peer reviewing

- Classic study published in Nature in 1997, no reason to think things have changed.
- Swedish Medical Research Council postdoctoral fellowship applicants.
- Women 46% of applicants, 20% of winners.
- An analysis of all the applications shows that female applicants had needed 100 or more impact points (a measure combining productivity and journal prestige) for a ranking equal to that of men with 20 or fewer impact points.

- Progress has been mixed and it might appear greater than it is.
- There are many more female students, they have higher grades and accomplishments than their male peers.
- (But not everywhere: the number of women in computer science, all ranks included, including students, has decreases from 30% in 1980 to 12% today.)
- Women are disproportionately untenured or not on a ladder position
- Overpresented at the bottom, underrepresented at the top.
- They are less likely to advance, they advance more slowly and more likely to go back.
- Can this be due to lower performance? (we have already eliminated other explanations at the beginning.)

- Quantity is a measure of productivity. Quantity is superficially easy, but not really, as equivalences are not clear, multiauthorship, overlap in content.
 - Women publish less than men, as much as 50% to 80% compared to men.
 - At the beginning they have same, then they slow down and in mid-career disparities increase.
 - This differential does not explain the differences in salary, promotion and tenure.

- Quality is measured by prestige of publication venue and impact, number of citations.
 - Women's quality of publications, measured by citation rates, is on average higher than men.
 - Men's papers are cited from 60 to 98% as much as women's.
 - (A very recent study shows that men self-cite up to 70% more than women).
 - Despite higher citation rates, women do not gain as much visibility and prestige as men and do not influence the field as much.

Men and women want different things

- Women value more a well-rounded life (this is slowly changing, imho).
- Child care: balancing family and work is hard, but some surprising results
 - women with children are not less productive than women without children
 - productivity is positively correlated with having young children
 - married women are not promoted more slowly than unmarried women, in fact they are 10% more likely to be promoted than women without children.

- Switzerland is the fourth least desirable country for a woman to work, according to the Economist Glass Ceiling index, followed by Turkey, Japan, and South Korea.
- The university of Geneva has (female) 16% full professors, 30% associate professors, 43% assistant professors, 50% assistants, 61% students. (N.B. There is one salary class of difference between PAST and PAS and five classes between associate and full.)
- Linguistics department: no full professor since 2001, no professor at all between 2001 and 2011, one woman in a permanent position since 2001. In this same period, 8 new appointments (5 professorial appointments, three permanent corps intermediare.)

- Found that there is a 15% salary gap in administration between men and women (where women are the majority.)
- 2% salary gap among academics, without reference to CV. No multivariate study has been done yet.

- Benchmarks and documentation (see study on salary gap).
- Recruitment, advancement - criteria for success communicated equally, in advance and to all; make chairs and deans accountable.
- Mentoring
- Teaching evaluations – orientations session for students on gender bias
- marginalisation, lack of power, isolation – satisfaction review, hire colleagues to collaborate, hold chairs and deans accountable
- Visibility – invitation to colloquia, nomination to fellow positions - keep record (ACL example)
- Gender disparities in understanding reward structure of organisation – workshops
- misconceptions about fairness and evaluation –lectures like this one

Any questions?