

# THE CHRONICLE OF HIGHER EDUCATION

## Faculty

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March 17, 2014

### Lowered Cites

Even as citation rates become a key measure of productivity, women don't refer to their own research nearly as often as men do.

*By Robin Wilson*

When Barbara F. Walter went to Princeton University last spring to tell political-science professors about her study revealing a new gender gap in academic publishing, she was surprised to see the reasons for the divide play out right in front of her.

Her study [documented](#) that in scholarship on international relations, work by men is cited more often than work by women. Among the reasons: Female authors are only half as likely as male authors are to cite their own research.

"The women in the room spoke first, saying there was something dirty and underhanded about citing your own work, that it seemed somehow wrong," recounts Ms. Walter, a professor of political science at the University of California at San Diego. "But then a male graduate student said he was shocked because it had never occurred to him that self-citation was a negative. The other men were all saying it was perfectly normal and asking, Why wouldn't you want to promote your own work?"

As the professional importance of journal citations grows, Ms. Walter's findings on self-citation are revealing. Universities are using article citations—which technology has made easy to measure—in evaluating scholars for hiring, promotion, and other academic rewards. Her study points to one more way—in addition to salary, tenure rates, and research dollars—that men are staying

ahead of women in academe.

Now Ms. Walter's data on self-citation are being bolstered by a new analysis of 1.6 million scholarly articles published across disciplines over the past 60 years and held by JSTOR, a digital archiving service. Researchers at the University of Washington, who [in 2012 found](#) that women do not publish scholarly articles at rates equal to their presence in most fields, have released a study, performed at the request of *The Chronicle*, showing that men have been 56 percent more likely than women to cite their own scholarly work. That gap, instead of declining as more women enter the academy, has actually widened—with men self-citing 64 percent more than women over the past 10 years.

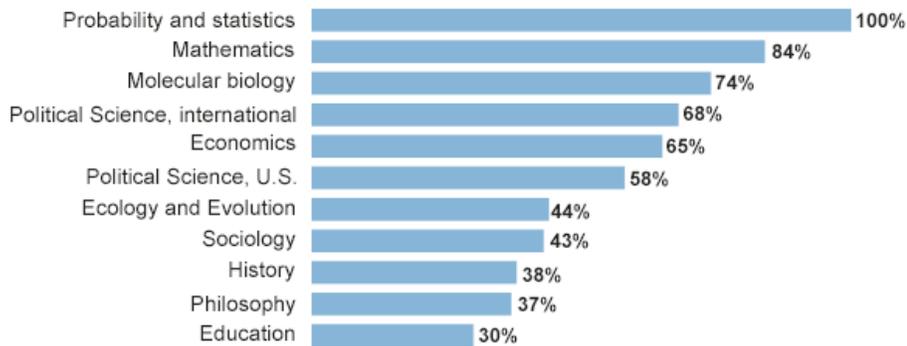
"We are talking about what essentially is the biggest database of articles there is, and this is quite a large gender difference," says Shelley J. Correll, a professor of sociology at Stanford University who is working with the Washington researchers on a paper on the study. Ms. Correll, who directs Stanford's Clayman Institute for Gender Research, says the gap between men and women on self-citation is consistent with other studies showing that women tend to assess their performance more negatively than do men and are more reluctant to promote themselves.

"If men are self-citing at a higher rate, and we are using those data to decide things like who to hire," says Ms. Correll, "then men are gaining an advantage."

**F**or many scholars, determining when to cite either their own work or others' can be tricky. Almost every scholar has been accused of failing to credit another professor's research. "I've received poison email messages from people saying I'm trying to harm them by not citing them, but their work either didn't fit in my analysis or I'd never heard of it," says Bryna Kra, a professor of mathematics at Northwestern University. "Citations are a touchy subject."

## Not Afraid To Give Themselves Credit

At a time when scholars are increasingly judged by how frequently their work is cited, research shows that men are more likely than women to cite their own work—driving up their citation rates. The percentages below show how much more likely male authors have been than female authors to cite themselves in select disciplines over the past 60 years.



The sensitivity over citations reflects their growing importance as a key metric in scholarly productivity. Using websites like Google Scholar and Thomson Reuters Web of Science, anyone can track citations of a scholar's articles, books, abstracts, and other work in just about any field. In the sciences, the citation metric is part of the "h-index," a tool created in 2005 to assign a number to the relative importance of a scholar's publications.

Though citation numbers have been criticized as a blunt instrument, they are increasingly put into the mix when faculty committees and administrators decide whether a scholar should be hired or promoted. If citations to a professor's work are low, that can be a red flag—particularly in the sciences and social sciences.

"I was on a committee for promotion in another department in the humanities and I happened to look up citations to the candidate's book that had come out a couple of years earlier, and there were only 11 cites," says Claudia Goldin, a professor of economics at Harvard University. "You have to ask a question of the people in that person's department: Is this a tree that has fallen in the forest that no one heard?" Ms. Goldin says scholars in the other department brushed off her concerns and accused her of being a "bean counter," and the university ended up approving the scholar's tenure bid.

Perhaps 11 sounded so minuscule to Ms. Goldin because Google Scholar says her 1990 book, *Understanding the Gender Gap: An Economic History of American Women*, has 1,600 citations.

"When women promote themselves they almost always get pushback from both other women and from men."

Douglas N. Arnold is a professor of mathematics at the University of Minnesota-Twin Cities who is considered a "highly cited" author by Thomson Reuters. That means he is among the 250 most-cited researchers worldwide in mathematics. "Citation is a direct measure of influence on the literature of a subject, and it is also a strong indicator of scientific contribution," says the Thomson Reuters website [highlycited.com](http://highlycited.com). "When one researcher cites another's work, he/she is acknowledging the relevance of that work to the current study."

Entering Mr. Arnold's name in Thomson Reuters Web of Science shows that his work has been cited 3,421 times, including 55 self-citations, or just 1.6 percent of the total. The website provides a year-by-year graph since 1995—his citations reached more than 300 in 2011. His 2002 paper in *SIAM Journal on Numerical Analysis* helped gain him the classification of "highly cited"—it has been referenced a total of 824 times, or 63 times per year since publication.

As a result of his highly cited status, Mr. Arnold got an email message last year from King Abdulaziz University, in Saudi Arabia, saying he had been identified as a "highly ranked researcher" and offering to pay him for two weeks' work on the campus as a distinguished adjunct professor. Mr. Arnold, who says such assignments can earn scholars up to \$70,000 a year, didn't accept the offer. And despite the accolades he's received because of his citation status, he isn't pleased at the way citations are used as a

proxy to measure scholarly worth.

"Citations are used as a superficial way to judge how good somebody is," says Mr. Arnold, who was an author of a 2011 article on the dangers of citation metrics. "It is all part of the trend to degrade the importance of expert opinion. It used to be you could read the paper and have a picture of what was valuable. Now it's much easier to just look at the citation numbers."

**A**t least one study shows that self-citations are important not only in boosting a scholar's overall citation rate, but that self-citations have an exponential affect—drawing a corresponding increase in citations from others down the line. A 2007 article on that study in the journal *Scientometrics* called "Does Self-Citation Pay?" analyzed 65,000 papers by Norwegian scientists and determined that 11 percent of the articles' author citations were self-citations. One self-citation, the study found, increases the number of citations from others by about one after one year and by about three after five years. "These results carry important policy implications for the use of citations to evaluate performance and distribute resources in science," the article says.

The 1.6 million papers analyzed by the University of Washington researchers contain roughly 40 million citations, one million of which are self-citations. Men represent 78.1 percent of the authors in the collection but are responsible for 84.8 percent of self-citations, while women represent 21.9 percent of the authors but are responsible for just 15.2 percent of the self-citations. Over all, that means men have cited themselves 56 percent more often than women have, says Jevin D. West, the lead researcher on the JSTOR project and an assistant professor in the information school at Washington.

The researchers found that the gap between men and women varied significantly by field. For example, in mathematics, men were 84 percent more likely to self-cite than were women, while in

sociology they were only 43 percent more likely. In general, Ms. Correll says, the gap between men and women is smaller in fields that have more female professors. Men dominate the natural sciences, where self-citation rates are higher than in most other fields. In mathematics, women were barely present until a couple of decades ago. Some mathematicians point to another explanation for the large gap in their field: Articles often aren't cited for 10 to 20 years after they're written.

**W**hen female professors talk about whether and how frequently they cite their own work, their hesitancy to claim credit often comes through. Bonnie Honig, who holds a named chair in the departments of modern culture and media and political science at Brown University, has spent nearly 25 years in the academy, yet she says she has begun citing more of her work only in the past few years.

"I started to think of it as giving a sense of the archive, a road map for graduate students who aren't being trained by us," she says. Then she stops to correct herself. "Listen to that. I mean to say grad students who are not being trained by me."

Earlier in her career, she says, she considered it "bad manners" to cite herself: "For women, self-citation looks like self-promotion." Now, she says, "I see I was actually hiding something that students might find useful by going out of my way not to mention my own stuff."

Some women have established elaborate personal guidelines to help themselves determine when it's appropriate to self-cite and when it's not. Marybeth Gasman, a prolific professor of higher education at the University of Pennsylvania, talks to students in her graduate course on research topics about the etiquette of citing. She says she frequently cites herself because she is often following up on her earlier work about historically black colleges and universities, on which she is an authority. She estimates that if

she writes a 60-page paper on the subject with 100 citations, four will be to her own work. But she is careful to cite only what she considers her major work on the topic.

"I wrote the first paper on women's history at HBCU's, so if I'm going to do another paper on women related to HBCU's, I have to cite that first one," she says. "But I've written 10 other papers related in some way to women and HBCU's, and I don't cite all of those. Just the seminal one."

Rose McDermott, another professor of political science at Brown, says that if she is the sole author of a piece of scholarship, she usually references the work of others in the field instead of her own. "If I'm really the only one who's done work in that area, I will cite it," she says. "But only if I feel there was something really seminal or really unique that other people aren't doing."

Men seem to have fewer rules that might limit self-citation. "I self-cite quite a lot because we've now published 1,024 original scientific papers, and, if I were to be arrogant, a lot of our work is at the cutting edge," explains J. Fraser Stoddart, a professor of chemistry at Northwestern. In some papers, he may have no citations back to his own work. But in papers about an area that his group has been studying since 2010, nearly 30 percent of the references are self-citations. "We are about the only group that is highlighting one particular area of chemistry, so in order to put it into context," he says, "we have no option but to cite our own previous work."

Likewise, David B. Collum, who chairs the department of chemistry and chemical biology at Cornell University, says that in some papers, as many as a third of the citations are to his own work on the organic chemistry of lithium. That's because he basically founded research on the subject 30 years ago. The research area has been wildly successful, something Mr. Collum measures in part, he says, by the fact that he has submitted 55

papers in a row without rejection to the *Journal of the American Chemical Society*.

"I have published every single paper on some topics. Who else should I cite?"

"I forged out on my own and entered a field almost no one dared go into," he explains. "When I went into it, they said I'd never get funded, that I'd die." Instead, "now there are portions of the field that I own." He is not a fan of what he calls the "obsession" over measuring citations. And sometimes, he says, journal editors tell him he shouldn't cite his own work more than 10 times. "But I say, Look, I try to cite accurately, but I have published every single paper on some topics. Who else should I cite?"

Such attitudes, while perhaps natural for men, can be dangerous for women, says Joan C. Williams, a professor of law at the University of California's Hastings College of the Law and director of its Center for WorkLife Law. "So much of the literature assumes women are demure and they just need to man up," she says. But it isn't that simple. Girls learn that "a good woman is modest and self-effacing," says Ms. Williams, and women who attempt to resist that and act more like men can pay a price.

"At a certain period of my life, I started doing what the guys did who were swaggering around and getting a lot of stuff for that behavior," says Ms. Williams, who just published a book with New York University Press called *What Works for Women at Work: Four Patterns Working Women Need to Know*. "So I started to do it, and I almost immediately realized the same rules didn't apply to me. Self-promotion is part of the tightrope of being too aggressive, and when women promote themselves they almost always get pushback from both other women and from men."

Beyond workplace attitudes, some of the ways in which women typically work can reduce their likelihood of self-citation, scholars

say. Women tend to write more broadly across fields, while men are more apt to specialize, writing several papers in a narrower subfield, which allows them to more naturally cite their earlier work on the same topic. In addition, women also tend to collaborate with smaller groups of researchers than do men and to sustain those relationships for longer, says Cassidy R. Sugimoto, an assistant professor in the school of informatics and computing at Indiana University at Bloomington.

Men are frequently involved with many more collaborators in large research groups, including those that stretch internationally. As a result, Ms. Sugimoto and her co-authors wrote in an article in December in *Nature*, "women are less likely to participate in collaborations that lead to publication." That limits both their citations and their self-citations.

"Let's say that as a woman, I collaborate with my two friends, and we do so extensively over time," Ms. Sugimoto explains. "We may each publish one paper a year, so that's three papers my work is cited in. But if I'm a man in high-energy physics and one of 300 authors, then the volume of papers increases, and I'm cited in all of them."

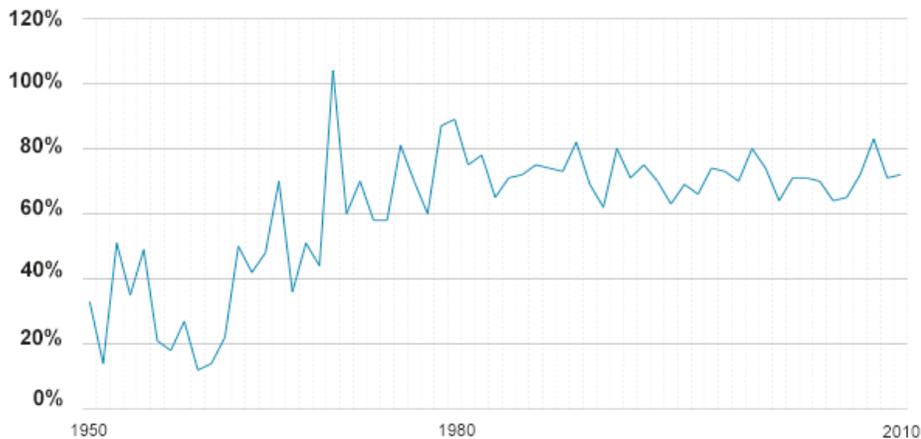
Terrell L. Strayhorn, an associate professor of higher education at Ohio State University, says that for women and scholars from ethnic minority groups, self-citation should be part of a strategy to get more attention for their work. As an editor of *Spectrum: A Journal on Black Men* and associate editor of *The Journal of Higher Education*, Mr. Strayhorn says he often reads manuscripts by minority women who fail to cite any of their own work. "I'll get reviews back on the paper, and sometimes reviewers say, 'You really need to cite this person's work,' and they are talking about the scholar who wrote the piece herself."

Mr. Strayhorn says it will take self-citation for the work of women and minority scholars to gain acclaim. "We're living in a time

where a lot of papers in social sciences get published by citing the canon," he says. "But right now the canon is still predominantly white and male. One way to break that down is to make sure we're citing more-recent scholars, and that means citing ourselves."

### A Widening Gender Gap

During the 1950s, men in an average year were less than 50 percent more likely than women to cite their own work. As more women began to enter academe, that gap widened. Today men in all fields are around 65 percent to 70 percent more likely to self-cite.



Source: Analysis by U. of Washington researchers of roughly 40 million citations included in 1.6 million scholarly articles in JSTOR database published between 1950 and 2010.

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**labronx** · a day ago  
 Bad men... Bad boy.. .bad men... don't you see how this oppresses women?  
 Bad bad bad boy... you are promoting yourself. Sexist!  
 (Will feminists ever stop whining?)  
 Maybe the men publish more? Maybe the articles published by men are better?  
 No! the answer is sexism and rape culture...  
 Women do not know how to advance themselves and this is due to the patriarchy and rape culture. Self-promotion is bad and sexist and oppresses women.  
 Bad men, bad boy... bad bad bad. Stop referencing your work no matter how good it is. Until then, promote all feminist professors immediately.  
 5 ^ | v · Reply · Share

**quepasso** → labronx · a day ago  
 i don't see the article accusing men of anything. its seems it just tires to

encourage women to cite themselves just like men do. generally i think the problem is mostly with the fact that anybody actually puts some weight into these citation metrics. if a person's research publications are to be evaluated people should read them - everything else is a lazy shortcut that will be flawed.

25 ^ | v · Reply · Share ›



**labronx** → quepasso · a day ago

It disparaged men by omission.

It did not specifically consider the possibility (remote, yes, but a possibility) that the work produced by men is better.

If the genders were reversed, you can be sure that such a point of view would have been raised.

I read all the time: women make more compassionate doctors, women financial managers are better, women are better communicators, women are better multi-taskers, women pay more attention to detail, women are better politicians and on and on and on

So if women are better communicators, why are they not advertising their own work? Maybe men are better researchers? No? Then where are the objections to the news reports that if women ran Congress there would have been no shutdown last year?

3 ^ | v · Reply · Share ›



**quepasso** → labronx · a day ago

again, i do not see that in the article. and why would the work of either sex be better or worse?

7 ^ | v · Reply · Share ›



**chuckkle** → quepasso · 21 hours ago

quepasso: Perhaps you're not aware that labronx is an active troll (see his other postings) who regularly crusades against feminism: e.g. concerns about rape on campus are "trivial" etc. Sincerity doesn't work with him. "Disparagement by omission"=imaginary issue.

6 ^ | v · Reply · Share ›



**Antsy Kuhnwise** → labronx · a day ago

This article could be seen as disparaging women just as easily as disparaging men, blaming women for their scholarly failures. Women (one might interpret) lack confidence in their own scholarship, lack the drive and ambition to get ahead, are so concerned about appearances and nitpicky ethical concerns that they won't cite their own work even if it is the best and most appropriate source they could use ... and so forth.

Labronx views everything as anti-male, even if it is neutral.

4 ^ | v · Reply · Share ›



**iris411** · a day ago

glad to know things are better in humanitie



glad to know things are better in humanities.

1 ^ | v · Reply · Share ›



**tjfarrel** · a day ago

When the easiest thing to measure turns out to be measuring something other than what we want to know, we try to change the behavior of everyone in the world to allow that deeply flawed measurement to be a somewhat better indicator.

No wonder academia is screwed up.

13 ^ | v · Reply · Share ›



**Guest** → tjfarrel · 20 hours ago

It is a good point that we should not just try to change the self-citation patterns to address this. We try to discuss this in more detail in the academic paper, which you can see a draft of here:  
<http://www.eigenfactor.org/gen...>

Merely encouraging women to cite their own work more often is not a simple solution, for two reasons: it normalizes men's behavior as the unquestioned standard against which all should be judged; and it may have unintended consequences due to the backlash against women's self-promotion (Rudman 1998).

When interpreting the impact metrics of scholars' work, university hiring and tenure committees should be aware that women are likely to cite their own work less often. Considering other proposed measures for scientific impact that exclude self-citation (Ferrara and Romero 2013) could make evaluation processes less gender-biased and improve gender equity in the academic community.

1 ^ | v · Reply · Share ›



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^ | v · Reply · Share ›



**abichel** · a day ago

"...Why wouldn't you want to promote your own work?"

Sums up the issue rather nicely, I think.

5 ^ | v · Reply · Share ›



**keytnia** abicnei · 2 hours ago

Because you don't like reading OTHER people's papers where half of the citations in the intro read like a blatant advertisement for their past papers.

Don't get me wrong: as a female engineer, I'll cite my own work when it's relevant. But if someone else's paper is more relevant, I'll cite that one instead. Because what's important to me is making the clearest explanation of my current research possible, not making sure I get the highest citation count. To be fair, a lot of guys feel this way too. But I've definitely run across papers (and reviewers) who are painfully obvious about their self-advertising. I don't like reading that, so I don't choose to write it myself.

1 ^ | v · Reply · Share ›



**curtrice** · a day ago

Excellent article. Thanks for presenting this and for the research that the Chronicle contributed to. I also recently wrote on the self-citation issue, in a piece called: "The great citation hoax: proof that women are worse researchers than men" (fear not, it's an ironic subtitle). <http://bit.ly/1g8gZuN>

9 ^ | v · Reply · Share ›



**socafish** · a day ago

...citing yourself is not scholarship

3 ^ | v · Reply · Share ›



**idixon** · a day ago

I have noticed the same hesitancy to self cite among researchers of color. This is why mentors in both the pre-and post doctoral worlds is so essential. Someone that can help you understand the rules/norms of the academy is absolutely essential!

4 ^ | v · Reply · Share ›



**Dave** · a day ago

We always carefully subtract out "self-citations" when using citations as a metric in promotion cases.

5 ^ | v · Reply · Share ›



**iris411** Dave · a day ago

the main point in this article is that one self citation will lead to 3-5 more citations from others.

5 ^ | v · Reply · Share ›



**Gopher63** Dave · 2 hours ago

Self citation does adversely influence the H factor and other citation criteria which contribute too much to evaluation of research and researchers. There have been recent discussions on these topics in Nature.

^ | v · Reply · Share ›



**dashwood** · a day ago

In order to get a more definitive citation-based measure of scholarly impact, why not just eliminate self-citations altogether? If women are less likely to cite themselves than men, what happens to the gender gap in citations when one removes the self-citation component of the gap. Does the citation gender gap persist without self-citations?

1 ^ | v · Reply · Share ›

**marvchron** · a day ago

If this is a real problem, why not have the various publication manuals prescribe two parts in the references section of a paper. Part 1: References to the work of the author(s). Part 2: References to the work of others. This would serve the dual purpose of making self reference when appropriate and yet clearly separating it from the work of others.

1 ^ | v · Reply · Share ›

**Reythia** → marvchron · 2 hours ago

How would you handle a citation regarding a large group of people? Say I'm 7th author on a paper of 15. Is that really "my" paper?

^ | v · Reply · Share ›

**aanderson28** · 21 hours ago

Reasons people self-cite:

1. You are researching something that no one else cares about so you have to cite yourself.
2. You are trying to promote an agenda by citing yourself as the reason that your own argument is valid.

Or you are trying to promote yourself which apparently works well according to the article.

2 ^ | v · Reply · Share ›

**shawnpng** · 20 hours ago

I think Collum nails it. I'm in the field of medical research and, frankly, if I were reading a manuscript on, say, vaccines written by a mid-to-late career gastroenterologist with no research record in immunology as indicated by a lack of self-citations, I'd suspect that they were out of their depth.

Could it be that, in the humanities, where a larger proportion of academics are women (according to the Chronicle), there is generally less self-citing because academics are more likely to cover a broad range of topics and one piece may not necessarily relate to the other. Self-citing in such situations is inappropriate and not an indication of timidity.

I do not deny sexism in accessibility to the fields, but is the "problem" here really a lack of confidence or are these scholars guilty of exercising good professional judgement? Encourage people to self-cite when it's appropriate; no more, no less.

4 ^ | v · Reply · Share ›

**hypatia** · 17 hours ago

There's a problem in my field about self-citation. Many journals to which I submit my work specify that one must REMOVE all references to oneself or one's own work when submitting the paper for anonymous review. So, in writing the paper one omits self-citations. Once the paper is accepted, it is too late to start putting in references to one's own work. As a result, in refereed journal articles, I don't usually cite myself.

Is there a solution to this?

1 ^ | v · Reply · Share ›

**Reythia** → hypatia · 2 hours ago

I've never even heard of that. Which discipline does this happen in? Or is it just a single/est of journal(s)? That seems like a really odd rule

is it just a single set of journals? That seems like a really odd rule.

^ | v · Reply · Share ›



**lairdwilcox** · 9 hours ago

Why not have quotas that bypass the relevancy or competency of the citation and focus on achieving balance among all sacralized victim groups, including women. This would require a certain proportion of citations from women, a certain proportion from Black people, a certain proportion from Asians and a certain number from gay and transgendered people, and so on.

If this seems outlandish bear in mind that we have already accepted something like this in the practice of affirmative action and racial and gender preferences. One could argue that a wide variety of citations from members of all groups would enhance the educational experience, another claim that already has currency in the academy. In addition, evidence of discrimination could be established by statistical methods, as has already happened in discrimination cases.

This is a simple, easy and non-discriminatory way to settle this issue, and don't tell me you didn't see it coming -- the academy has been doing it for decades. Equality trumps all other considerations.

2 ^ | v · Reply · Share ›

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