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Whose Web of Knowledge™ is it Anyway?: Citing Feminist Research in the Field of Higher Education

It is widely known in the academy that publication is the primary indication of productivity for faculty, particularly in research-oriented institutions (Creamer, 1998). While expectations regarding the form of publication differ by discipline, with some preferring refereed journal articles, others books, and others commissioned reports (Bence & Oppenheim, 2004), the prestige of the journal and/or publishing house is also considered important when a faculty member is being evaluated for her or his contributions to the production of knowledge (Bronstein & Ramaley, 2002). In a climate of research accountability, especially as seen in the United States, U.K., and Australia, academic publications are increasingly important as quantifiable measures of research productivity (Bence & Oppenheim, 2005; Pick, 2006; Valadkhani & Worthington, 2006). In addition, faculty research productivity, as measured by citation counts, has been used as a measure of institutional quality (Brooks, 2005; Toutkoushian, Porter, Danielson, & Hollis, 2003). Yet, we need only look at the phenomenon of university rankings to understand how problematic quantitative measures of "quality" can be (Dill & Soo, 2005; Marginson, 2007).

Rhoades's (2001) Principles of Managing Productivity is a useful evidence-based set of criteria that emphasizes "rethinking the productivity of whom, for which unit of analysis, according to what function, and in whose interests" (p. 629). As research performance and accountability receive more attention in North America's higher education sector, in

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part due to the work of the Spellings Commission (U.S. Department of Education, 2006), there are additional lessons to be learned from Australia and the U.K. where nationalized research assessment is already underway. An area of concern for the field of higher education is the difficulty in assessing the impact of research that extends beyond a particular discipline or the academic audience, as noted in the case of the arts, social sciences, and humanities under Australia's Research Quality Framework (Bazeley, 2006). Bazeley's work hints at the undervalued impact of women's research, as women contribute greatly to the arts, social sciences, and humanities. As we continue to move toward increasing measures of accountability in North America, the question of whose notions of "quality" and "impact" will prevail is of concern to many who challenge the status quo in the course of their research (Stoecker, 2008).

Work by Fox (2005), Leahey (2006a), and Perna (2005) identifies a tenure process that seems to preference men over women. Due to this gender bias and the politics of backlash (Pierce, 2003) that affects many feminist scholars as they try to insert themselves into academe's patriarchal system (Burghardt & Colbeck, 2005), it is important to understand how feminist scholarship is received in the field and beyond as part of the discourse around research performance and accountability. In addition, the fair evaluation of the impact of feminist work is central to the advancement of feminist scholars as they move through the promotion and tenure process.

To date, there has been no empirical study of the post-publication phase of feminist articles in the field of higher education, which Hart (2006) showed to be underrepresented within three North American journals from 1990–2002. These journals, *The Review of Higher Education* (*RevHE*), *Research in Higher Education* (*ResHE*), and *The Journal of Higher Education* (*JHE*), represent some of the primary publication outlets for higher education scholars working in the U.S. and are considered to be the core journals in the field in North America (Hart, 2006; Hutchinson & Lovell, 2004; Tight, 2007; Townsend, 1993). Hart found that although 9.8% of the 1065 articles published between 1990 and 2002 had gender-related terms in the titles and 17.5% in the abstracts, less than 1% ($N = 6$) of the articles explicitly referenced feminism in the titles or abstracts and were found to contain a feminist framework.[1] Her study called for research to examine the post-publication phase, and our study explores this through the use of citation indexes and impact factors.

What can we learn about research accountability by examining the citation indexes and the impact of these articles on the field of higher education and beyond? Furthermore, are the citation indexes adequate for the field of higher education and feminist work in particular? Answering

the question of feminists' "impact" is significant not only for individual scholars seeking promotion and tenure, but also it is beneficial for the field of higher education as a whole in order to better understand the role of interdisciplinary modes of inquiry, like feminism, on the academic profession writ large. In this way, a feminist approach to the impact of feminist articles in the field of higher education is a challenge to the meta-narratives of the neoliberal state and its culture of accountability that threatens to limit rather than expand knowledge and innovation (Blackmore, 2007; Rhoades, 2001).

In Ward and Grant's (1996) work on publication patterns, they defined three periods of publication: prepublication, publication-seeking, and post-publication. It is the post-publication phase that is most salient to the current study. Post-publication is the time in which "published works enter the public arena of print and either are cited and used in subsequent research and teaching or are ignored" (Ward & Grant, 1996, p. 174). According to Ward and Grant, the visibility of the work can influence the reputation, promotion, and tenure of the author or authors. For this reason, the post-publication phase of academic scholarship is central to career progress, and as such is an important phase of academic production to understand in order to increase the retention rates of marginalized faculty populations. For feminist scholars, the post-publication phase is essential for the creation of research networks and to the long-term viability of the feminist project of institutional change.

In this paper, we focused on the post-publication period of six articles identified as feminist by Hart (2006). As Harding (1991) noted in *Whose Science? Whose Knowledge?,* "Thinking from women's lives provides crucial resources for the reinvention of sciences for the many to replace sciences that are often only for the elite few" (p. 312). Thus, in this study we ask, "Whose Web of Knowledge™ is it anyway?" Our overarching research question and the title of this article drew from this groundbreaking work of Harding, and was further explored through the following sub-questions: (a) In what ways might the most commonly used tools for tracking citation counts, the ISI Web of Knowledge and Google Scholar, further obscure or highlight the work of feminist scholars in academe? (b) What are the citation histories of six feminist articles in the leading American higher education journals, as identified by Hart (2006)? and (c) What do the citation patterns of these articles tell us about the impact of feminist thought in the field of higher education and beyond?

Tight (2008) suggests "a citation analysis offers answers to the questions of who cites whom, and which authors and articles or books are most cited overall" (p. 594) and can be understood through the lens of

"academic tribes and territories" (Becher & Trowler, 2001). Our study examines the work of a small, but influential, community of feminist scholars working within the still male-dominated territory of higher education. We first examined two popular citation indexes, the ISI Web of Knowledge and Google Scholar, to better understand the citation patterns of these feminist articles in terms of the citing journals and their disciplinary orientation. We then searched the citation indexes for the citation histories of the six feminist articles. Not only did our study identify that these articles have had an impact within the field of higher education, but we also learned more about the interdisciplinary scope of this feminist scholarship, which has been cited in journals outside of the field, thus demonstrating a much broader scholarly impact. Moreover, in the process of this research we found that the citation indexes were uneven in their reporting of citation numbers, drawing attention to the social construction of these tools and the assumptions embedded within them.

Guiding Concepts and Theories

For our study, we were interested in the creation and proliferation of feminist knowledge. We concur with Glazer-Raymo (2003) who argued, "Feminist scholarship has transformed disciplines, challenging traditional assumptions and reconceptualising theories, methodologies, data collection, and outcomes" (p. 97). Furthermore, despite conservative threats to affirmative action (Glazer-Raymo, 2008) and rhetoric that we have a "boy crisis" in higher education (Rosser, 2005), a critical and feminist examination of higher education is still very necessary. More than a decade ago, Kramarae and Spender (1992) acknowledged the contributions feminist scholars have made. At the same time, they, like Ropers-Huilman (2003) recognized an on-going need to "[explode] the traditional knowledge-making" (Kramarae & Spender, 1992, p. 1) processes to interrogate and change the power structures that marginalize women in the academy.

We approached our work using underpinnings from feminist epistemology and its relationship to scholarly publishing. Specifically, Gumport's (2002) work on feminist scholarship in three disciplines guided us. Gumport found three groups of faculty who defined the shape of feminist knowledge production: Forerunners, Pathfinders, and Pathtakers. Forerunners never had the option to publish in a feminist publication, but did conduct explicitly feminist work. However, had it not been for the activism of the Pathfinders (often outside the academy itself), feminist publications and publication outlets would have remained

primarily invisible. Gumport noted that the Pathtakers, or current generation of feminist scholars, who have the luxury of choosing to publish in feminist outlets, do not have a simple road to new knowledge creation. There are still structures embedded inside and outside the university that challenge the rigor and relevance of feminist work. Yet, she did note that the base of feminist knowledge has been able to expand, due in large part to the painstaking work of the Pathfinders. Thus, it is the work of other feminists (the Forerunners, the Pathfinders, and the Pathtakers) that forms the basis for our research, theoretically and systemically.

Furthermore, while the academy has a "traditional" reward system for knowledge creation, as feminists, we see limitations in that system. Legitimate knowledge should not be defined solely by quantitative, hypothesis-testing methods. Instead, the notion of knowledge *that matters* must be expanded to include qualitative research, narratives, poetry, arts-based methods, and other genres of scholarship to push understandings of particular phenomena (McDermott, 1994). In support of this expansion, other forms of valuation must be brought into the mainstream, and the methods used to evaluate scholarly work need to be reconsidered for compatibility with these new frameworks. For example, it is contradictory to place value on non-positivist work using positivist methods. By this, we mean that scholarly knowledge should not be rewarded based solely, or even predominantly, on how many publications scholars wrote, how prestigious (i.e., highly-ranked) the journals are, and how generalizable results are. Valuing and relying on these metrics tends to exclude qualitative work; work that influences practice; and scholarship that does not follow the traditional format of introduction, literature review, methods, findings, discussion, and conclusion. Thus, we seek not only a more thorough understanding of the ways that feminist scholarship has entered academic discourse, but also new methods for giving credit to Pathfinding and Pathtaking work and assessing its impact.

To deconstruct the role of technological systems such as citation databases on feminist scholarship, we drew from the theoretical contributions of Wajcman's (2004) concept of technofeminism, which purports that technology is not only socially constructed (Pinch & Bijker, 1984) but is also shaped by patriarchy. In other words, although some types of technology might seem straightforward, such as a database, they are actually produced with an ideal user and an ideal use in mind. From a technofeminist standpoint, the availability of new technologies can actually further marginalize women due to designers who fail to consider female users and by design features that seem to isolate the technologies from their social embeddedness. Moreover, the wholesale adoption of some technologies and the establishment of technological monopolies may

strengthen social stratification and patriarchy. In this way, seemingly neutral technologies like search engines can obscure the social structures that are embedded within their design. Yet, marginalization does not only affect women and, as such, technofeminism has much to offer as a counter-narrative to the dominant paradigm.

The Gendering of Citation Analysis

In this section, we examine the history and influence of two popular citation indexes: the ISI Web of Science and Google Scholar. Our work serves as a first step in a feminist appraisal of journal impact factors and citation histories in higher education scholarship. Cameron (2005) reviewed the history of citation indexes in academic librarianship, noting that citation indexing was first considered as an alternative to subject indexing, making the linkages between authors and ideas more apparent. Citation indexing was championed by Eugene Garfield, founder of the Institute for Scientific Information (ISI), in the late 1950s, at a time when computer-aided indexing was becoming commercially feasible (Garfield, 1955). Garfield contended that the field of science would benefit from a more author-centric (rather than subject-centric) method for searching research publications, one that could trace the development of ideas from scientist to scientist. In addition, Garfield thought that the number of citations that existed for a particular publication could be a proxy for the importance (impact) of the piece. In Garfield's view, the number of citations an article received would have a rough correlation with quality.

As described by Cameron (2005), the ISI transferred the notion of scientific impact to the journal itself, primarily as a business decision because not every journal could be assessed due to space constraints in its publications *Current Contents* and the *Science Citation Index*. The so-called "impact factor" of a journal was a way to determine both its inclusion and quality, and according to ISI it was the best method to even the playing field for small and large journals, annuals, and quarterlies. The formula for a journal's impact factor has not changed, despite critique (Atkins, 1999). Zucker and Cantor (2003) explained the impact factor thusly: "the total number of times articles from the journal are cited over the two prior years, divided by the total number of articles that the journal published during those two years" (p. 3).

Yet, a feminist perspective of article impact and journal impact factor sees the power relationships lurking behind the performance criteria as well as the appeal to the fairness of peer-review and organizational transparency at the surface-level. The quantity equals quality formula

may lead to a dangerous elision between "performance and productivity" (Morley, 2003), where value is placed on performativity (Butler, 1999) and playing the game rather than on intellectual activity. This is to say that if scholars follow the normative trajectory of production, focusing on numbers of publications in the prestigious publication outlets, rather than the innovation of ideas, they will be rewarded (Tierney & Bensimon, 1996). Moreover, this normative trajectory also puts the regulatory power in the hands of reviewers in order to reproduce "new" knowledge that largely conforms to prescribed professional academic standards. Lutz (1990) described citations as a form of symbolic capital that are translated into cultural and economic capital in the academy, as rewards (e.g., tenure, promotion, higher salaries) are bestowed upon researchers with the most impact (i.e., citations). Lutz's work also pointed to the "erasure" of women's scholarly contributions in her field, as men were shown to cite the work of women less often than the work of other males, which she found to be "most likely to do with the devaluation, in some combination, of women's intellectual capacity, of the value of the approaches they are perceived to take, and of the topics they sometimes examine in greater number than men do" (p. 622). In addition to these factors, the citation counts for women researchers are also complicated by the fact that a woman's (and some men's) surnames may not be static over the lifecourse, leading to difficulties in locating full citation records during periodic review for tenure or promotion (Tescione, 1998).

Technofeminist Perspectives of Citation Indexes

The Web of Knowledge dominates the citation search market, containing the most well-known datasets in scholarly publishing: *Science Citation Index Expanded*™, *Social Sciences Citation Index*®, *Arts & Humanities Citation Index*®, *Index Chemicus*®, and *Current Chemical Reactions*®. The Web of Knowledge also includes specialty databases for citations and content such as the *Derwent Innovations Index*^SM for patents and *MEDLINE*® for medical information. Thus, the Web of Knowledge is positioned in the marketplace as much more than a citation index database and search tool. Yet, in reviewing the content and indexes available in the Web of Knowledge, it is almost exclusively for the sciences, with just one product, *The Educator's Reference Desk*^SM, for the non-sciences. Since the creation of ISI's *Science Citation Index* in the 1950s, the company has seen the sciences as their ideal user community, as their product development would attest. From a technofeminist perspective (Wajcman, 2004), the Web of Knowledge indexing system can be considered as masculinized, as it is focused on the sciences, where men are primarily located within the academy.

More than 22,000 journals are included in the Web of Knowledge's citation indexes. The Web of Science is selective in its indexes, screening journals for inclusion upon request of editors and editorial boards. The ISI contends that selectivity is justified not only because the field of scholarly publishing is so vast that it must be pared down for manageability, but also because of Bradford's Law, which holds that there are core journals in every subject and that most of the citations occur in these (Davis, 2002). The company position is stated on its website as follows:

> [A]n analysis of 7,528 journals covered in the 2005 JCR® [Journal Citation Reports] revealed that as few as 300 journals account for more than 50% of what is cited and more than 25% of what is published in them. A core of 3,000 of these journals accounts for about 75% of published articles and over 90% of cited articles. Furthermore, this core is not static. Its basic composition changes constantly reflecting the evolution of scholarly topics. Our mission is to update journal coverage in Web of Science by identifying and evaluating promising new journals, and deleting journals that have become less useful. (ISI, 2007, ¶ 6)

The ISI selects its journals on the basis of several factors, including timeliness of publication, adherence to international editorial practices, the availability of English-language identifiers such as titles and abstracts, application of a peer-review process, the value of a journal's content, international authorship, and citation rates. Social sciences, arts, and humanities journals are subjected to the same categorical scrutiny as science journals, with the knowledge of discipline-specific practices provided by experts in the various content areas.

So, if we accept this practice of selectivity, what are the core feminist journals? It seems that Bradford's Law is incompatible with interdisciplinary fields such as women's studies, which touch upon a variety of disciplines and networks within and beyond the academy. After searching the ISI's social sciences journal subject category, only "women's studies" is specifically noted (with 27 journals in 2005) as pertaining to women, but presumably women's topics and feminist work is written about in the other science and non-science subject areas. For example, the journal *Gender and Education* is not listed under the women's studies subject heading, but is instead part of "education." However, the journal *Gender & Society* is listed both under "sociology" and "women's studies." This hardly seems systematic. Furthermore, when the ISI claims to be searching for "promising new journals" that will replace journals that "have become less useful," how will the journals that include feminist work fare? If *Gender and Education* is already seen as

only being a part of education and not women's studies more broadly or even sociology, will the criteria for its usefulness be as narrow as its subject categorization?

Technofeminists are careful not to cling to utopian fantasies about so-called democratic technologies like the Internet; yet it is important to note the differences between technological objects in order to expose them as social artifacts. Thus, in comparison to the ISI Web of Knowledge, the Internet-based citation index Google Scholar has characteristics that both reveal the limitations of the ISI system for feminist scholars (and quite possibly other scholars) and also retain elements of the concept of citation analysis that are potentially damaging to non- or post-positivist epistemologies. Foremost of these is the reification of citation counts, but the difference is that *what* is counted is more broadly considered in Google Scholar.

Like its competitors, Google Scholar provides references to work that has cited the focal article in question, but unlike the ISI, Google indexes not just hand-picked journals but also books, a broad range of journals (including e-journals), and web-based resources. In 2004, Google Scholar's lead engineer, Anurag Acharya, began beta-testing a mechanism intended to allow anyone with internet capabilities to access scholarly literature (Hughes, n.d.). This search engine is still very much a work in progress. While Acharya would like all scholarly publications to be made available, gaps remain in the database (Hughes, n.d.). In fact, one publisher, Elsevier, will not grant Google Scholar the right to include articles from any of their journals (such as *Women's Studies International Forum*), likely because Elsevier has created a competitor to Google Scholar and the Web of Knowledge called Scopus (Butler, 2004). However, many citations from Elsevier journals have made it into Google Scholar in other ways (see http://schoogle.blogspot.com/). For example, we have found some citations from *Women's Studies International Forum* in Google Scholar. This finding supports Gardner and Eng's (2005) review that Google Scholar has a wide scope, but lacks the quality control that other search tools provide.

One of the unique aspects of Google Scholar is that it is currently free. This is not the case for Scopus nor the Web of Knowledge, which can cost users (primarily institutions like universities) $25,000 to hundreds of thousands of dollars per year (Butler, 2004). Researchers have noted the price of commercial citation indexes and its affect on access to citation histories:

> The price differential between ISI [Web of Knowledge] and GS [Google Scholar] might be particularly relevant for research and academic institutions in developing countries, and even modestly endowed institutions in de-

veloped countries (e.g., historically Black colleges and universities in the USA) which will be able to assess and document their scientific progress through GS at minimum costs. In addition, impact factors, or any other quantitative indicators, can in principle be computed using GS for any journal or other published item available online, not only for those listed in the ISI. (Pauly & Stergio, 2005, p. 2)

The issue of cost is certainly one that should not be overlooked, particularly if the use of these tools negatively influences certain institutions, underserved populations, and ultimately scholars who are already considered marginalized in the stratified academy (including feminists, whose work is the focus of our study), thus perpetuating inequities in how certain types of work and certain scholars fare in the valuation of knowledge production. However, other technological aspects must also be considered, as any computer-mediated search tool has the power to marginalize on the basis of access and the persistent, global digital divide that characterizes the unevenness of the knowledge society (Välimaa & Hoffman, 2008).

Furthermore, as a company Google has built a reputation for both democratizing the web and increasing surveillance. While users have hailed the open source access to Google software ("Google Launches Gears Open Source Project," 2007), privacy concerns have also arisen (Allen-Mills, 2007; Greising & Mccormick, 2006). Although some may laud the open source aspects of Google as a way to achieve more equitable web-based interfaces, the fact that Google stores user profiles and search words as part of its product development and advertising program shows that Google is not a democratic medium. In fact, Google captures user data to generate company assets, which not only calls us to question their community-generating behaviors but also makes us wonder if Google will not grow toward user preferences in such ways as to replicate the dominant preferences of the larger social system.

Evaluating Higher Education Scholarship

Our study is situated within a larger body of work that has reflexively examined scholarly publishing within the field of higher education in North America. Scholars owe a debt to Silverman (1987), Milem (1991), and more recently Osei-Kofi (2003) and Kezar (2004), who have epistemologically interrogated the literature appearing in key North American higher education journals. Other reviews have focused on research appearing in a single journal, such as *Research in Higher Education* (Hutchinson & Lovell, 2004; Volkwein, Cabone, & Volkwein, 1988), or research methodology more generally (Keller, 1998; Kezar & Talburt,

2004; Peng, Stage, & St. John, 2002). Reviews of higher education journals have also been conducted to explore a single topic, such as the visibility of adult undergraduate learners and community colleges (Donaldson & Townsend, 2007; Townsend, Donaldson, & Wilson, 2005). General overviews also exist, such as the work of Tight (2007), who found that in the North American higher education journals he examined (*The Journal of Higher Education, Review of Higher Education,* and *Research in Higher Education*), the scholarship that appeared in his focal year (2000) was overall theoretically explicit, primarily quantitative in nature, and largely concerned with student issues. His work was also comparative, as he juxtaposed the three key North American journals against several non-North American journals in terms of authorship and content.

In another analysis, Tight's (2008) research shed light on the implications of citation patterns for women scholars. He demonstrated, in his review of 17 English language higher education journals published in the year 2000 outside of North America, that, for the rest of the English-speaking world at least, women scholars in higher education are not among the highly cited. In his study, no women appeared on his list of the 24 most cited higher education authors. He noted that citations "are in part about identifying the community or tribe you belong to, or, perhaps, that you would like to join" (p. 598). Extrapolating from this, citation patterns may reinforce male networks that seek to (whether intentionally or not) exclude women.

Although much can be learned from the analysis of the work mentioned above, gender has not been a main focus of this literature. A few scholars (Creamer, 1994; Hart, 2006; Safarik, Wolgemuth, & Kees, 2003; Townsend, 1993; Twombly, 1993) have reviewed the content of North American higher education journals from a feminist standpoint. They have found that very few articles in key North American higher education journals have been written about women or from a feminist perspective. We extend their work by shifting the focus from the content of the articles to the post-publication phase, examining citation analysis as another way to understand the academic contributions of feminist literature stemming from the field of higher education, and the ways in which these contributions may or may not be visible through the reliance on popular citation indexes.

In her article on "Gender and Publications in Core Higher Education Journals," Creamer (1994) noted that "articles about women . . . constitute a small proportion of the literature published in journals" and that a "small percentage of articles in journals in higher education are about women" (p. 35). Creamer found that just 13.3% of the articles published in core higher education journals from 1987 to 1991 "contained keywords that reflected a focus on women or gender issues" (p. 37). She

concluded by stating that "although the number of articles about women and gender seems to have changed little, the number of female authors seems to have increased" (p. 38). Other researchers writing about the same time as Creamer examined higher education journals to better understand the prevalence of female authorship and women's issues and gender among the research topics (Townsend, 1993; Twombly, 1993; Ward & Grant, 1996). These authors supported Creamer's findings by noting that women are more likely to be the authors of research about women. However, as noted by Townsend (1993), research about women is not necessarily feminist research, with only one article in her study identified as utilizing a feminist theoretical framework.

Regarding feminist perspectives in the higher education scholarship, Hart's (2006) analysis of 13 years of articles in the core journals in the field found that only six articles used an explicitly feminist framework to guide the published research. With so few feminist articles in the core higher education journals, the post-publication phase of these six articles is of critical importance to the cause of feminism (Jaggar, 1983) as an indicator of the "uptake" of this research in higher education and other fields of inquiry. In other words, although six articles of 1065 is a limited body of scholarship, the potential impact of each individual feminist article in this sub-sample is amplified by the very nature of its rarity. When other scholars and administrators seek to understand higher education from a feminist perspective, they would likely turn to these publications. In the digital age, journal articles are more accessible than ever, but as discussed above, we must be cognizant of the technological mediation at play in the post-publication phase of academic scholarship (Kurtz et al., 2005).

Method for Citation Count Analysis

To explore our broad question posed at the onset, whose Web of Knowledge is it anyway, our specific research questions for the analysis of citation counts were as follows: (a) What are the citation histories of the six feminist articles in the leading American higher education journals, as identified by Hart (2006)? and (b) What do the citation patterns of these articles tell us about the impact of feminist thought in the field of higher education? We also continued to address the first sub-question (i.e., In what ways might the most commonly used tools for tracking citation counts, the ISI Web of Knowledge and Google Scholar, further obscure or highlight the work of feminist scholars in academe?) through empirical analysis.

As a way to begin an investigation of the impact of feminist work in the field of higher education, we tracked the citation histories of the six feminist articles that Hart (2006) identified (see Table 1). In this way, we

could explore the work of Pathtakers (Gumport, 2002) and better understand how it has influenced other scholarship by examining the extent to which these articles had been cited by other scholars. We also wanted to know whether citations of these feminist works appeared either in articles published in the core higher education journals, in journals of other fields or disciplines, or in other types of scholarly work. Moreover, we wanted to interrogate the system of citation counts itself, by comparing the results of our searches in two electronic indexes, the ISI Web of Knowledge and Google Scholar. While the two databases draw their information from various journals, we know that Google Scholar also draws from policy papers, conference proceedings, books, dissertations and other scholarly work. This may lead to one database being "friendlier" to feminist publication outlets than the other. Therefore, we entered the article references into each database and tracked the results, noting the key information for the citing articles, including the scholarly work in which these citations appeared.

TABLE 1

Higher Education Articles with a Feminist Perspective, as Identified by Hart (2006)

Author(s)	Year	Title	Journal	Volume, Pages
Dickens, C. S., & Sagaria, M. A. D.	1997	Feminists at work: Collaborative relationships among women faculty	*The Review of Higher Education*	*21*(1), 79–101
Gumport, P. J.	1991	E pluribus unum? Academic structure, culture, and the case of feminist scholarship	*The Review of Higher Education*	*15*(1), 9–29
Heinrich, K. T.	1995	Doctoral advisement relationships between women: On friendship and betrayal	*The Journal of Higher Education*	*66,* 447–469
Horn, H., Holzemer, W. L., & Meleis, A. I.	1990	A comparative study of Israeli female students in nontraditional (engineering) and traditional (humanities) fields of study	*Research in Higher Education*	*31*(2), 177–192
Townsend, B. K.	1993	Feminist scholarship in core higher education journals	*The Review of Higher Education*	*17*(1), 21–41
Twombly, S. B	1993	What we know about women in community colleges: An examination of the literature using feminist phase theory	*The Journal of Higher Education*	*64,* 186–210

We determined the citation counts by quantifying how many times an article was cited and categorized by the publications in which these citations appeared, a process not unlike what might occur during an academic's promotion and/or tenure review. All of the articles were cited at least once because they were referenced in the Hart (2006) article.[2] The publications were categorized as *within the field* of higher education or *outside the field* of higher education, using the titles and scope of the journals to guide the separation (Table 2).

Publications with titles relating to gender, women, or feminism were also noted. We did not have a prescribed list of terms to consider, rather we noted titles based upon our knowledge of gender and feminist studies. In addition, we identified publications that overlapped in both indexes and those that were unique to either index. We used these

TABLE 2

Journals Containing Citations for the Six Focal Articles from Hart (2006)

Within the Field	Outside the Field
College Student Journal	*Advancing Women in Leadership*
Community College Journal of Research & Practice	*Annual Review of Sociology*
	Comparative Education Review
Community College Review	*Current Issues in Education*
Higher Education	*Education Policy Analysis Archives*
Innovative Higher Education	*Educational Administration Quarterly*
Journal of Faculty Development	*EurAmerica*
The Journal of Higher Education	*Feminism & Psychology*
New Directions for Community Colleges	*International Journal of Public Administration*
New Directions for Institutional Research	*International Journal of Qualitative Studies in Education*
Research in Higher Education	*International Journal of Sport Psychology*
Review of Higher Education	*Journal of Multicultural Counselling and Development*
Studies in Higher Education	*Journal of Nursing Education*
	Journal of Professional Nursing
	Journal of Public Relations Research
	Journal of Social Issues
	Journal of the Association for Research on Mothering
	Journal of Vocational Behavior
	Library Acquisitions—Practice and Theory
	Mentoring and Tutoring
	NWSA Journal
	Reading Research Quarterly
	Science and Engineering Ethics
	Sex Roles
	Sociological Spectrum
	Teachers College Record
	Teaching Sociology
	The Humanistic Psychologist

processes to help us critique the indexes, and subsequently, problematize the idea of impact in academic work, and in particular of feminist work, since these tools are one way that impact is measured and faculty success is perceived in the academic community.

We acknowledge several limitations in our study design. The findings presented here are exploratory, and, while we investigated all of the feminist articles Hart (2006) found in her analysis of three journals over a 13-year period, we identified themes based on only six articles. Further, while we both identify as feminist scholars and are conceptually and theoretically informed by other scholars, including gender and feminist scholars, our knowledge of the publishing field is limited. Thus, it is possible that we may have failed to note a gender-based journal in our analyses. To mitigate this limitation, we provide a complete list of journals in which the six articles under investigation were cited (Table 2). Our study is not meant to compare the citation patterns of feminist work to non-feminist work, nor do we provide a world-wide analysis of feminism in higher education. Rather, our study explores citation patterns for feminist work in the field of higher education as seen through three core North American journals. In addition, our findings are limited due to the fact that the data were gathered at one point in time. Citation counts often increase over time. So, if this study were replicated, it is likely that the citation counts would change in either or both indexes.

Findings

We found that there were striking differences between the two search tools with regard to citation counts. For the six articles we searched, none were treated equally by the Web of Knowledge and Google Scholar. The total number of citations from the search tools varied the most for the Twombly (1993) article, which was shown to be cited four times from the Web of Knowledge but 15 times by Google Scholar. When we sorted the citation into the categories "within the field" of higher education and "outside the field," we found that for all but one article (Heinrich, 1995), the majority of the citations came from within the field of higher education regardless of the search tool used (see Table 3).

Overall, the majority of citing publications were peer-reviewed journals, whether they were within the field of higher education or outside the field. When viewed in the aggregate, many more citing publications were situated outside of the field of higher education, even though the number of citations was higher within the field. Put another way, several citations appeared within the same journals within the field of higher education, while fewer citations per each journal outside the field of higher

TABLE 3

Summary of Citation Counts for the Articles in the Sample

	Number of Citations					
	Web of Knowledge			Google Scholar		
	Total	Within the field	Outside the field	Total	Within the field	Outside the field
Dickens & Sagaria, 1997	1	1	0	8	7	1
Gumport, 1991	5	4	1	6	4	2
Heinrich, 1995	17	4	13	23	11	12
Horn et al., 1990	1	1	0	2	1	1
Townsend, 1993	2	1	1	4	3	1
Twombly, 1993	4	2	2	15	9	6
Cumulative Total	30	13	17	58	35	23

education were noted. We also sorted the citations to see where the over-lap existed between the two search tools, providing an opportunity to more carefully examine those citations unique to either the Web of Knowledge or Google Scholar. Table 3 reports these findings, using the citing authors' names and year of the publication.

Overall, there were fewer citations that were unique to the Web of Knowledge compared to those that were unique to Google Scholar. Each of the six articles had one citation in common (i.e., Hart, 2006), as this was part of the selection criteria for the sample. While the Gumport (1991) and Twombly (1993) articles showed some overlap between the two search tools beyond the Hart (2006) citation, by far the most overlap was found with the Heinrich (1995) article. The Heinrich article had the most total citations, and it was the most heavily cited article outside of the field of higher education.

In short, our findings demonstrate that feminist scholars in higher education are contributing to many fields and to academe as a whole. Further, it is likely, given the inconsistencies and narrow reach of both indexes in this study, these feminist studies are contributing to the extant scholarship in meaningful, but un-indexed and unmeasured ways.

Discussion and Conclusion

We found that the feminist articles in Hart's (2006) study had varying number of citation counts, and these citations were spread over publications within the field and outside of the field of higher education. In all cases, Google Scholar identified more citations from each of the six feminist-identified articles than the Web of Knowledge. Google Scholar

offered a list of 58 citations, compared to 30 cited by the Web of Knowledge. This is not an entirely surprising finding since the Web of Knowledge is limited to journal articles from selected journals and Google Scholar includes a wide range of journals and other scholarly works like books, dissertations, and conference proceedings. Moreover, despite the fact that Google Scholar does not include the majority of articles from one of the largest academic publishers, Elsevier, Google Scholar still reported more citations in journals than did the Web of Knowledge. In fact, 28 of the citations in journals collected in the data from Google Scholar did not appear in the Web of Knowledge search.

Thus, we learned that generally, the Web of Knowledge identified fewer citations than did Google Scholar. This was true even for journals within the field of higher education, which points to some serious limitations for relying solely on the Web of Knowledge citation index in promotion and tenure decisions. While most of the citations occurred in refereed journals, we are also interested to note that Google Scholar included citations found in conference papers that had been posted to the web, online journals, dissertations, and other scholarly publication outlets. However, since Google Scholar did not identify all the articles that were found in the Web of Knowledge, both sources are inadequate in terms of measuring the broader impact of peer-reviewed research. Combining indexes resulted in a greater number of total citation counts for many of the articles than either search tool alone could provide.

We also noted that Google Scholar counted citations in community college journals, while the Web of Knowledge did not. Although not explicitly gendered, community college journals are often considered, like feminist or gendered work, to be outside the mainstream of higher education scholarship. Moreover, in terms of the academic landscape, the community college sector is the most feminized of all institution types when considering the prevalence of women faculty, staff, and students— which is not to suggest that community colleges are not subject to the same pressures from patriarchal systems as other institution-types throughout academe (Hagedorn & Laden, 2002).

Overall, we noted that there were few self-citations in the sample, even when the subject matter might warrant it. Heinrich cited herself the most, yet this practice did not significantly increase the number of her total citations. Two of her self-citations appeared in a Web of Knowledge publication (*Journal of Professional Nursing*) and one (a co-authored article) in a journal included only in the Google Scholar data (*International Journal of Qualitative Studies in Education*). The highest occurrence of exchange of citations between authors was between Townsend and Twombly, which makes sense considering that the two

have been co-authors (Townsend & Twombly, 1998). Yet it is curious that there was not more overlap in citations between Townsend's and Twombly's 1993 articles, since both were cited by McKenney and Cejda (2001).

We found that the six articles represent a body of scholarship that has been relatively well-received within the field of higher education and beyond. We were surprised by the high number of journals outside of the field that cited these articles. Yet, we would not have been directed to many of these journals (and certainly not the books, book chapters, conference papers, dissertations, web-based articles, and grant proposals) if we had relied solely on the Web of Knowledge to search for citations. As we found during our background review of the electronic search tools we used in this study, the stated purpose behind the creation of Google Scholar was to include a broader range of scholarship in its search engine than that covered by traditional services. We found this to be true. Not only did Google Scholar account for a broader range of academic materials that contain citations than ISI's Web of Knowledge, but it also did a better job of accounting for the diversity of feminist work in the academy.

Further, Google Scholar also captured explicitly feminist, feminized, or gendered publications, such as nursing journals and mothering journals that were not included on the Web of Knowledge. Five different journals in our search had an explicitly gendered focus: *Feminism & Psychology, Sex Roles, Journal of the Association for Research on Mothering, The National Women's Studies Association Journal,* and *Advancing Women in Leadership.* Of these, only *Feminism & Psychology* and *Sex Roles* are included in the Web of Knowledge dataset. Given these findings, the implications for Pathtakers who write on women's issues are that if citation counts must be compiled for promotion and tenure or other reasons, it should be done with a variety of search tools rather than just one. We found that these databases are asymmetrical, pointing to the futility of relying on one index over the other in an effort to capture the impact of feminist scholarship. The inconsistencies of the two show that conventional reliance upon citation indexes as tools to determine academic quality has the potential to further marginalize feminists and, likely, other non-traditional groups in the academy. Moreover, we must recognize that both of these tools used to measure impact are socially constructed and as such are influenced by many factors, including profits and patriarchy.

Thus, we argue that even using both search tools in tandem is inadequate, as the act of searching these databases fails to capture other sorts of knowledge like popular magazines, songs, poems, essays, etc. that are

more likely to reach a broader public than any *academic* database or search engine. Furthermore, the act of counting citations is likely to obscure what *really* counts in academic scholarship (i.e., the quality of the scholarship), whether the publication be feminist or not. Performance criteria must be flexible and personalized enough to accommodate the varied career paths that academics take and the multiple ways in which their work is received by other people in and outside of academe. If academic work is intended to influence practice and public policy, the impact of our scholarship outside academe is particularly important and should not be overlooked. This is part of what research accountability *could* mean if social relevance is made part of the criteria when determining impact. While we recognize that scholarly publishing is influenced by a business model that uses impact to measure market share and viability, as scholars we must also be sure that we seek a broader definition of impact when measuring the contributions of our peers.

Finally, our analysis is a first step in interrogating the post-publication process and impact of scholarly feminist work. We call for further examination of the role of feminism in the academy at the level of theory, methods, and its affect on academic structures. In addition, feminism (Collins, 2000; Haywood & Drake, 1997; Mann & Huffman, 2005) shows us that the intersections between sex, gender, race/ethnicity, and class must be explored to understand the overlapping identities and differential successes of academic women. From the perspective of citation counts, if this method of measurement becomes entrenched in the evaluation tool-kit for academic work, scholarship employing queer theories, critical race theory, postcolonial theory, and other theoretical perspectives that remain on the margins (Stanley, 2007) should be considered. Furthermore, following David and Clegg's (2008) examination of feminism in the academy, we wonder if the methods employed by some feminist scholars (auto-ethnography or personal narrative) preclude their publication in "top tier" journals, which give preference to positivist and empirical research? And, what is the influence of feminist work in higher education on students, administrators, and policy makers? More work is needed to understand the role that gender plays in the restructuring of the academy, and if feminism or gender studies have a significant place in the literature on academic leadership. Following from our study, we call for additional research to help us understand who identifies with (and reads and cites) feminist scholars in the field of higher education. As higher education scholars, we are encouraged that work from our field is appreciated in other contexts, but where is the feminist community in higher education? We call for more scholars to join our ranks, literally and figuratively.

Notes

[1]In Hart's (2006) article, gender-related terms included "woman, women, girl(s), sister(s), sorority, wife, daughter, maternal, mother, she, her, female, lesbian, gender, sex, sexist, sexism, feminization, feminist, and feminism" (p. 44). Feminist articles contained the either the word "feminism" or "feminist" in the title or abstract. Since it was not an analysis of the full content of those articles, this is a limitation of Hart's study.

[2]We also note the reflexivity of this work, as the publication of this study will result in another citation for each article we mention.

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