A Nationwide Study of Research Publication Impact of Faculty in U.S. Higher Education Doctoral Programs

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Abstract: Research impact is very important in academia. This study explored the research impact of faculty in doctoral higher education programs through the use of Hirsch's *h* index as measured by Google Scholar results. Characteristics of the *h* index in this field are discussed, and norms are offered for professors of different ranks. We also explore relationships between gender, experience, and *U.S. News and World Report* ranking and the index. We find that gender has no significant relationship to faculty index in this field, but faculty experience and school rankings do have a relationship. Our findings support the use of the *h* index in assessing research impact in the higher education field.

Keywords: higher education, doctoral education, h index, research impact

Higher education programs are widespread across the United States. Rumbley, Altbach, and Stanfield (2014) listed 277 programs in their worldwide inventory, with 194 located in the United States. Saunders, Kolek, Williams, and Wells (2016), working from similar data, stated that 140 U.S. and Canadian institutions offer doctoral degrees in higher education (approximately 70% of the 194 found by Rumbley et al.), without distinguishing between doctor of philosophy (Ph.D.) and doctor of education degrees (Ed.D). These programs tended to be interdisciplinary, with three possible foci: higher education administration, community college administration, or student affairs administration (Goodchild, 2014). Hendrickson (2014) stated that core knowledge in higher education consists of the history of higher education, the structure and situation of higher education institutions within their environment, organizational theory as applied to higher education institutions, college curricula, and student development.

Background: Scholarship and Bibliometrics in the Field of Higher Education

Regardless of focus, professors in higher education programs generate a great deal of scholarship. However, some researchers have argued that research in higher education rarely impacts practice (Kezar, 2000). Assessing the precise impact of research on practice has been difficult, but several bibliometric techniques have been used to quantify the broader impact of research, including citation analysis, which was the focus of our study.

Citation analysis, or bibliometric analysis, is the systematic study of frequency and patterns of research citations for specific publications and authors. Citation analysis has been practiced for decades as a method to determine the impact of articles (Garfield, 1955), with later work discussing the impact of journals and ultimately the impact of entire academic careers (de Bellis, 2009). Initially, performing a citation analysis took a great deal of time and labor, but the availability of electronic databases has vastly simplified the process. While ISI (now Web of Science) had initially been the only organization providing citation databases, Scopus, Google Scholar, and other sources now offer comparable products.

Citation analysis first gained popularity in the natural sciences in the 1960s, gradually spreading to the social sciences and humanities (de Bellis, 2009). In comparison to other fields, few articles have been published on relative research impact in the field of higher education (Wilkins & Huisman, 2014). Scholars have discussed the impact of various journals in the field, generally focusing on the *Journal of Higher Education*, *The Review of Higher Education, Research in Higher Education*, and other top journals (e.g., see Budd & Magnuson, 2010; Calma & Davies, 2014, 2017; Earp, 2010; Johnson, Wagner, & Reusch, 2016; Saunders et al., 2016). Tight (2008, 2014) conducted a broader bibliometric study, looking at the impact of 17 higher education journals. Bray and Major (2011), although not performing citation analysis, surveyed U.S. faculty members in higher education programs to determine the relative prestige of journals in the field.

While understanding journal impact and prestige is important, no researchers have used bibliometric methods to investigate the research impact of individual faculty members in higher education. Just as in other disciplines and fields, publishing is extremely important in the field of higher education (Bray & Major, 2011; Greenbank, 2006). Indeed, with the rise of bibliometrics and citation analysis, emphasis on quantifying research and its impact has increased (Meho, 2007). Many universities and even some governments now use bibliometric indicators to assess research productivity (de Bellis, 2009; Meho, 2007).

Supporters of bibliometrics have argued that their use can make hiring and promotion decisions easier and fairer (Holden, Rosenberg, & Barker, 2005) although critics and others have warned that high-stakes use of bibliometrics may negatively affect publication practices and contribute to the dominance of a few top-tier institutions (Weingart, 2005). Although the evidence has been mixed as to whether bibliometric indicators have a significant relationship with peer rankings (Jacsò, 2010; Norris & Oppenheim, 2010; van Raan, 2006; Wainer & Vieira, 2013; Waltman, Eck, Leeuwen, Visser, & van Raan, 2011), the indicators' ease of use makes them attractive to many stakeholders who seek to compare scholars or journals.

The *h* Index

While the preferred bibliometric indicator is still a matter of debate, the *h* index (Hirsch, 2005) is the most popular and one of the easiest to understand (Bormann & Daniel, 2008; Burrows, 2012; Waltman & van Eck, 2012). The *h* index can be easily computed from a list of an author's publications, with the number of times each publication was cited. To compute the index, that list should be sorted in descending order by the number of citations per publication. Publications should then be counted from the top until the number of counted publications is greater than or equal to the number of citations of the next publication. That is, an *h* index of five indicates that an author has at least five publications which have each been cited at least five times.

In order to attain a high index, a scholar cannot rely on a few highly cited works, but must author many frequently cited papers. Thus, the index summarizes the breadth and depth of the impact of an academic career (Hirsch, 2005). As envisioned by Hirsch, the index does not take co-authorship or author order into account, thus, being sole author on a paper with ten citations has the same effect on *h* index as being tenth author on a paper with ten citations. Some variants of the index have attempted to control for the number of authors on a paper (Batista, Campiteli, & Kinouchi, 2006; Hirsch, 2010; Schreiber, 2008), but controlling for author order is rare and requires making the assumption that author ordering conventions are similar for all of an author's publications (Schreiber, 2008).

As different fields have different publication and citation practices, disciplinary norms can help the *h* index to be used effectively (Alonso, Cabrerizo, Herrera-Viedma & Herrera, 2009; Hirsch, 2005). Hence, our study provides data on the *h* index of faculty in the field of higher education and how that index varies across academic rank. This information will enable higher education stakeholders and administrators to be better informed when assessing the research impact of faculty. In addition, this study aims to give further support for the index by examining the relationship between a researcher's index and the *US News and World Report* ranking of their education school.

There are several potential challenges when looking at research impact in the field of higher education. Saunders et al. (2016) have argued that publishing in the field is dominated by graduates from a few highly ranked schools, including the University of Michigan; the University of California, Los Angeles; the University of Iowa; and Pennsylvania State University. Some scholars have argued that the *h* index shows bias against female faculty members, who may belong to lower-prestige professional networks or may have less time to research due to having children (e.g. Geraci, Balsis, & Busch, 2015; Symonds, Gemmell, Braisher, Gorringe, & Elgar, 2006) although others state that the disparities reflect differences in methodology (cf. Kretschmer & Kretschmer, 2013).

As higher education continues to mature as a field, it is becoming more important to understand how scholarly work can make an impact, what a productive career looks like in higher education, and what factors affect scholars' productivity. This study aims to investigate these issues using a quantitative perspective.

The Study

Research Questions

The study we report here addressed three questions.

1. What are the norms for *h* index values for U. S. higher education faculty members of different ranks?
2. Does the *h* index have a significant relationship with scholars' gender in the field of higher education?
3. Does the *h* index of higher education faculty members have a relationship to the *US News and World Report* ranking of their current education school?

Procedures

Programs and Faculty We identified programs in higher education from the directory of higher education programs in the U.S. as maintained by the Association for the Study of Higher Education (http://www.ashe.ws/ashe_heprogram). As of 2016, that directory listed 112 programs that conferred the Ph.D. In addition, we gathered schools of education from the 2016 National Science Foundation Survey of Earned Doctorates (2018) and the 2017 and 2018 *US News and World Report* rankings of schools of education (*US News and World Report*, 2016, 2017). We examined each school's website to confirm the presence of a Ph.D.-granting program of higher education.

As a field, higher education includes several different program names that may properly be termed "higher education." We included programs with titles such as higher education, student affairs, college student personnel, higher education administration, and higher education leadership. We also included programs if they conferred a more general degree (e.g., education leadership) but offered a named specialization in higher education. We only included programs that offered the Ph.D. in an on-campus format.

We removed duplicate programs and programs that no longer existed or no longer grant the Ph.D., and 108 programs remained. Finally, we removed two programs as we could not obtain a list of active faculty members. Thus, 106 programs were included in our analysis.

In 2016 and 2017, we collected the names of 638 tenured and tenure-track faculty members from the web pages of the programs. They were nearly equally divided by gender and academic rank. We excluded faculty members with no title, or titles of lecturer, visiting, adjunct, or emeritus. Many higher education faculty members also serve as administrators or hold courtesy appointments in higher education programs after having served as college presidents or deans. In this study, we included faculty members if they had a tenure-track title in a higher education program, regardless of any other positions. In addition to names, we collected faculty members' academic rank, gender, graduation year, and graduating institution. We consulted the Proquest Dissertation and Theses database when graduation year and institution were not listed on faculty web pages or curriculum vitae.

Data Collection -- Sources and Search We examined several bibliographic and bibliometric databases as possible sources for this study (i.e., Google Scholar, Scopus, and the Web of Science). However, when compared to the other databases, Google Scholar found many more papers and citations for the higher education faculty in this study. This trend was also noted by bibliometric researchers investigating other disciplines (de Winter, Zadpoor, & Dodou, 2014; Harzing & Alakangas 2016). Comparing results with selected higher education faculty curriculum vitae, Google Scholar tended to find nearly all of a given author's publications, whereas both Scopus and Web of Science missed more than half. As an example, one author had 106 papers identified and a total of 2,071 citations in a Google Scholar search performed through Publish or Perish, a software program discussed below. Web of Science only returned two papers, each with five citations; Scopus returned 35 papers, with a total of 110 citations. This author's Google Scholar profile listed 128 papers and 2,579 citations.

We collected citation data through the Publish or Perish software program (Harzing, 2007). Publish or Perish is a popular tool for citation analysis and bibliometric research. It retrieves the same information as standard Google Scholar, Scopus, or Web of Science searches performed via web sites, but automatically calculates several publication impact indices including the *h* index (Harzing, 2007). We employed the Publish or Perish program because its interface facilitates removing duplicate citation records and saving data from searches for later analysis.

We entered authors with their first initial, middle initial if available, and last name. If authors' web pages or curriculum vitae listed publications under another last name, we also included that name in the search. We did not collect articles from more than ten years before an author's terminal degree graduation year. In order to reduce the false positive rate, we included the term "education" in searches. If multiple authors were returned, we used several techniques to disambiguate results, including adding authors' full first names, university affiliations, or additional keywords that pertained to the author's work to the search. We also excluded incorrectly included authors with disciplinary keywords.

As Google Scholar does not clearly distinguish the types of search results, a search may return books, book chapters, peer-reviewed or non-peer-reviewed articles, presentations, reports or white papers, or more informal work such as blog entries or syllabuses. We did not exclude these results were from the index calculations in this study; they generally had few citations and thus minimal impact on *h* index. Conclusively restricting a query to books, chapters, and peer-reviewed articles would also require individually reviewing many results for every search.

Data Analysis As the data were non-normal (skew = 2.61 and kurtosis = 11.67), we used nonparametric statistical tests when answering the second and third research questions (the relationship between gender and *h* index and *US News* ranking and the index, respectively). These tests included the Wilcoxon signed-rank test and the Kruskal Wallis test. We used Spearman rank-order correlation coefficients to determine significance of correlations, and we analyzed more complex relationships with quantile regression.

Quantile regression can examine cases where dependent variables do not have the same level of importance at different levels of the independent variable by estimating the relationship at different quantiles (Petscher & Logan, 2014). This is appropriate for the h index, which is known to increase slowly early in a scholar's career, then grow more quickly as scholars become more established and have a body of papers which may receive citations (Geraci et al., 2015). Unlike ordinary least squares, which assumes a normal distribution, quantile regression does not make any assumptions about the error distribution, so it is less susceptible to outliers (Hao & Naiman, 2007; Petscher & Logan, 2014). For this study, we used SAS' PROC QUANTREG to estimate the 25th, 50th, and 75th percentile locations and standard errors. Each regression was followed by an omnibus test of heteroscedasticity of coefficients across quantiles. If that test was not significant, we report results for the median regression only.

Results

Demographics

Table 1 summarizes the demographic data of the study subjects. Faculty members in higher education programs were nearly evenly divided by gender, with 53% female and 47% male. One faculty member had nonbinary gender. More male faculty members held full professor rank than did women, and more female faculty members were assistant or associate professors than were men. The tenure-track faculty members had a mean of 18 years of service since receiving their terminal degrees. The majority had Ph.D.s, but 12% held the Ed.D. degree(12%). Three faculty members had J.D.s as their highest degree, one had a Psy.D., and one had a B.A. [Insert Table 1 about here]

The programs were relatively small: the mean number of tenure-track faculty at a program was 6.0. Given the veteran nature of the field, it was not surprising that more faculty members were associate and full professors (35% each) than assistant professors (30%). Forty faculty members also held administrative appointments: positions included dean, assistant or associate dean, assistant or associate vice president, director of graduate studies, vice chancellor, and vice or associate provost. In addition, three persons were former presidents of their universities.

A large majority of the faculty members worked at schools of education that were ranked by *US News and World Report* (80%), and a large majority graduated from these schools as well (81%). Realizing that these schools tend to have more faculty members and more graduates, these statistics are not surprising. In total, the faculty members graduated from 131 different institutions, but some schools were overrepresented: Table 2 shows that over half of the faculty came from only 16 schools. [Insert Table 2 about here]

h Index

The mean *h* index of all faculty members in this study was 9.3. The percentile ranks of *h* index for various faculty ranks are presented in Table 3. Figure 1 illustrates that there was a significant difference between faculty of different ranks, as expected, with full professors having higher *h* indices than associate professors, who had higher indices than assistants ($\chi^2[2] = 125.2, p < .0001$). [Insert Table 3 and Figures 1 and 2 about here]

There was no significant difference between male and female faculty ($\chi^2[1] = 3.6, p = .06$), despite the fact that more male faculty members held full professor rank. Nor was there a significant difference between those who had attained the Ph.D. and those who held other degrees ($\chi^2[1] = 1.6, p = .20$).

Table 4 shows that there was a significant relationship between the *US News and World Report* rank of the faculty members' institutions and their *h* index after covarying faculty experience. Although its slope varied significantly across quantiles, it was always negative, meaning that the faculty members who worked at higher ranked schools had higher *h* indices. [Insert Table 4 about here]

Those who had graduated from the 16 most common schools had significantly higher *h* indices than those who had not, although graduates of those schools were also significantly more likely to work at highly ranked programs ($\chi^2[1] = 13.9, p < .0005, N = 637$; $\chi^2[1] = 8.4, p < .005, N = 510$). Surprisingly, these graduates were also significantly less experienced than the other faculty members ($\chi^2[1] = 6.7, p < .01$).

Discussion

The aim of our study was to make norms available for the *h* index in the field of higher education. Looking at the field, *h* index values range from 0 to 79; and two-thirds of the faculty members had an index of 10 or less. As expected, more experienced and higher-ranking faculty tended to have higher indices, but this was by no means universal. The values found in this study are lower than those found in some disciplines, including the natural sciences, engineering, and many of the social sciences; but they are higher than those found in the humanities (Harzing et al., 2013, Kaur et al., 2015). However, our exclusion of doctor of education and master’s level programs—the faculties of which would likely have lower indices—may have affected the values found in the study. This comparison should also have the caveat that comparing *h* index values across disciplines is difficult. Different studies have very different methodologies; and their results will vary with the citation database, faculty selection criteria, and data cleaning processes used, among other factors.

This study was unique in including the *US News and World Report* ranking of schools of education as a possible covariate with faculty members *h* indices. While *US News* also ranks higher education administration programs, that list consists of far fewer than the 131 institutions ranked on the school rankings. Faculty at schools of education that were highly ranked by *US News and World Report* tended to have higher *h* indices, with the differences being more notable at higher levels of the index. As research activity is a major component of *US News*’ ranking methodology, this finding was not surprising. However, *US News* rankings place even more weight on quality ratings given by deans and other education professionals (Morse & Hines, 2018); thus, the fact that these rankings significantly relate to faculty members’ *h* indices lends credibility to the use of the *h* index in education.

Unlike the work of Geraci et al. (2015) in psychology and Symonds et al. (2006) in evolutionary biology and ecology, we found no significant relationship between the gender of higher education faculty members and their *h* indices. As discussed, the faculty members in this study were almost evenly divided by gender, with a small female majority. The NSF Survey of Earned Doctorates (2018) revealed that 62% of those receiving Ph.D.s in “Higher education evaluation and research” in 2016 were female.

It should be noted that the *h* index, as a metric, will always lag an author’s actual research impact. Once a paper is published, it takes time for it to be read and cited; papers that then cite it take more time to be published. If a database is used to calculate *h* index, there may be additional delays as the citing papers must be included in the database. While this lag time does not matter when looking at the breadth of a field, it may be important when using the *h* index for hiring or promotion decisions. In these cases, it would be important to remember that the *h* index is more indicative of an author’s past work than their more recent impact.

In this study, Google Scholar was more likely to return results for articles and books than for chapters in edited volumes, as evidenced when search results were cross-referenced with faculty curriculum vitae. In other fields, chapters receive fewer citations than books or articles, but there has been a relative lack of research on Google Scholar’s coverage of book and chapter citations (Kousha, Thelwall, & Rezaie, 2011; Prins, Costas, van Leeuwen, & Wouters, 2016).

The fact that more than half of the tenure-track faculty in this study graduated from only 16 schools was unexpected, but it corroborated earlier findings by Saunders et al. (2016). However, it was more noteworthy that those graduates had significantly higher *h* indices than graduates from other schools. There are many possible explanations for this finding: perhaps graduates from these schools were more likely to enter tenure-track positions immediately, or, as they were more likely to work at higher ranked institutions, they may have enjoyed more institutional support for research. These schools may simply have larger Ph.D. programs and thus more graduates.

However, graduates from these schools have significantly higher *h* indices when comparing them to other faculty members working at similar programs and when comparing them to other graduates from similar programs. It may be that these 16 schools place greater emphasis on doctoral student research, enabling their graduates to start their careers with more publications that may contribute to their *h* indices. Alternately, these programs may focus more on areas of higher education that see greater research activity and greater potential for publishing and citing. However, not all higher education program faculty members have degrees in higher education, so it is difficult to make strong conclusions about higher education programs from this disparity.

Limitations

The use of Google Scholar as a data source for this work may have slightly inflated faculty members' *h* indices. Many studies have discussed the problem of duplicate records or citations in Google Scholar results, finding percentages of duplicate results that ranged from 2% to 12% (Doğan, Şencan, & Tonta, 2016; Haddaway, Collins, Coughlin, & Kirk, 2015; Harzing & Alakangas, 2016). Unfortunately, removing all duplicate results is not always feasible. Meho and Yang (2007) stated that it took 3,000 hours to clean and process Google Scholar results for 25 faculty members. The availability of Publish or Perish software makes the task faster, but the process is still prohibitively time- and labor-intensive for studies of hundreds or more faculty. Some researchers have used automated fuzzy matching to remove articles with similar titles, but this method is imprecise and may also remove unique citations of the duplicate articles (Haddaway et al., 2015). On the other hand, some authors have suggested that Google Scholar and similar databases may underestimate *h* indices as some papers may not be indexed (Wildgaard, 2015).

It may be possible in some disciplines to use authors' Google Scholar profiles for increased accuracy, but most higher education faculty members do not have profiles. Establishing a profile is not a difficult task: authors give Google Scholar their name, title, and affiliation, then are presented with groups of papers that Google's algorithms identify as possibly written by them (see Ortega & Aguillo, 2012, for a more in-depth discussion of profiles). Bibliometric researchers can then search for papers by an author's Google Scholar ID, making false positive results far less likely. However, even this is not an infallible solution. By default, Google continues to add new papers to the author's profile automatically, without additional verification. Unless authors choose to manually approve updates, the automated nature of this process may introduce errors. If authors do manually approve updates, they may not be prompt in keeping their profiles up to date.

Google Scholar's index may also be susceptible to manipulation (Delgado López-Cózar, Robinson-García, & Torres-Salinas, 2014). After Delgado López-Cózar et al. (2014) made several fake articles available on a university web page, Google Scholar crawled the page and increased citation counts as though the articles were genuine. In this study, some course syllabi, presentations, and preprints were returned for some searches. If a faculty member had such documents posted on their university web sites, their *h* index may have been inflated.

This study was limited to faculty members in Ph.D.-granting higher education programs. Education, as a field, has struggled at times to differentiate the Ed.D. from the Ph.D. (Dill &

Morrison, 1985; Freeman, Hagedorn, Goodchild, & Wright, 2014; Freeman & Kochan, 2014; Martínez-Lebrón, 2016; Shulman, Golde, Bueschel, & Garabedian, 2006). When deciding which programs to include for this study, it became apparent that, while some Ed.D. programs were analogous to the Ph.D. in their scope and focus, others offered professional degrees with faculties less focused on research. As a result, we decided to limit this study to Ph.D.-granting programs.

This study focused on the *h* index as a publication impact factor. There are numerous other indices, including the *g* index, *i10* index, h_m index, and h_s index (Kaur, Radicchi, & Menczer, 2013; Waltman & van Eck, 2012). However, the original *h* index remains the most used and accepted metric (Bormann & Daniel, 2008).

Conclusion

The *h* index is a useful metric to measure the research impact of faculty members in the field of higher education. We found that the index significantly varies based on faculty members' academic rank and the *US News and World Report* ranking of their associated education school. Whether the *h* index is an appropriate metric for promotion and tenure evaluations is beyond the scope of this work, but the availability of these data should make it more easily comparable in this field. As emphasized by many other others, *h* indices alone should not be used as the basis for high stakes decisions, but should be considered as part of a comprehensive portfolio (Watkins & Chan-Park, 2015; Wildgaard, 2015).

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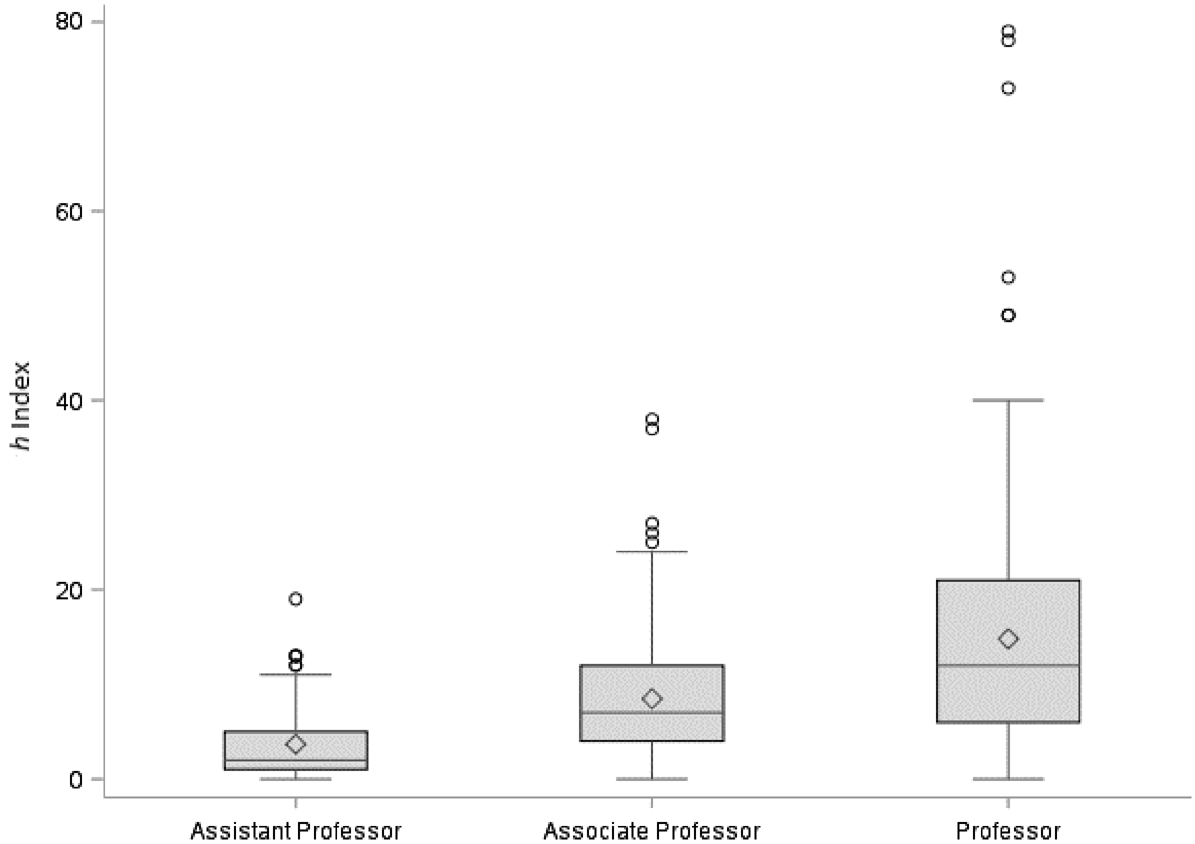

Figure 1. Box plot of *h* index values for faculty of different ranks.

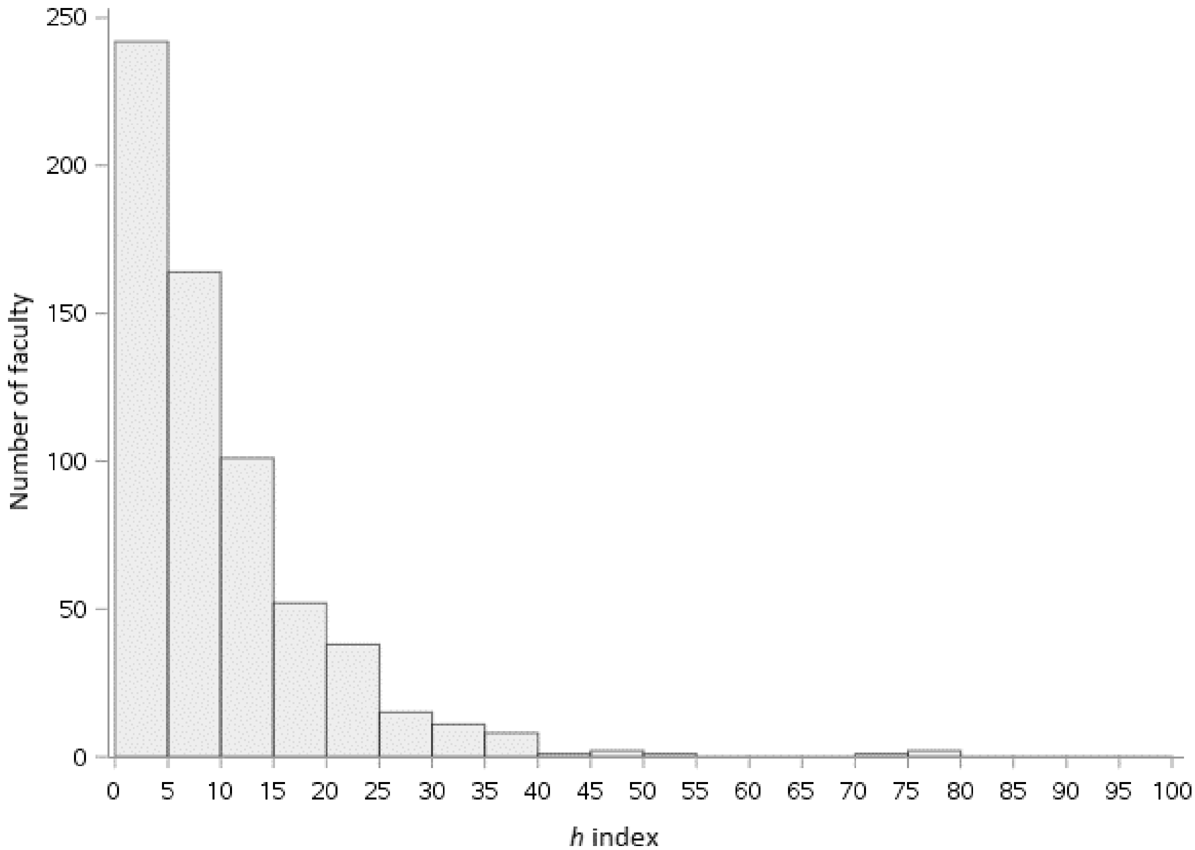

Figure 2. Histogram of *h* index values for higher education faculty.

Table 1

Demographics of Higher Education Faculty

	Male				Female			
		Years since terminal degree				Years since terminal degree		
Rank	*N*	Mean	(Median)	% Ph.D.	*N*	Mean	(Median)	% Ph.D.
Assistant	72	6.94	(5)	93.1	115	7.11	(6)	90.4
Associate	103	16.70	(14)	86.4	121	16.76	(14)	86.8
Professor	127	31.17	(31)	83.5	99	27.20	(25)	84.9
Total	302	20.54	(17)	86.8	335	16.56	(14)	87.5

Table 2

Institutions with Most Graduates in Tenure-Track Positions

University	Graduates	Percentage	Cumulative percentage
University of California, Los Angeles	43	6.8	6.8
University of Michigan	37	5.8	12.6
Pennsylvania State University	34	5.4	18.0
Indiana University	28	4.4	22.4
University of Maryland	24	3.8	26.1
University of Illinois	22	3.5	29.6
University of Iowa	16	2.5	32.1
Harvard University	14	2.2	34.3
Iowa State University	14	2.2	36.5
University of Wisconsin - Madison	14	2.2	38.7
Columbia University	13	2.0	40.8
Stanford University	13	2.0	42.8
The University of Texas at Austin	13	2.0	44.9
University of Arizona	13	2.0	46.9
University of Florida	12	1.9	48.8
University of Minnesota	12	1.9	50.7
University of Southern California	12	1.9	52.6
The Ohio State University	11	1.7	54.3
Michigan State University	10	1.6	55.9
University of Georgia	10	1.6	57.5

Note. Values reflect the frequency and relative percentage of faculty in this study.

Table 3

Percentile Ranks of h Index Values for Higher Education Faculty

	Academic rank			
h index	Assistant	Associate	Professor	All ranks
0	0.0	0.0	0.0	0.0
1	6.4	4.0	3.5	4.5
2	30.1	13.3	9.7	16.9
3	50.5	17.8	12.0	25.2
4	60.2	22.7	14.2	30.6
5	72.5	30.3	17.3	37.9
6	77.4	38.3	23.1	44.2
7	80.6	43.7	27.5	48.6
8	88.1	50.8	32.4	55.1
9	90.8	57.5	36.8	59.8
10	93.5	62.5	40.8	63.7
11	94.6	70.0	44.0	67.8
12	97.3	75.0	48.4	71.8
13	98.3	79.0	51.1	74.5
14	99.5	82.5	54.2	77.3
15	99.6	86.1	56.8	79.5
16	99.7	87.9	60.8	81.6
17	99.8	90.1	63.1	83.2
18	99.9	91.5	65.3	84.4
19	100.0	93	69.3	86.4
20		93.3	72.4	87.7
21		94.6	74.6	89.0
22		95.5	78.6	90.7
23		96.8	81.3	92.1
24		97.7	82.6	92.9
25		98.2	84.4	93.7
26		98.6	86.2	94.5
27		99.1	87.5	95.1
28		99.1	88.2	95.5
29		99.1	88.4	95.6
30		99.2	89.7	96.0
31		99.2	91.3	96.6
32		99.3	91.5	96.7
33		99.3	92.4	97.0
34		99.4	94.2	97.6
35		99.4	94.6	97.8
36		99.5	96	98.2

37	99.5	96.4	98.4
38	100.0	96.6	98.7
39		96.8	98.9
40		97.3	99.0
41		97.3	99.0
42		97.4	99.0
43		97.4	99.1
44		97.5	99.1
45		97.5	99.1
46		97.6	99.1
47		97.6	99.1
48		97.7	99.1
49		97.7	99.2
>49		98.3	99.4

Table 4

Relationships Between US News and World Report Rank, Faculty Experience, and h Index

Effect	Quantile (0.25)		Quantile (0.50)		Quantile (0.75)	
Intercept	2.49**	(4.51)	6.79**	(8.22)	8.75**	(6.41)
School rank	−0.02*	(−2.64)	−0.05**	(−8.33)	−0.07**	(−6.32)
Years since terminal degree	0.14**	(5.08)	0.24**	(5.87)	0.55**	(7.95)

Note. N = 505. t statistics in parentheses.

*$p \leq .05$. **$p \leq .0001$.