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How the Journal Impact Factor Influences Academic Library Collections and Usage

by Elizabeth R. Lorbeer (University of Alabama at Birmingham) <lorbeer@uab.edu>

My first introduction to the journal impact factor (JIF) was in 1997, when a geography professor asked me to help him prepare his tenure documentation. He was nervous that he might not be awarded promotion and tenure (P&T) and wanted to impress upon his peers that his scholarly contributions were among the strongest in his specialty. He had published extensively in Europe, India, and the United States in a variety of peer-reviewed outlets, but until then, he had never sought to solely focus on journals covered by the **Institute for Scientific Information's Journal Citation Report (JCR)**. At the time, the P&T committees in the sciences were heavily relying on the use of the JCR JIF and the *Science Citation Index (SCI)* times cited figure to measure the author's effectiveness and contribution to their discipline's scholarly corpus. The culture on campus encouraged authors to submit their papers to journals that were indexed by the JCR and to aim for journals with a higher JIF within the discipline. Publishing in a prestigious print journal theoretically guaranteed wider readership, less time for the paper to be cited by another author, and the possibility that a mainstream news outlet would broadcast the findings. The campus authors favored print journals that published issues bi-weekly or monthly, and many became early adopters of reading papers online. Besides the JIF, the P&T committees also focused on how quickly a paper was cited and the number of times cited.

1997 also marked the beginning of my professional career as a science librarian at a large academic research library that was undergoing an extensive journal cancellation project. The project coincided with the 1990s serials crisis, and this was the first time the library had to cancel several titles. The university and its libraries were well-funded but could not keep up with the continually rising costs of periodicals; content needed to be cut. I had no idea what to cancel and was too inexperienced to approach the faculty and ask. At best, I could sit all day and watch physical usage of current periodicals or go to the basement and assess wear and tear on the bound print volumes.

I performed faculty author searches in the scientific abstracts and indices to see where our authors published and which journal titles they cited. When the librarians asked the faculty and students to make a tick mark on the current print issue they used, I observed several making multiple tick marks to ensure continuation of their favorite titles. After several meetings with my library colleagues and asking librarians at other schools what they had done, we decided to use the JIF to guide our decision on which journals would stay and which would be cancelled. I thought it was an inadequate metric to use in the decision-making process because sub-discipline and newer niche areas of research were often published

in journals with a lower impact factor. We also had to consider once-per-year published journals and the Russian scientific journals that took over a year to translate into English. We unequivocally decided not to include these in our cancellation project.

To feel better about choosing what would stay and what would be cancelled, I began studying Bibliometrics literature to help me understand the life of a journal. I felt that the JIF's elevated status as a reliable figure hindered my ability to build a science collection that represented and met my user's real-time need for information. I respected the JIF, but what caught my eye were the other metrics recorded in the JCR, such as immediacy index. The immediacy index "measures how quickly the average article in a journal is cited."¹ With the P&T committees focused on how quickly papers were cited, this number was important to include because "for comparing journals specializing in cutting-edge research, the immediacy index can provide a useful perspective."² I found instances of journals with a lower impact factor but a higher immediacy index. I realized if I relied on the JIF, I would be missing a vital part of the literature landscape. Next, I moved to the JCR Cited Half-Life, which is defined as "the number of publication years from the current year which account for 50% of current citations received."³

This definition seemed ambiguous, but after consulting our ISI sales representative, I learned this is the figure that helps the librarian decide whether the journal is worth archiving. I was also informed that some journals have a longer shelf life than others, and, although my library retained its print archive, at some point, the papers in the older volumes would simply be less relevant to the current scientific discourse. Since space was not an issue, I did not use the cited half-life figure.

For titles that were not listed in the JCR (there were many), it was harder to determine if the journals should be retained or not. Those titles were checked against lending partners in the region to see if their articles could be obtained through interlibrary loan (ILL). The serials crisis was pervasive at the time, so many of those titles were added to cooperative collection agreements to ensure that at least one library in the region could supply the rest. When I presented the list of cancelled print journal titles to the faculty, I received very few comments. It was not that I did a fantastic job selecting which titles to cancel, but that the faculty started to adopt online scientific journals as their primary information sources.

Now, in the age of electronic journals, I am not entirely comfortable making a journal re-

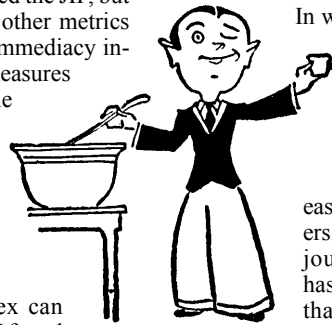
tention decision based upon JIF and usage. On my campus, these tell only part of the journal's life story. Despite the arrival of COUNTER compliant usage reports in 2002, I will always feel the need for dialogue between the librarian and the user on which titles are necessary to support the education and research mission of the institution. I often ask faculty and students how important the journal's content is to their work. Do they read the entire online issue cover-to-cover or just a few articles of interest? If the library did not have a subscription, how would they obtain access? How do they decide in which journal to publish?

In which journals do they expect their graduate students to publish? What does the department's P&T committee consider a successful publications record?

Electronic journal usage is easy to obtain from the publishers, yet the number of times the journal's content is accessed has led to collection decisions that do not include the users' opinions on the quality of the content. Journals that return the highest usage at the lowest per-article cost are touted as good investments, especially titles associated with large publisher bundles. To solidify value, the JIF is interjected as a quantifiable metric because it is an easy metric for librarians to obtain and understand.

Journals are complex creatures. Each has a unique personality, molded by its publisher, while the editors and authors contribute content. The JIF identifies a journal's presence and contribution to the field and helps the academic community determine its worth. Some authors are particular about where their work is presented, yet others are thrilled when their manuscript is requested. Some authors care about the journal's JIF, others about increasing their h-index, and there are others who care about their article's times cited in *Thomson Reuters Web of Science*, *Scopus*, or *Google Scholar*. Authors who are looking to match the text of their manuscript with journals that publish relevant papers have the ability to do so with online journal recommendation websites. The Edanz Journal Selector (http://www.edanzediting.com/journal_selector) and Biosemantics Journal/Author Name Estimator (www.biosemantics.org/jane/) are freely available services that will retrieve a list of journals with their corresponding impact factor or article influence score. Both of these sites allow authors to discover journal titles they might not have otherwise considered, outside their disciplines. Recent challengers to the JIF are in various stages of being developed, put into use, and vetted. One such challenger

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How the Journal Impact Factor ...
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is the Eigenfactor (www.eigenfactor.org), a metric that measures the influence of scholarly journals and is also included in **Thomson Scientific's Journal Citation Report**. It is based on an algorithm that evaluates the networks between journals and attempts to "identify the most influential journals, where a journal is considered to be influential if it is cited often by other influential journals."⁷⁴ Two other tools that challenge the JIF, found in the Scopus database, are Source-Normalized Impact per Paper (SNIP) and SCImago Journal and Country Rank (SJR). Using the SNIP and SJR metrics theoretically offers a more normalized approach to selecting journal titles, but both have not been widely marketed to librarians as more effective than the JIF. In April 2012, the latest contenders from Google Scholar emerged: the *h5-index* and the *h5-median*. Based on the *h-index*, which was developed by **Jorge E. Hirsh** to measure productivity and impact, both are Google Scholar's attempts to help authors "gauge the visibility and influence of recent articles in scholarly publications."⁷⁵ The top scholarly publications in English, in addition to other languages, can be found on the Google Scholar Metrics Website. What makes this list interesting is its inclusion of open electronic print Websites, such as arXiv.org and RePEc, as well as titles published by STM publishers. With the prevalence of social media, this has led to journals and their publishers being able to market and deliver their content faster than the traditional online abstracting and indexing services. Publishers are marketing their authors by producing podcasts discussing their research. The tables of content services are being replaced with Facebook profiles and the sharing of citations at online reference manager websites. Reading has become more intimate, in that you now know what your peers and students are reading by their digital footprint and thumbs up or down. Most sites allow users to comment on a paper and reaffirm the findings or refute the methodology or results. I recently read an article in the *Journal of Medical Internet Research* about Tweets having the ability to predict citations. The author, **Gunther Eysenbach**, writes that "twimpart factor may be a useful and timely metric to measure uptake of research findings and to filter research findings resonating with the public in real time."⁷⁶ Social media is changing the dynamics of scholarship in that scientific authors have alternative venues in which to publish their research in progress.

As authors work to craft their final manuscripts for publication, they are using online reference managers to store articles and share data and ideas with one another. Altmetrics, a

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Just heard from the incredibly energetic and smart **Karen Christensen** that the entire six-volume *Berkshire Encyclopedia of World*

against the grain
people profile

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Liz Lorbeer

BORN AND LIVED: Born in Buffalo, NY. Lived in Boston, MA; Chicago, IL; and now Birmingham, AL. (Yes, I do miss the snow).

EARLY LIFE: Travelling with my parents throughout the U.S.

PROFESSIONAL CAREER AND ACTIVITIES: I procure and manage content for a large biomedical library, work on digital curation projects, occasionally teach, consult, and mentor library science students.

FAMILY: Married with two children.

PETS: Two poodles, a canary, and some goldfish.

IN MY SPARE TIME: I lift weights at the local YMCA.

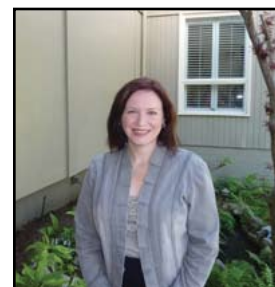
FAVORITE BOOKS: I'm actually a magazine and newspaper junkie with over 20 active subscriptions. The mail carrier once asked me if I ran a beauty parlor out of my home!

PET PEEVES: Paper jams left in the printer.

PHILOSOPHY: Be kind. Smile. Respect your boss.

MOST MEMORABLE CAREER ACHIEVEMENT: I realized that if today was my last day in librarianship, I've already had an incredible career.

HOW/WHERE DO I SEE THE INDUSTRY IN FIVE: If we can implement a cost-controlled demand-driven acquisition model for journal articles, it will be dubbed the "Modified Big Deal." 🌱



new contender in the metrics field, is measuring the impact of an author's paper in the social networking sites.⁷ This new metric goes beyond the traditional publication-vetting process and captures a paper's impact in the peer-reviewed crowdsourcing realm.⁸ It reports the influence of an author's work or parts of his or her work in the semantic Web. The authors of the *Altmetrics: A Manifesto* Website believe their measurement will replace the JIF as a better representation of scholarly output. However, Altmetrics has yet to be proven and vetted as reliable. I see it being used alongside other metrics of scholarly validity and finding its place in P&T decisions in determining the effectiveness of scholarly discourse contributed in the social network. Academia has relied on the JIF for several years, and it is a metric that authors, librarians, and publishers understand and know how to use. It will not be disappearing or supplanted anytime soon. 🌱

Endnotes

1. The **Thomson Corporation**. (2005) *Journal Citation Reports on the Web 4.0*, page 10.
2. Immediacy Index http://admin-apps.webofknowledge.com/JCR/help/h_immedindex.htm.
3. The **Thomson Corporation**. (2005) *Journal Citation Reports on the Web 4.0*, page 11.
4. **Bergstrom, Carl** (2007). Eigenfactor: Measuring the value and prestige of scholarly journals. *C&RL News*, p314.
5. <http://scholar.google.com/intl/en/scholar/metrics.html>
6. **Eysenbach, Gunther** (2011). Can Tweets Predict Citations? Metrics of Social Impact Based on Twitter and Correlation with Traditional Metrics of Scientific Impact. *Journal of Medical Internet Research*, 13(4): e123.
7. **Kelley, Michael** (2012). Two Architects of Library Discovery Tools Launch an Altmetrics Venture. *Library Journal*, <http://www.thedigitalshift.com/2012/05/social-media/two-architects-of-library-discovery-tools-launch-an-altmetrics-venture/>.
8. Altmetrics: A Manifesto. <http://altmetrics.org/manifesto/>

History is going to be published in **Chinese**, for distribution in print throughout the **People's Republic of China**. This is no small matter, and no small translation job. Only two major English-language reference works, according to librarian advisors, have been translated

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