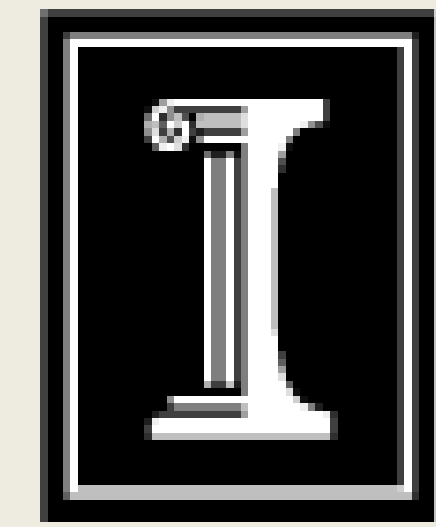


Coloring Outside the Lines: Empowering Graduate Students with Altmetrics

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Bibliometrics

Bibliometrics can be defined as using statistical analysis to understand the importance and impact of academic publications. Some of bibliometrics include:

- **H- Index:** an analysis of an individual scholar's work; works are ranked by citation count
- **G-Index:** an improvement of the h-index; gives more weight to highly-cited papers
- **Eigenfactor Score:** a similar calculation to impact factor; no self citing and uses five year calculation
- **Altmetrics:** a new metric that takes social media, current news, article downloads, and community activity into consideration

Why They Matter

Bibliometrics are important to the academic library— and the academic community at large— for a variety of different reasons.

- **Librarians** make journal buying choices based on impact and journal quality
- **Faculty members** rely on bibliometrics for promotion, tenure, and sometimes even grant funding
- **Graduate students** have to start analyzing their impact and making journal publishing choices early in their careers as scholars
- **Entire institutions** are often evaluated on the impact of their scholars and the quality of the publications they are in

Our Savvy: Understanding Impact

The Savvy Researcher Series

The University of Illinois at Urbana- Champaign offers a series of workshops every semester; each one covers a range of topics but has a central goal: to help upperclassmen, graduate students, and faculty improve their research. *Understanding Impact: Impact Factor and Other Bibliometrics* was added in the Spring of 2014.

Instructional Method

Focus on:

- Critically thinking about what metrics do
- Engaging with bibliometric theory
- Comparing metrics
- Questioning established metrics

Avoidance of:

- Lecturing students on calculations
- Mechanics of searching

Metric	Websites	Calculation	Meaning								
Impact Factor	JCR	Use a two-year period to divide the number of times articles were cited by the number of articles that were published Example: 200 = the number of times articles published in 2008 and 2009 were cited by indexed journals during 2010. 73 = the total number of "citable items" published in 2008 and 2009. 200/73 = 2010 impact factor	Impact factor reflects only on how many citations in a specific journal have (on average). A journal with a high impact factor has articles that are cited often.								
H Index	Web of Science, Google Scholar, or Scopus	1) Create a list of all of your publications. Put the list in descending order based on the number of times it was cited (you can get this information from any of the sources to the left). The first article should have the most citations. Go through and number these. 2) Look down through the list to figure out at what point the number of times a publication has been cited is equal to or larger than the line number of the publication. Example: <table border="1"> <thead> <tr> <th>Paper Number</th> <th>Number of citations</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13</td> </tr> <tr> <td>2</td> <td>7</td> </tr> <tr> <td>3</td> <td>2</td> </tr> </tbody> </table> h index= 3 *Please remember that many databases will give you this number; this is only if you'd like to	Paper Number	Number of citations	1	13	2	7	3	2	The H Index focuses more specifically on the impact of only one scholar instead of an entire journal. The higher the h index, the more scholarly output a researcher has.
Paper Number	Number of citations										
1	13										
2	7										
3	2										

How?

- **Asking students to think of the strengths and weaknesses of all metrics:** students analyzed how one metric might give an incomplete picture of effectiveness *alone*
- **Focusing on scholarly identity :** applying theory to practical journal examples and scholar profiles

- **Using real-life scenarios to make bibliometrics more relevant to students' lives:** students were asked to think of a musician. Would we evaluate the effectiveness of him or her purely by record sales? Of course not. We also look at their legacy— what magazine covers they were on, if they won awards, or if other artists referenced them. Record sales are very important; but impact is much more than just a number .

Active Learning

One simple way to spark the conversation was to write some ideas on the board:

Every Researcher is a Communicator. . . .

Within Academia:

- ~scholarly articles
- ~professional conferences
- ~scholarly conversations

Within Society:

- ~public events
- ~the press
- ~social media

For more information, please see:

- Our Savvy Researcher Workshop description at http://www.library.illinois.edu/sc/services/savvy_researcher.html
- Our companion libguide for the class at <http://www.uiuc.libguides.com/impact>

Authentic Assessment

One of the strengths of this session was that it used authentic assessment. By asking students to think of bibliometrics in their own real-life research, instructors were able to grasp whether or not they would be able to apply the session to their lives.

Student feedback

"I would use a combination for Applied Materials Science. It's important to see both the "academic" impact (impact factor, h index) and overall societal impact (altmetrics). Major news releases are a large goal of our group; they raise awareness of our work and help with funding from commercial sources."

- This student was able to understand that they might need to use multiple metrics to get a holistic picture of their work
- Additionally, this student has begun to critically think about a societal form of impact and the cyclical benefits that it has for their research

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