CSIRO Library Services

How to Perform Citation Analysis

Citation Analysis is a process of counting the citations to an author’s papers since their publication or over a certain period of time.

It can be carried out in 2 ways:

A. **DETAILED METHOD**: This uses the Web of Science Cited Reference Search Tab.

When you perform a Cited Reference Search you are searching through all the cited references at the end of the Journal articles/Conference papers indexed on Web of Science.

**Advantages of this method:**

- You will obtain an accurate picture of the number of times a paper has been cited, including variant citations, and including many works which are not themselves indexed on Web of Science.

**Disadvantages of this method:**

- It is slow, as many papers have to be searched individually.

B. **QUICK METHOD**: This uses the Web of Science All Databases option Search:

When you use this method you are searching for Journal or Conference papers which have been fully indexed on the Web of Science resource, and counting the times these papers have been cited by other WOS papers.
**Advantages of this method:**

- You can search on author name and it will not matter if the author is first or subsequent author of the paper: it will still be found.
- You can narrow the search results by using the publication years, source titles, Country or Funding Agency.
- You can prepare a Citation Report from a set of search results: this will allow you to easily prepare graphs and Excel documents showing the spread of citations over each year and the average citations per year.

**Disadvantage of this method:**

- The **number of citations may be less** than the detailed method, as you will omit any mis-cites or variant citations to your papers.

For assistance with selecting an appropriate Citation Analysis strategy, please contact [Ask a Librarian](mailto:Ask a Librarian).

The remainder of these notes will describe how to go about each method using the publications of M. Rudman as an example.
A. DETAILED METHOD

Best Practice Recommendations in the Use of the Cited Reference Search

- Use preferred journal abbreviations but also include potential variants of the journal title (e.g. Brit Med J* or BMJ*)

- Search author last name, initials and first name for most complete results (e.g. lander e OR lander es OR lander eric)

- Search name order variants (e.g. liu hong OR liu h* OR hong liu OR hong l*) for non-English names

- Before you commence the Search have an up-to-date list of your publications to work with.

The example below is a sample of publications from the author M. Rudman:

<table>
<thead>
<tr>
<th>JOURNAL ARTICLES</th>
</tr>
</thead>
</table>

CONFERENCE PAPERS


2. Go to Web of Science and Select Cited Reference Search.

3. For each paper in the list complete a cited reference search, by selecting the First-named author from the paper.

The following examples relate to searches for citations of papers in the above sample list.
Example 1.

Cited author = Rudman m or Rudman mj OR rudman murray*

And cited year = 2008

Results: You can pick up the citations to 2 papers at once with this search (See papers no. 3 and no. 4 in the publication list). One has been cited 4 times and the other twice.

Note: There will generally be several papers in the publication list with Rudman as first author, so you can find the citations to all these papers by completing the search without limiting the Cited Year to 2008 only. Just search for Cited author = Rudman m or Rudman mj.

Be sure to look for variant citations and include those in your counts. Be aware that there may be citations to works by another Rudman, M, and these should not be counted.

Example 2:

Cited author = Lester d or Lester dr OR Lester Daniel*

And cited work = J comp*

Results: this paper has been cited 18 times. Three of these citations are “variant” or erroneous citations giving the publication year as 2007 instead of 2008. If you further check the DOI you will find that it leads to the 2008 paper by Lester, so all these citations can be counted. (The Quick method would only result in recognising 15 citations seen alongside the “View record” link).

Example 3:

Cited author = Cleary P or Cleary PW (Try not to use the truncation symbol * unless you are really unsure of the author’s second initial.)

And cited work = Prog* (You must use the abbreviated form of the work so Abbreviate then truncate)
Results: This paper has been cited twelve times since the number of citing articles = 12.

Example 4

Cited author = Speetjens m*

Results: There are 2 different articles by Speetjens in the journal "Physics of Fluids", 2006, vol. 18, but we are only interested in the citations to one article – in purple. The article in red is a separate article. Hover your cursor over the View Record link to see the names of the papers.

So the purple article has been cited 4 times. There are 3 other citations which are not specified by article numbers or proper page numbers, and these are in green. There is no real way of knowing which articles are being cited, but you could look at the citing articles for each of these and see if the subject matter is related.

To find the citing articles, check the "Select References" box alongside the citation and click on Finish Search. This will show you the citing articles on Web of Science which have listed the citation.

Example 5.

Cited author = Liovic P*

Note: With unusual Family names it is probably not necessary to further limit the search with Cited work or Cited year, and this may speed up the process by finding many citations at once.

Results: The Appl Math Model paper has been cited 15 times. The Quick method would only have found the 14 citations alongside the "View Record" link.
Example 6:
Cited author = lawrence-brown m or lawrence-brown mm* OR lawrencebrown m* OR lawrence brown m*
And Cited Year = 2000

<table>
<thead>
<tr>
<th>Cited Author</th>
<th>Cited Work</th>
<th>Year</th>
<th>Volume</th>
<th>Issue</th>
<th>Page</th>
<th>Identifier</th>
<th>Citing Articles</th>
<th>View Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamrozik, K. Lawrence-Brown, MM</td>
<td>MED J AUSTRALIA</td>
<td>2000</td>
<td>173</td>
<td>7</td>
<td>345</td>
<td></td>
<td>91</td>
<td>View Record in Web of Science Core Collection</td>
</tr>
<tr>
<td>LAWRENCEBROWN MMD</td>
<td>VASCULAR ENDOVASCULA</td>
<td>2000</td>
<td>249</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norman, P.E. Lawrence-Brown, M</td>
<td>CARDIOVASC SURG</td>
<td>2000</td>
<td>8</td>
<td>2</td>
<td>111</td>
<td>10.1016/S0067-2109(99) 00080-1</td>
<td>28</td>
<td>View Record in Web of Science Core Collection</td>
</tr>
</tbody>
</table>

Results: This work is a book chapter, and it has been cited 13 times. It would not have been picked up at all using the Quick method of searching.

Note: If a surname contains a hyphen or an apostrophe, enter the name with and without the punctuation mark. Likewise enter a surname with embedded spaces, with and without the spaces (e.g. De Ville A OR Deville A)

Example 7.
Cited author = Rudman m or rudman mj
Cited year = 1999

<table>
<thead>
<tr>
<th>CITED REFERENCE INDEX</th>
<th>References: 1 - 10 of 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rudman M</td>
<td>2 INT C FID MIN PROC 1999</td>
</tr>
<tr>
<td>Rudman M</td>
<td>P2 INT C FID MIN PR 1999</td>
</tr>
<tr>
<td>Rudman, M</td>
<td>2 INT C FID MIN PROC 1999</td>
</tr>
<tr>
<td>Rudman, M</td>
<td>2 INT C FID MIN PROC 1999</td>
</tr>
</tbody>
</table>

Notice the different ways that the citations are represented.
Example 8.

Cited author = Cummins s or Cummins sj

And cited year = 1998

This paper has been cited 3 times. These citations would not have been picked up using the Quick search method.

**Note:** As you become familiar with these searches you will learn some short cuts, especially for searching uncommon family names.

**Shortcut:** Search for several citations at once by just searching on the cited author name, with no restrictions on cited work or cited year.

**Shortcut:** Use Excel to keep a record of the number of citations and calculate a total number.

- Use Internet Explorer to access Web of Science.
- Carry out your cited reference search and obtain a list of citations.
- Select the citations of interest with your mouse, and click CTRL C to copy them.
- Open Excel, and place the cursor into the first cell of the spreadsheet. Click CTRL V to paste the lines into Excel.
- Continue with searches and selecting citations of interest, copying and pasting into the spreadsheet, until finished.

**Note** that some columns will be duplicated using Excel to copy rows out of the Cited Reference Search results, but the column Sum is still applicable.
B. QUICK METHOD

1. Prepare an up-to-date publication list which includes the journal articles and conference papers which you would expect to be indexed on Web of Science.

2. Go to Web of Science and select the All Databases Tab.

3. Search for: Last name and initials of author name. Even though the product captures names exactly as they appear in the source publication, you should search for names by using various forms of the name. For example:
   - Johnson M finds Johnson M, Johnson M A, Johnson M G, and so on.

Example:

4. Assess the results and decide the best way to limit the set to include only those works by the CSIRO author of interest: In this example there were 234 articles found on Web of Science and they are not all by CSIRO’s Rudman:
5. There are several options for refining results. It may be productive to refine by research Domain to begin with: choosing Science and Technology. In this case the results are refined to 93.

6. Sometimes the best way to Refine your search is to look at the Source titles and just Exclude the titles that you know are not relevant first. Click on the More options/values option and tick the Sources titles not relevant and click on Exclude.

7. Check through the pages of results and ensure that the papers included are all by the author of interest. If there are one or two papers that are incorrectly included, don’t worry too much about eliminating them from the set of results at this stage, as they can be eliminated from the citation counts at the next step. Just identify the incorrect ones at this point and the number of citations that they have received.

8. Select Create Citation Report at the top Right of your results set.

9. Citation Report: This report reflects the number of citations to source items which have been indexed within Web of Science. The report lists the journal articles or conference papers in order of times cited, from the highest cited paper to the lowest.
It also tells you the total number of times these papers have been cited, and the average citations per paper.

In this example the h-index is indicated as 19: This means that there are 19 papers which have been cited 19 times or more since their publication.

- If you need to remove one or two citations from the list as they are not papers by the CSIRO author of interest, check the box alongside the citation and click on the Go button on the list heading. All the figures will be recalculated and you will be returned to the first page of results again.

- If you want to include the graphs and the Figures for Average citations and h-index in a Word Document, select this area (outlined in green above) with your mouse and hit CTRL-C to copy it. Open Word and Select: Page Layout > Orientation = Landscape. Then click CTRL-V to paste the figures into your Word Document.

10. Save as Excel file:

- The advantage of this report is that you can see the spread of citations for papers across all years since publication of the article. This is very handy if you want to know the number of citations of all your papers since a specific year.

- Select All Records or Selected Records as required, select Save as Excel file from the drop down menu at the bottom of the page. Click on the Save button and then Save or Open the file as required. You may also print or email the records to yourself.
Use the spreadsheet to find the Sum of total citations, and to isolate figures for particular years and tally the numbers for just those years.

**Note:** If the author name is a common one, you may need to complete the searching procedure in a number of steps and combine the search results at the very end. Complete multiple relevant searches and then go to the Search History tab and combine relevant searches. Below is an example of some search steps to find the publications by Xiaoming Wang:

Notice the Variations in author name: Wang X OR Wang XM OR Xiaoming W

Notice the limits used to find the author’s articles: Mainly Publication Name and Year Published.

This may seem tedious, but is much less so than scanning thousands of results for this name.

With the final Result set of 61 records you can proceed to run a Create Citation Report in the manner described above.

For further help with Citation Analysis or advice on selecting an appropriate Citation Analysis strategy, please contact Ask a Librarian