

# Using Citation Analysis to Identify the Best Database to Search: A Case Study in Chemical Engineering

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## Motivation

McGill University Library subscribes to multiple databases that can be used to search chemical engineering topics. Which database provides the most comprehensive coverage of the chemical engineering literature? A multi-step process to answer this question will be presented.

Knowledge of the most comprehensive database in chemical engineering will assist librarians and researchers to:

- perform efficient searches of the chemical engineering literature
- teach others where to start their search for chemical engineering topics

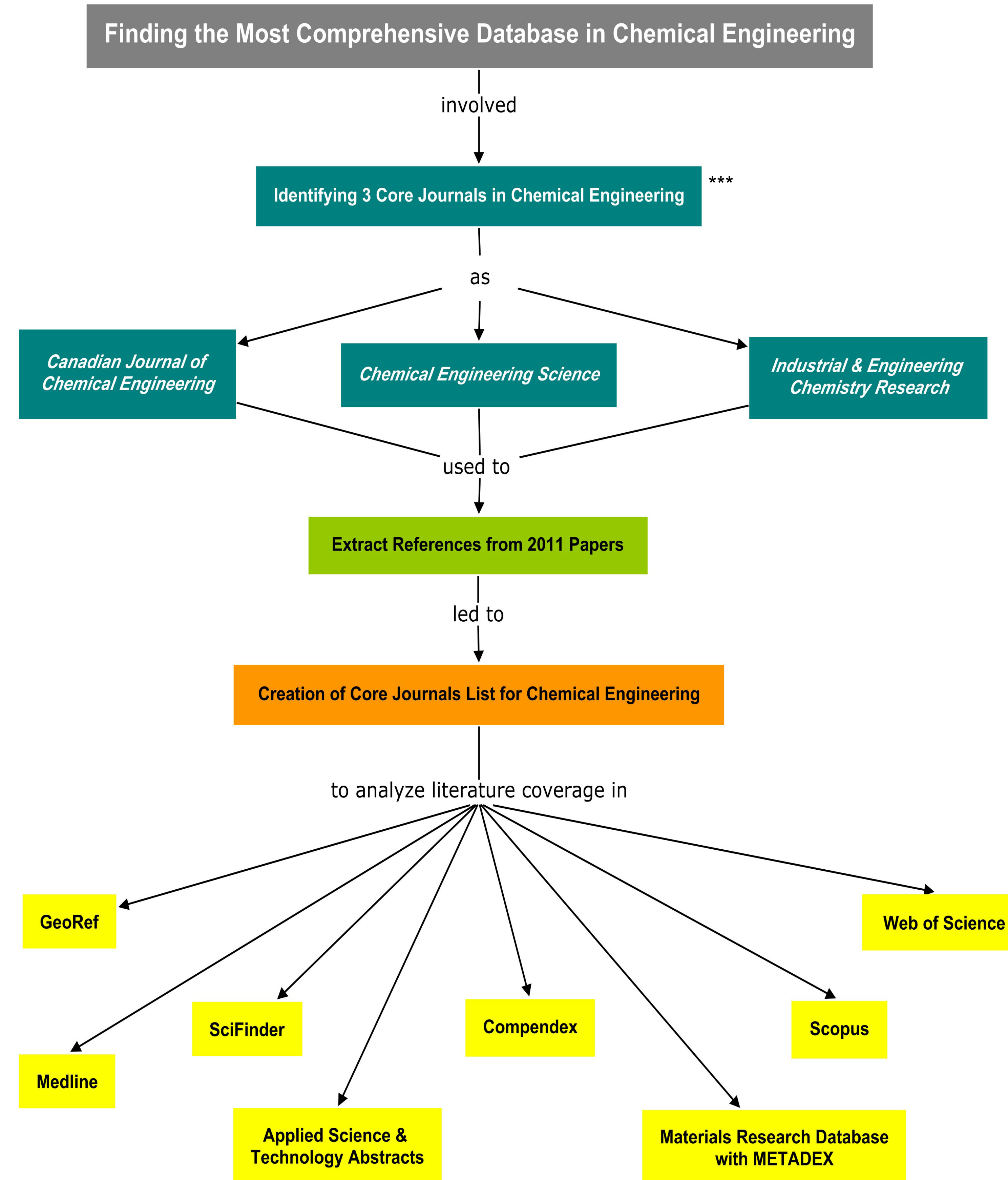
## Literature Review

Burton (1959) identified the most cited journals in chemical engineering by examining the number of times that journals were cited in three American chemical engineering journals during a one year period. This research uses a similar methodology to create a core journals list in chemical engineering that can be used, in turn, to compare the coverage of the chemical engineering literature across multiple databases.

Analyzing citation data to identify core journals in specific disciplines has been reported in many studies over the years (e.g., Gross & Gross, 1927; Barrett & Barrett, 1957; Mack, 1991). However, few researchers have used this data to identify the most comprehensive database in a specific discipline (e.g., Delwiche, Schloman, & Allen, 2010) and none, so far, have done so in chemical engineering.

- Burton, R. E. (1959). Citations in American engineering journals 1: Chemical engineering. *American Documentation*, 10(1), 70-73.
- Gross, P. L. K., & Gross, E. M. (1927). College libraries and chemical education. *Science*, 66(1713), 385-389.
- Barrett, R. L., & Barrett, M. A. (1957). Journals most cited by chemists and chemical engineers. *Journal of Chemical Education*, 34, 35-38.
- Mack, T. (1991). A model methodology for selecting Women's Studies core journals. *Library and Information Science Research*, 13(2), 131-145.
- Delwiche, F. A., Schloman, B. F., & Allen, M. P. (2010). Mapping the literature of nursing and allied health professions: Project protocol. Retrieved April 23, 2012, from: <http://nahrs.mlanet.org/home/activities/mapah>

## Methodology

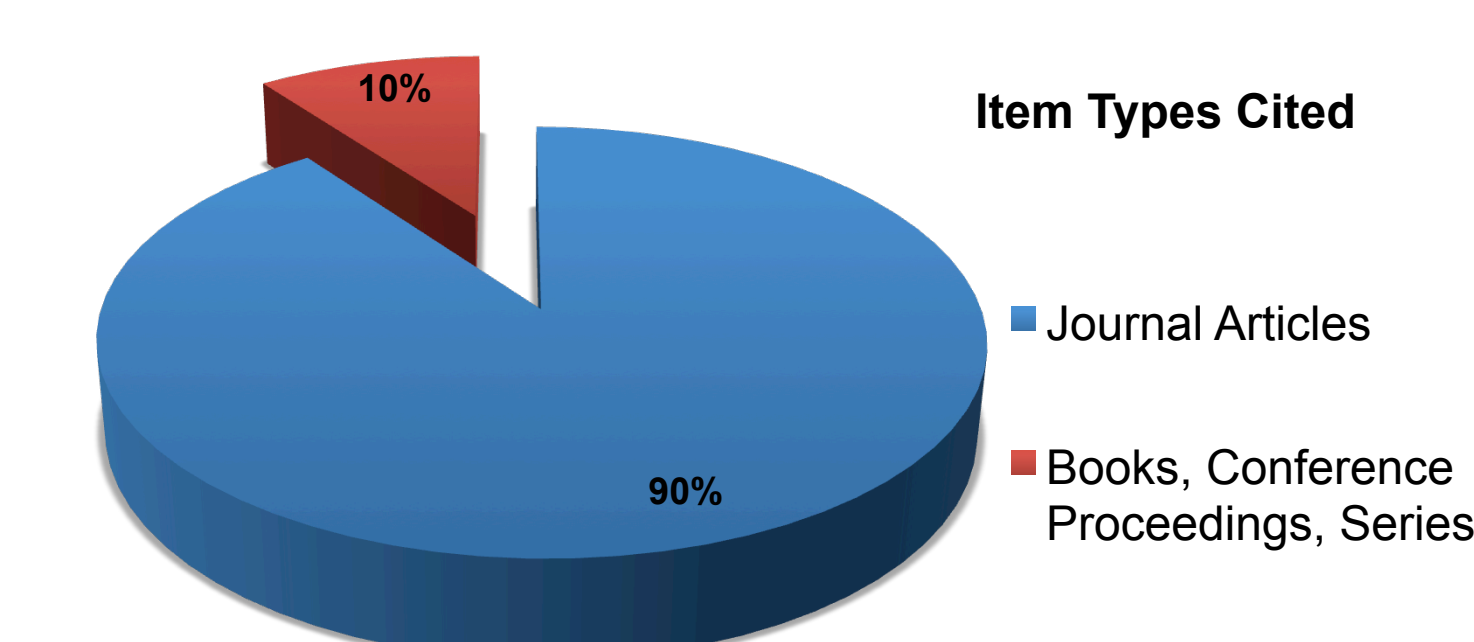


\*\*\* Note - The following methods were used to identify 3 core journals in chemical engineering:

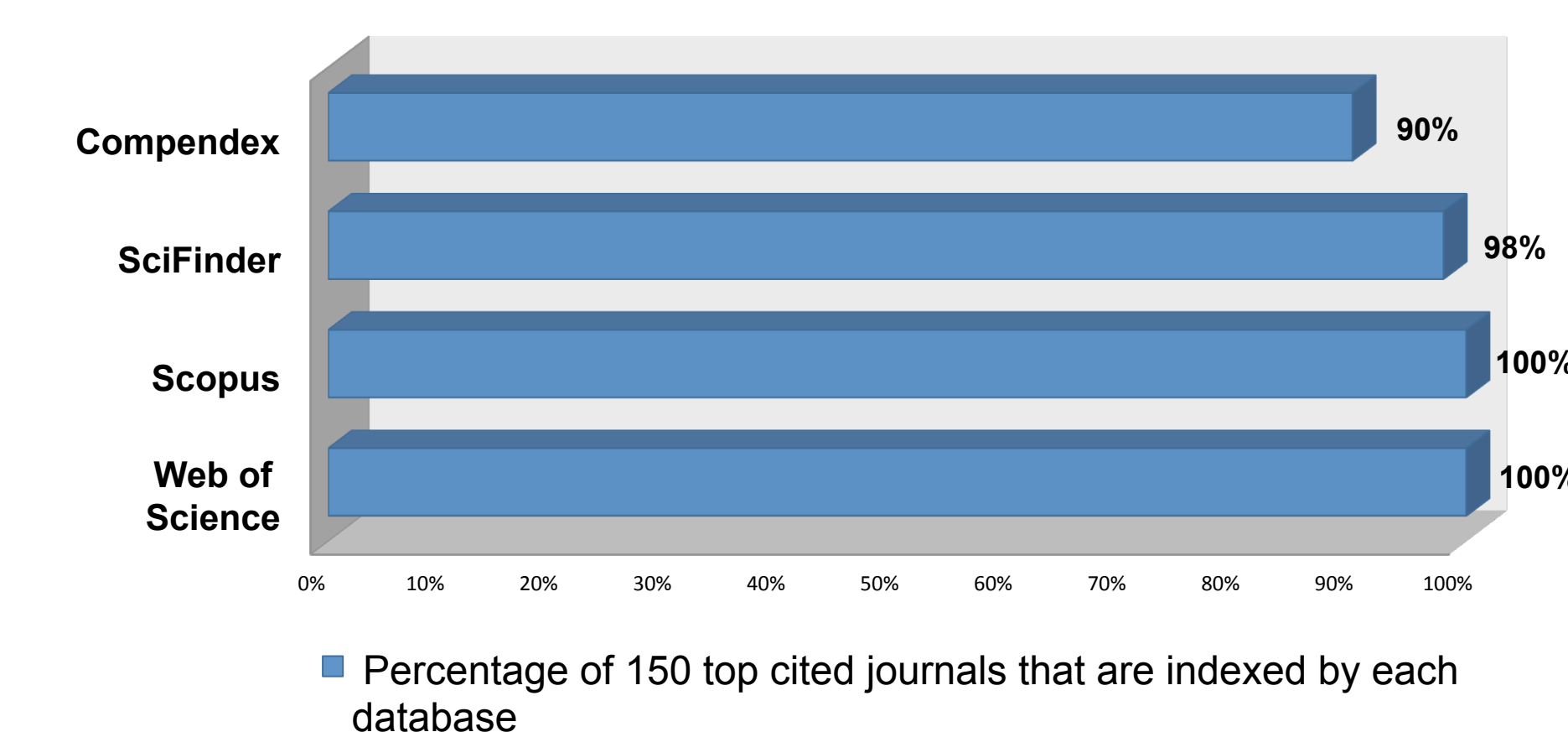
- a literature search was conducted on database coverage of chemical engineering journals
- journal articles by McGill University's Chemical Engineering department were examined to identify the most popular titles in which to publish
- informal feedback was obtained from a chemical engineering professor about top journals in this subject area

## Preliminary Findings

Articles published in 2011 in the *Canadian Journal of Chemical Engineering*, *Chemical Engineering Science*, and *Industrial & Engineering Chemistry Research* listed a total of **80,341** references.



The **150** most frequently cited journal titles were checked for database coverage in *Ulrich's International Periodicals Directory* online. These titles accounted for **67%** of the total journal articles cited. Four of the larger databases were examined in this initial check.



Future steps will include:

- Checking database coverage for up to 90% of cited journal titles
- Performing searches for individual journal titles in all 8 databases to compare depth of coverage and current indexing; this will also verify information gathered from Ulrich's (some of Ulrich's data is incomplete and dated)

## Questions? Contact:



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