

Multidisciplinary Databases Outperform Specialized and Comprehensive Databases for Agricultural Literature Coverage

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Evidence Summary

Multidisciplinary Databases Outperform Specialized and Comprehensive Databases for Agricultural Literature Coverage

A Review of:

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Abstract

Objective – To determine the most comprehensive database(s) for agricultural literature searching.

Design – Data collection and analysis was conducted using a modified version of the bibliography method, overlap analysis, chi square tests, and data visualization methods.

Setting – An academic library in the U.S.

Subjects – Eight commonly used bibliographic databases, including comprehensive agricultural indexes (AGRICOLA, AGRIS, and

CAB Abstracts), specialized databases (BIOSIS Previews and FSTA), and multidisciplinary databases (Google Scholar, Scopus, and Web of Science).

Methods – The researchers selected three review articles that represented sub-topics within the field of agriculture. Sources listed in the bibliographies of the three review articles were used to build a bibliographic citation set for analysis.

Using a modified version of the bibliography method, 90 citations were randomly selected from the above-mentioned citation set. Researchers then turned to the 8 selected

databases and searched for all 90 citations in each platform. Search queries were crafted in two ways: unique title strings in quotation marks and combinations of terms entered into the “title”, “keyword”, “journal source”, and “author” fields. Citations were considered to be covered in a database if the full bibliographic record was located using the above-mentioned search strategy.

Next, chi square tests were used to evaluate if the expected number of citations from the sample group were found in each database or if the frequency differed between the eight databases. The overlap analysis method provided numerical representation of the degree of similarity and difference across the eight databases. Finally, data visualizations created in Excel and Gephi enhanced comparisons between the eight databases and highlighted differences that were not obvious based solely on the analysis of numerical data.

Main Results – Researchers found that comprehensive databases (AGRICOLA, AGRIS, and CAB Abstracts) were not in fact comprehensive in their coverage of agricultural literature. However, the results suggested that CAB Abstracts was more comprehensive than AGRICOLA or AGRIS, particularly in regard to its coverage of the sub-topics “agronomy” and “meat sciences”. However, coverage of the sub-topic “sustainable diets” lagged behind multidisciplinary databases, which may be explained by the fact that the topic is interdisciplinary in nature. The superior coverage of CAB Abstracts over other comprehensive databases is consistent with findings reported by Kawasaki (2004).

The analysis of specialized databases (BIOSIS Previews and FSTA) suggested that citations within the scope of the database were covered very well, while those out of scope were not. For instance, the sub-topics “sustainable diets” and “meat science” are out of scope of the biological sciences and thus, were not well covered in BIOSIS.

The multidisciplinary databases (Google Scholar, Scopus and Web of Science) provided

the most comprehensive coverage agricultural literature. All three databases covered most citations included in the data set. However, researchers noted that all three databases provided weak coverage of trade published items, books, or older journals.

Conclusion – The study found that multidisciplinary databases provide close to full coverage of agricultural literature. In addition, they provide the best access to content that is interdisciplinary in nature. Specialized and comprehensive databases are recommended when research topics are within the scope of the database. Also, they best support in-depth projects such as bibliographies or comprehensive review articles.

Commentary

In the current information landscape, academic librarians are called upon to find innovative ways to do more with less. It is essential that librarians understand the value of information resources and how they support research and learning activities.

The paper under review discusses a sustainable methodology that academic librarians can utilize to analyze database content. Specifically, it provides an effective strategy to identify areas of information coverage and overlap, determine the strengths and limitations of database content, and promote discovery of literature in a specific field of study. At the same time, the methodology allows for the standardized comparison of databases, which feeds into the notion of evidence-based collection development. The results of the comparison can easily provide a baseline for future evaluations that inform decisions regarding the renewal or cancellation of information products. The results also build on a previous study by Kawasaki (2004) and provide insight into how the information landscape in the field of agriculture has evolved over the past 15 years.

The reviewer evaluated the paper using the “Evaluation Tool for Bibliometric Studies”

(Perryman, 2009). The strength of the piece is in its clarity of language, organization, and detailed descriptions of the methodology and data analysis activities. The discussions of how citations were collected, the strengths and limitations of statistical data, and the ways that data visualization tools fill knowledge gaps present in numerical data provide a roadmap for other information professionals wishing to examine content coverage. The researchers also demonstrate how study findings enhance knowledge of the collection. For instance, it was determined that because of the broad content coverage in multidisciplinary databases, many researchers do not require specialized or comprehensive databases to complete projects; these sources are better suited to in-depth topics that are well within the scope of the databases' subject focus.

One limitation of the paper is its focus on numerical data. It would have been interesting to learn if researchers primarily use multidisciplinary databases because of the extensive content coverage or whether they prefer to use specialized or comprehensive databases due to their focus on specific subject areas. Essentially, a discussion of this nature would have provided insight into whether library users value databases because of their content coverage or if there are other factors involved, such as the functionality of a database. However, the researchers do acknowledge this limitation and state that there is value in conducting a future study that examines how library users search for content in databases.

Overall, the researchers present a strong study that provides value to academic librarians working in the area of collection development. The paper presents a low-cost and sustainable methodology that promotes standardized database evaluations at institutions. It would be interesting to read future studies about how this methodology supports evidence-based collection development decisions at other institutions.

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