

ical school and valued as scholarly output.

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Google Scholar. Google, 1600 Amphitheatre Parkway, Mountain View, CA 94043; cost: free; <https://scholar.google.com>.

Scopus. Elsevier, 1600 John F. Kennedy Boulevard, Suite 1800, Philadelphia, PA 19103-2398; contact publisher for quote; <https://www.elsevier.com/solutions/scopus>.

GOOGLE SCHOLAR AND SCOPUS FOR FINDING GRAY LITERATURE PUBLICATIONS

Some authors have suggested that it is challenging to give a conclusive definition of what constitutes gray literature, but gray literature is defined as “Information produced on all levels of government, academia, business and industry in electronic and print formats not controlled by commercial publishing, i.e., where publishing is not the primary activity of the producing body” [1]. Main publishers of gray literature include research institutions, universities, international, national and local authorities, and industrial firms. Types of gray literature include dissertations, conference proceedings and papers, and technical or research reports [2].

Gray literature, and conference papers in particular, are an essential source for emerging approaches to new medical interventions. Often, conference papers might be the only source of information for new drugs and medical interventions and the only source of preliminary findings from clinical trials. The Cochrane Handbook of Searching notes that reviewers should include information from unpublished studies, and the failure to identify trials noted in conference proceedings and other sources of gray literature might affect the results of a systematic

review [3]. As a result, conference papers provide an essential contribution to the evidence base, especially for systematic reviews; however, it can be challenging to locate gray literature sources, including conference papers and guidelines. Most databases such as MEDLINE do not index gray literature publications, guidelines, or best practices that are not published in the journal literature. Also, databases might only index conference papers when the complete proceedings have been published as part of a journal. Even when the proceedings are published in an issue of a journal, the indexing for individual abstracts of papers may be severely limited. Both Google Scholar and Scopus, however, index a variety of types of gray literature. This review discusses the search functionality and search options in both tools for finding gray literature publications, with a focus on conference papers.

Google Scholar

Google Scholar is a freely available search engine that searches across a wide range of academic sources. Recent estimates of Google Scholar’s content have found that it indexes over 160 million items, including journal articles, book chapters, dissertations, and conference papers [4]; however, Google Scholar’s website does not provide any information regarding the number of conference papers included in the academic search engine [5]. Google Scholar is often cited as a source for gray literature, especially in the search methodology for systematic reviews and in library research guides on gray literature.

Search strategy	Results retrieved
Google Scholar	
Panobinostat conference paper	“About” 5,480 results
Panobinostat ASCO Annual Meeting	“About” 848 results
Phase I/II study of the combination of panobinostat (PAN) and carfilzomib (CFZ) in patients (pts) with relapsed or relapsed/refractory multiple myeloma (MM)	1 result
Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescent	“About” 17, 700 results
Scopus	
Panobinostat (in the article title, abstract, keywords)	36 results when limited to conference paper
Panobinostat (in ARTICLE TITLE, ABSTRACT, KEYWORDS) and ASCO Annual Meeting (in ARTICLE TITLE, ABSTRACT, KEYWORDS)	3 results (1 from 2010); no results when limited to 2015–2016
Phase I/II study of the combination of panobinostat (PAN) and carfilzomib (CFZ) in patients (pts) with relapsed or relapsed/refractory multiple myeloma (in Article Title)	0 results
Guidelines for the Use of Antiretroviral Agents in HIV 1 Infected Adults and Adolescent	0 results

Table 1
Search strategies and results

Scopus

According to Elsevier, the database’s publisher, Scopus is the largest multidisciplinary abstract and citation database of peer-reviewed literature, indexing more than 21,000 peer-reviewed journals and 6.8 million conference papers from over 83,000 worldwide events [6].

Sample searches

Two searches were conducted for this review, both designed to determine how effective Google Scholar and Scopus are at locating recent gray literature sources. The first search included variations on a search for conference papers on the topic of the drug panobinostat, which received Food and Drug Administration (FDA)-accelerated approval for the treatment of multiple myeloma in February 2015 [7]. The second search was to locate the evidence-based practice document, “Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents,” updated in April 2015 [8]. These searches and their results are summarized in Table 1.

Discussion and conclusion

Neither Google Scholar nor Scopus were efficient search tools for locating the sample searches on recent conference papers on panobinostat or the recently updated guidelines from the US Department of Health and Human Services. Google Scholar has a slight advantage over Scopus because it is available at no cost, has superior search sensitivity, and retrieves far more search hits. However, Google Scholar also has many limitations: as mentioned earlier, Google Scholar does not provide any information to users regarding the number of conference papers that are available in the search engine. Another major drawback is that depending on which search option is selected, the end number of search results fluctuates greatly. For example, when I searched for conference papers related to panobinostat, Google Scholar retrieved different results with the Advanced Search option than with the basic search. Also, when I performed the search, it was unclear from the results which items were conference papers, and when I limited the results to 2015–2016, I netted zero hits for conference papers. Yet when I added “ASCO Annual Meeting”

to the search, I was able to find two results for papers presented at the 2015 ASCO meeting.

Google Scholar has other drawbacks: you cannot limit a search to specific document types or quickly determine the content of the search results. Additionally, when I tried to search for a specific conference paper, “Phase I/II Study of the Combination of Panobinostat (PAN) and Carfilzomib (CFZ) in Patients (pts) with Relapsed or Relapsed/Refractory Multiple Myeloma (MM)” that was presented at the 2015 ASCO meeting, the search hit was not the paper from the ASCO meeting but a poster with the same title from another conference by the same author. Because of these limitations, it is very arduous to determine if you have executed a search strategy that meets a set search criteria. Google Scholar’s lack of search functionality would be very limiting for conducting a search for a systematic review, because it would be very challenging to write up a detailed search methodology that someone else could re-execute. Google Scholar also cannot be relied on to capture other gray literature search publications, such as guidelines published by governmental agencies.

Scopus did not retrieve as many search hits as Google Scholar; however, search strategies in Scopus can be executed quickly, especially a search strategy for identifying conference papers. Also, since the fields can be searched by predefined limits rather than only free-text search terms, it is easier to evaluate the exact result set of a search. Unlike Google Scholar, search results are static and do not fluctuate depending on which display options that a user selects. As a result, it is easy to design a set search criteria and write up a detailed search methodology.

Google Scholar and Scopus are not ideal information sources for identifying recent conference papers or other gray literature publications; however, Google Scholar could be a notable free search engine for locating conference papers and government-issued health guidelines if more relevant content was included. Unfortunately, the test search examples in the review do not provide much evidence that Google Scholar is a dependable search tool for locating current gray literature, at least not recent conference papers or newly updated governmental guidelines.

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Bloomfire. Bloomfire, 1717 West Sixth Street, #100, Austin, TX 78703; info@bloomfire.com; <https://bloomfire.com>; \$12 per user a month or \$17 for an enterprise version, free for organizations with nonprofit status (universities should check with the company to see if they qualify).

Yammer. Yammer, 410 Townsend Street, San Francisco, CA; <https://www.yammer.com>; Yammer stand-alone cost approximately \$3 per user.

SharePoint. Microsoft, 320 Westlake Avenue North, Seattle, WA; <https://www.microsoft.com>; contact vendor for pricing.

COMPARATIVE REVIEW OF ENTERPRISE SOCIAL NETWORKING PLATFORMS

In the last few years, social media has rewired the way we connect to people and information. We no longer simply rely on social media to communicate with others in our personal lives; it is now frequently integrated into work life through company or organization accounts. The next direction in social media is workplace integration of social collaboration, communication, and knowledge exchange. These platforms are known as enterprise social networks (ESNs).

This review discusses the features of several ESNs used to increase collaboration, organize knowledge, manage projects, and share expertise. As a member of the Informatics and Technology Team for the National Center for Child Traumatic Stress, I took part in evaluating some of these platforms. Our task was to connect a network of approximately 5,000 faculty experts, mental health professionals, and child welfare professionals across the United States