

Google -- an engine of knowledge creation?

November 26 2010

Search engines like Google have become part of everyday life, not least in the academic context. But if knowledge is power, then search engines themselves are gaining ground as power nodes in their own right.

Academic users need to raise their awareness of exactly how search engines operate, to ensure it is quality and not just popularity that drive their selection of sources. This is according to an article out today in the *International Journal of Cultural Studies*, published by SAGE.

José van Dijck of the University of Amsterdam, The Netherlands argues that search engines in general, and Google Scholar in particular, have become significant co-producers of academic knowledge, rather than neutral tools. Google Scholar is a service claims to search diverse sources from one convenient place, to find information in a range of formats (articles, theses, books, abstracts or court opinions) and help to locate these through a library or online.

To date, little empirical or ethnographic research is available on how students actually go about open searches. But surveys do prove that students performing topic searches for scholarly papers overwhelmingly choose search engines, rather than library-based research discovery networks, as their preferred starting-point. Many students view library services as an 'add-on' to Google Scholar, rather than the other way around.

One of the key points about search engines' ranking and profiling systems, according to van Dijck, is that these are not open to the same rules as traditional library scholarship methods in the public domain.

"Automated search systems developed by commercial Internet giants like Google tap into public values scaffolding the library system and yet, when looking beneath this surface, core values such as transparency and openness are hard to find," she explains.

Inexperienced users tend to trust proprietary engines as neutral knowledge mediators, he argues. In fact engine operators use meta-data to interpret collective profiles of groups of searchers. At first sight, Google Scholar adopts one of the basic academic values—citation analysis—by using algorithmic web spiders to create indexes to a vast web of academic materials.

Like its parent engine, Google Scholar functions as a ranking system based on semantic links to a vast reservoir of sources that through their provenance might be considered academically sound. However, Google Scholar's algorithm works on the basis of quantitative citation analysis. Scholars differ in that they rank citations according to their relative status and weight in their specific professional disciplines.

Ranking information through Google Scholar is quite similar to a Google Search: it ranks sources on the basis of [popularity](#) rather than truth-value or relevance. Articles with more links to them will beat higher quality research that is not picked up by the Google Scholar algorithm. This issue is further complicated because certain institutions refuse access to their databases. Google will not reveal a full list of databases it does cover, or the frequency of its updates to indicate a timescale. Users are left in the dark about the search's scope and timeliness.

Van Dijck's scrutiny of the construction of academic knowledge through the coded dynamics of the [search engine](#) draw on sociologist Bruno Latour's actor network theory, and further work by Manuel Castells. In actor network theory, that search engines are not simply objects, but are part of a human-technology networks involved in knowledge production.

Castells suggests 'unwiring' network activity to look more closely at the complex power relationships of digital networks, before mindfully rewiring it.

Van Dijck calls for enriched information literacy incorporating a basic understanding of the economic, political and socio-cultural dimensions of search engines. "Without a basic understanding of network architecture, the dynamics of network connections and their intersections, it is hard to grasp the social, legal, cultural and economic implications of search engines," she says.

If [Google](#) has become the central nervous system in the production of knowledge, we need to know as much as possible about its wiring.

"To ensure future generations of critical and knowledgeable scholars, we need to teach information literacy enriched with analytical skills and critical judgement. The production of scientific [knowledge](#) is way too important to leave to companies and intelligent machines," van Dijck concludes.

More information: Search engines and the production of academic knowledge by José van Dijck is published today, 26th November 2010, in the *International Journal of Cultural Studies*.

Provided by SAGE Publications

Citation: Google -- an engine of knowledge creation? (2010, November 26) retrieved 24 April 2024 from <https://phys.org/news/2010-11-google-knowledge-creation.html>

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