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Guest Editorial

From epistemic origins to journal impact factors: what do citations tell us?

In the article by Beckstead and Beckstead in this issue (Beckstead and Beckstead, 2005) one approach to the mapping of a discipline and its influences is discussed. Multi-dimensional scaling (MDS) is used to position nursing theorists in relation to their use, as expressed in their citations, of psychology (particularly personality psychologists), biology and systems theory, and existential philosophy. This approach, using citations to other papers as the raw primary data for further analysis is quantitative research of the literature, known as bibliometrics or scientometrics.

Most authors' interest in this topic emerges when they check up the citation indexes to see whether anyone has cited their papers, or whether the journal they intend to target for their next submission has a suitably high impact factor. Why people cite other people and particular publications is a matter of some interest, and frequently some puzzlement and annoyance to researchers. As is well known to academic teachers, and researchers, everything that has been read is not necessarily cited, and everything that is cited may not have been read. A few key references may always be expected, and in academic publishing, success breeds success, as it does in many other areas of human endeavour, and the lucky few, the opinion leaders may be cited more regularly than other equally well deserving authors. Perhaps the more careful approach to the synthesis of the research evidence practised for the Cochrane Reviews will mean that the less obvious, but still high quality research will be cited more often. However, most reviewers may still restrict their searching to MEDLINE and English language publications. It is an unfair world, but, even with these drawbacks, scientometrics has emerged as a specialist research area, with a journal of the same name devoted to it.

Bibliometrics, emerged from the very practical problems of libraries dealing with a burgeoning scientific literature in the 1950s (Meadows 2005). How could they decide which parts of journal runs could safely be put into store, or be discarded, without annoying their customers? Journal obsolescence was a key consideration. Another question concerned subscription decisions. Which journals were the core journals for a disciplinary area and which were less important? And was the subscription cost justified? Could a cost per use be calculated? Although the storage problems have been alleviated with the introduction of electronic journals, libraries are still faced with decisions about the worth of particular 'bundles' of journals from publishers. Publishers, equally, watch the citation rankings to estimate what they might charge for their offerings and which authors are worth cultivating, (Rowlands 2005).

Getting a high impact factor, which is based upon numbers of citations to papers, is important. The user needs analysis done for the *Informing Healthcare* project in Wales confirmed the dominance of the publishers Elsevier and Lippincott, Williams & Wilkins in the journals of interest to nursing and allied health sector. The situation for medicine is similar. Although clinicians may avow devotion to their learned societies as publishers, their actual measures of esteem favoured the expensive publishers (Morley and Urquhart 2004). Perhaps the development of open access publishing will change things, and it was interesting in the user needs analysis work to

note the emergence of an open access journal published by BMC in one of subject categories we studied.

Within the field of nursing, Beckstead and Beckstead (Beckstead and Beckstead, 2005) cite other studies using MDS, but there have been several other studies that have mapped the clinical discipline using other bibliometric techniques. Dornik, Vidmar and Zumer, for example, used bibliometric techniques to assess whether changes in nursing education in Slovenia had an impact on the quantity and quality of publications in the Journal of the Slovenian Nurses Association (Dornik et al 2005). Estabrooks, Winther and Derksen used a statistical analysis of publication counts, co-word analysis, and co-citation analysis to examine the nature of the nursing literature on the use of research to guide practice (Estabrooks et al 2004). Multivariate statistical techniques (correspondence analysis and cluster analysis) were used in a bibliometric study by Bordons, Bravo and Barrigón of the literature on aspirin that described how the research trends had changed over a 37-year period (Bordons et al 2004).

If that sounds a little esoteric, remember that Amazon uses similar techniques (but called collaborative filtering) to suggest other titles that you might like to buy and PubMed uses bibliometric techniques for that 'related articles' search option. That list of references attached to a journal article, or the assigned keywords, may have more applications than you may have ever imagined!

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