The most highly cited 
Library and Information Science articles: 
Interdisciplinarity, first authors and citation patterns

JONATHAN M. LEVITT, MIKE THELWALL

School of Computing and Information Technology, University of Wolverhampton, 
Wulfruna Street, Wolverhampton WV1 1SB, UK

Highly cited articles are interesting because of the potential association between high citation counts and high quality research. This study investigates the 82 most highly cited Information Science and Library Science (IS&LS) articles (the top 0.1%) in the Web of Science from the perspectives of disciplinarity, annual citation patterns, and first author citation profiles. First, the relative frequency of these 82 articles was much lower for articles solely in IS&LS than for those in IS&LS and at least one other subject, suggesting that the promotion of interdisciplinary research in IS&LS may be conducive to improving research quality. Second, two thirds of the first authors had an h-index in IS&LS of less than eight, showing that much significant research is produced by researchers without a high overall IS&LS research productivity. Third, there is a moderate correlation (0.46) between citation ranking and the number of years between peak year and year of publication. This indicates that high quality ideas and methods in IS&LS often are deployed many years after being published.

Introduction

This study identifies the most highly cited 0.01% of the 82,409 articles in the Web of Science (WoS) subject category of ‘Information Science & Library Science’ (IS&LS) published prior to 2007. These 82 articles, listed in Table 6 of the Appendix,
are used to investigate characteristics of both the highly cited articles and their first authors. The rationale for investigating highly cited articles is that high citation is associated with research quality and consequently, findings on highly cited articles could increase understanding of the quality of research.

This study examines disciplinarity, first authors and citation patterns. One investigation of disciplinarity focuses on the link between multi-disciplinarity and high citation. A reason for examining this topic is that if multi-disciplinary research is cited on average significantly more often than research in a single discipline, it may be worthwhile encouraging multi-disciplinary research. The investigation of first authors examines the citation profiles of the first authors of the highest cited articles. Such profiles provide information that can be used to help identify and target resources to those who are more likely to produce highly cited research. The investigation of citation patterns examines the prevalence of late citation amongst the 82 articles. If citation is an indication of research influence, then citation patterns indicate how this influence has changed over time.

Previous research has addressed the issue of interdisciplinarity in IS&LS research. RICE & CRAWFORD [1992] identified some possible areas of convergence between the fields of communication and library and information science. MEYER & SPENCER [1996] found that library science articles were cited in computer science, medicine, psychology, the social sciences, and general sciences. TANG [2004A] found that Information and Library Science “attracts a significant wide spectrum of disciplines from the domains of science, social science, and the humanities, and that the kinds of disciplines interested in the field vary by year.” Other research on disciplinarity and Information and Library Science include CARLIN [2003] and TANG [2004B]. Whilst these articles point to considerable disciplinary overlaps between Information and Library Science and other disciplines, they do not examine this disciplinary overlap for highly cited articles. This current study quantifies the disciplinary overlap for a collection of highly cited articles, and compares these overlaps with the complete set of articles classified as IS&LS.

In terms of citation profiles, CRONIN & MEHO [2007] examined the patterns of creative output of renowned information scientists and CRONIN & MEHO (2006) and OPPENHEIM [2007] evaluated the h-indexes of influential information scientists. The h-index is defined as the largest number (h) of documents that are cited h or more times [HIRSCH, 2005]. Several studies, including HIRSCH [2005], BATISTA & AL. [2006], BRAUN & AL. [2006] and VAN RAAN [2006], also use the h-index in various informetric investigations. Whilst previous research has focused on notable researchers in information science it has not examined the citation profiles of the first authors of the most highly cited IS&LS articles. The current study examines this aspect with a view to identifying whether all the first authors have high h-indexes in IS&LS.