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Changes in Rank Lists of Serials Over Time: Interlending versus Citation Data

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The British Library Lending Division carried out three major surveys of its lending patterns in 1975, 1980, and 1983. The rank list of serials requested for loan showed considerable variation over time. There was also low overlap in the top titles requested. A comparison was made of these rankings with the rankings from Journal Citation Reports (JCR) *produced by the Institute for Scientific Information. The* JCR *rankings had a high degree of overlap, 95 percent for the top 100 in* Science Citation Index, *while the Lending Division had only a 57 percent overlap. The reasons for this variation are discussed.*

Three major surveys carried out by the British Library Lending Division in 1975, 1980, and 1983[1,2,3] produced rank lists of serials in order of demand. Comparisons of these rank lists showed very considerable changes over time, suggesting that it might be dangerous to rely unduly on a rank list relating to one year. Changes in the precise rank order would be expected; what was unexpected was the low overlap in the top titles requested.

For interest, a similar comparison was made between the rank lists produced by the Institute for Scientific Information and

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published annually as *Journal Citation Reports (JCR)*—a volume of the annual *Science Citation Index (SCI)* and *Social Science Citation Index (SSCI)*. The results are given in table 1. Nineteen eighty-three data were not available for either *SCI* or *SSCI*, and *SSCI* data were not available for years earlier than 1977; the nearest approximations were therefore used for comparison.

The differences are striking. At the most extreme, there was 95 percent overlap in *SCI*'s top one hundred in 1979 and in 1982, compared with only 57 percent in the Lending Division's top one hundred in 1980 and 1983. At the least extreme, there was a 78 percent overlap in *SSCI*'s top two hundred in 1977 and in 1982, compared with 56 percent in the Lending Division's top two hundred in 1975 and in 1980. The high overlap in the ISI lists is remarkable, since, as Urquhart pointed out, there are good statistical reasons for expecting substantial change.[4]

What are the reasons for these large differences between Lending Division and ISI data? The absence of humanities titles from *JCR* will not have had any effect, because there are very few humanities serials among the titles most requested from the Lending Division. One obvious explanation is sampling error, which would apply to the Lending Division data but not to ISI's, which are compiled from a whole population of citations. A considerable difference in the precise rank order in the Lending Division lists would be expected. However, the actual *numbers* of requests for the most used serials in the Lending Division samples are large, and sampling error alone is very unlikely to account for the much smaller overlap, especially as both comparisons (1975–80 and 1980–83) yield similar results.

Another explanation, which is likely to be nearer the truth, is that interlibrary loan (ILL) demand is subject to much more fluctuation than citations in journals; it is affected by local finances—for example, budgetary restrictions may favour more ILL demand because acquisitions are reduced, or less because economies may be sought in interlibrary borrowing. The relative volume of demand made by academic and industrial libraries may change substantially (there was in fact a shift towards industrial library use between 1980 and 1983, though it was not very large and is unlikely to have had more than a small effect on the rank order). Interests change: journals in the life sciences and related subjects and in electronic technology rose up the lists between 1975 and 1983 at the expense of such subjects as pure chemistry and physics. This is a known element in the differences between Lending Division lists, but one might expect it also to apply to the ISI lists, if one dismisses the possibility that interests in the U.K. (from which about three-quarters of serial demand on the Lending Division comes) change more quickly than interests in the world at large, the U.S. in particular.

However, one major difference between citations and ILL demands is that citations

TABLE 1

SIMILARITY OF RANK LISTS OF SERIALS AT THREE-YEAR AND FIVE-YEAR INTERVALS: ILL DATA VERSUS CITATION DATA

	% of Titles Common to Both Lists					
	Ill Data		Citation Data			
	Serials Requested from Lending Division		Science Citation Index		Social Science Citation Index	
Top x titles on lists	1975/1980 (5 years)	1980/1983 (3 years)	1975/1980 (5 years)	1979/1982 (3 years)	1977/1982 (5 years)	1979/1982 (3 years)
100	60	57	88	95	83	88
200	56	62	83	93	78	84
300	54	61	86	93	81	87
400	56	62	88	91	79	88
500	56	61	87	92	80	87
1,000	56	60	83			

To be read as follows: Of the top 100 titles in the 1975 and 1980 ILL rank lists, 60 percent were common to both; of the top 300 titles in the 1979 and 1982 SCI rank lists, 93 percent were common to both.

are made mainly by authors in academic institutions, whereas ILL demands for serials come about equally from academic institutions and from industrial and commercial organizations (in fact, both categories accounted for 35 percent of demand for serials in another survey carried out in 1983 at the Lending Division). Possibly academic requests show more stability than other ILL requests: the data collected by the Lending Division did not include information on requesting organizations, so it is not possible to test this hypothesis. The upsurge of interest in biotechnology, bioengineering, other life science–related subjects, and electronic technology would be reflected more rapidly in industry than in academic institutions, where relatively little staff movement would have occurred over a short period and where the existing staff would presumably have continued to write and cite as before, whether they are physicists or biochemists. There are other reasons why citation rank lists might show more stability. Serials cited most are likely to be more "academic" in nature, and these may constitute a more stable population than serials aimed at the industrial market. Self-citation (by serials and authors) would favour stability, as would the fact that some works are cited repeatedly, not necessarily because they are used very heavily but because they are standard papers that must be cited or because they are 'lifted' from bibliographies in other articles. These factors would not only help to explain the differences between the ISI rank list comparisons and the Lending Division comparisons, but they would mean that citations, while they might reflect tolerably well the use being made of academic libraries as a whole (not in individual libraries, where local factors are likely to be influential), are a poor indicator of *total* serial uses.

It may well be that the instability of the Lending Division rank lists is a little 'unreal,' in the sense that a longer survey period or a much larger sample would reduce the differences. The stability of the ISI rank lists is likely to bear much less relation to reality, in that citations are much more stable than actual uses. Whatever the reasons for the differences described, they are a matter of some practical interest. A national core collection of serials designed to serve academic institutions might be identified, with more confidence that it would be reasonably stable over a period of time than a collection aiming to serve all types of organizations, let alone one designed to serve mainly industry. More research into this matter is desirable.

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