



Crossing Disciplinary Boundaries

A Epilegomenon for Lockett and McWilliams

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Although applauding the application of bibliometric techniques to an analysis of the management literature, this author presents an alternative interpretation to A. Lockett and A. McWilliams's (2005) conclusion that, in general, the citation patterns of selected management journals compare "unfavorably" with a set of "core" journals from economics, psychology, and sociology. In doing so, the author discusses methodological and theoretical issues related to assessing the management discipline's influence on science as a whole.

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In reading Lockett and McWilliams's (2005) essay, I was immediately reminded of the time-worn classroom perception exercise that asks, "Is the glass half-full or half-empty?" Upon reflecting on Lockett and McWilliams's findings, I suggest that the correct answer to this riddle, given their data, is "Neither." Indeed, it strikes me that Lockett and McWilliams's analysis represents a case in which the glass is neither half-full nor half-empty but a case of the glass being the wrong size. Whereas Lockett and McWilliams conclude that, in general, the citation patterns of the management journals in their sample compare "unfavorably" with a set of "core" journals from economics, sociology, and psychology, I perceive a mirror-image reality and, consequently, question the

appropriateness of the so-called glass they chose for their analysis (i.e., their methodology), as well as the logic of their reasoning (i.e., their theoretical lens). After briefly summarizing what I understand to be Lockett and McWilliams's major findings, I comment on each of these issues. My purpose is to critique and complement their work, believing that the scientific knowledge base grows as much from extension as it does from original contributions (cf., Hyman, 1995, p. 179). In doing so, I applaud Lockett and McWilliams's application of bibliometric techniques to an analysis of the management literature and their contribution to our understanding of how disciplines are linked to one another.

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BRIEF OVERVIEW

In brief, Lockett and McWilliams employed a number of measures derived from information theory to examine cross-references within six management journals and a set of eighteen journals selected from three other social sciences (*viz.*, economics, psychology, and sociology). Their purpose in doing so was to determine the extent to which the management discipline influences and is influenced by these cognate sciences, or, in their own words, “whether management creates and exports knowledge to a broader academic community” (p. 140). The implied rationale underlying their analysis is that each of the 24 journals from which bibliographical citations were collected belongs to an information network and is a communication unit that participates in the dissemination of knowledge. Within this framework, as Xhignesse and Osgood (1967) explain

A journal is a *receiver* of information to the extent that the authors of the articles it contains cite articles published by other journals in the network. Reciprocally, a journal is a *source* of information to the extent that its articles are cited as bibliographical references in other journals. (p. 778)

Using data gleaned from the Social Science Citation Index (SSCI) for the years 1997 to 2001, Lockett and McWilliams created citation counts for each of the 24 topical journals. (See www.isinet.com/products/s/ for information on the SSCI.) Using this data, they created a cross-citation matrix whose individual elements p_{ij} give the percentage of references in a discipline i that were directed to discipline j and the percentage of citations discipline j received from discipline i . Thus, Lockett and McWilliams’s Table 3 may be thought of as an input-output matrix, with each discipline giving out references and receiving citations. As construed by Lockett and McWilliams, a discipline is said to have a favorable “balance of trade” if it receives more references than it gives out. Lockett and McWilliams interpret their data to indicate that, in general, the citation patterns of the six management journals examined compare unfavorably with a set of core journals from economics, psychology, and sociology. Among their more specific findings is that economics is the most isolated among these disciplines, as it imports the smallest percentage of citations (1.96%). By contrast, they report that management, which imports 28.63% of its citations, “is most keen to look outside of its own discipline for knowledge” (p. 144).

In between these extremes reside psychology and sociology, which import 9.48% and 17.78%, respectively, of their citations from the other disciplines examined.

These findings, together with the general belief that management is running a “sustained deficit” with respect to the trade in knowledge, concern Lockett and McWilliams. They fear that these data suggest an inability on the part of the management discipline to influence knowledge development in other scientific fields. In conclusion, Lockett and McWilliams offer two possible explanations for their findings and two suggestions for remedying what they perceive to be a dangerous imbalance of trade. As one possible explanation, Lockett and McWilliams contend that management is immature as a social science and, thus, may be less able to export knowledge as it lacks “first-mover advantages.” As a second explanation, Lockett and McWilliams contend that management’s inability to influence other social sciences may be a result of its applied focus. For remedies, Lockett and McWilliams suggest that management journal editors (a) commission reviews from referees in neighboring disciplines so as to expose them (the referees) to the management literature and (b) select manuscripts for publication based on their “potential contribution” to the management discipline and their “likelihood of citation” by other social sciences.

HALF-EMPTY OR HALF-FULL, OR A CASE OF THE WRONG-SIZE GLASS?

As stated, my purpose is to critique and extend Lockett and McWilliams’s work. Under any circumstances, I believe it is appropriate that research results be revisited if more than one interpretation is plausible. Accordingly, in the comments that follow, I contend that, on methodological and theoretical grounds, there is an alternative (reverse) interpretation for Lockett and McWilliams’s results.

Methodological Issues

In opening, I confess to difficulty in understanding the flow of information on which Lockett and McWilliams base their findings. The balance of trade metric used to construct their citation matrix is derived from the following calculation: (citations received 1997 to 2001)/(citations sent 1997 to 2001). Whereas the math involved in this calculation is clear,

Lockett and McWilliams do not fully define the time frames in question. For example, although they count the citations received by a discipline 1997 to 2001, what years were used as the citing years? Is 2002 included, 2003, 2004? Similarly, for the citations sent by a discipline 1997 to 2001, were citations issued to articles published prior to 1997 counted or just those published 1997 to 2001? Because of the nature of publication cycles, the articles issuing the references being counted will typically not have been published in the same time frame as those receiving the citations. Consequently, any conclusions drawn from a citation matrix must examine an ongoing flow of references across chronologically sequential time periods. For this reason, if not others, the time frame for a citation matrix must be clearly articulated so that bibliometric indicators such as the degree of a discipline's self-referencing, the extent to which a discipline cites within its own literature or outside, and whether a discipline is a source of more information than it receives can be correctly interpreted. In fact, it has been shown that dramatic changes in bibliometric indicators may occur simply by changing the time frame of measurement (Amin & Mabe, 2000).

A question that is common to all journal-based analyses is "How fairly does a journal or set of journals actually represent a discipline such a management or economics or psychology or sociology?" Lockett and McWilliams exercised a measure of judgment in selecting and grouping journals to be representative of the disciplines they examined. Without engaging in an extended treatise, two observations on Lockett and McWilliams's selections will perhaps suffice in making a key point. First, the SSCI does classify *Administrative Science Quarterly* (ASQ) as a management journal. By including it among the core management journals they examined, Lockett and McWilliams may have thus inadvertently confounded their findings. In Allen's (2003) list of "core influence" journals in sociology, ASQ is ranked the fourth most influential; that is, in a comparison to articles published in the 90 sociology journals Allen examined, those in ASQ are the fourth most likely to be cited in the discipline's 3 core journals: *American Sociological Review*, *American Journal of Sociology*, and *Social Forces*. This suggests, as Allen noted, ASQ is more accurately categorized as a multi-disciplinary journal. In fact, the ASQ Web site declares that in publishing "papers from a number of disciplines, including organizational behavior and theory, sociology, psychology and social psychology, strategic management, economics, public

administration, and industrial relations" it "transcends the bounds of particular disciplines to speak to a broad audience" (<http://www.johnson.cornell.edu/publications/asq/description.html>).

Second, in contrast, *Discourse & Society* (DS), which Lockett and McWilliams categorize as an applied sociology journal, is not among the 90 journals in the Allen ranking. Rather than being simply a sociology journal, DS bills itself as "a multidisciplinary journal whose major aim is to publish outstanding research at the boundaries of discourse analysis and the social sciences" (www.discourse-in-society.org/aims-das.htm). It is thus, perhaps, not surprising, that it has *Journal Citation Reports* (JCR) rankings for 2003 of 6/44 in communication, 48/101 in psychology (multidisciplinary), and 28/93 in sociology (see www.isinet.com/products/j/ for information on the JCR). Carpenter and Narin (1973) observed that

The process used to divide sets of journals into subject areas has two underlying assumptions: first, that journals which deal with the same subject area will have similar journal referencing patterns; and second, that journals which deal with the same subject area will refer to each other. (p. 426)

The extent to which either assumption is violated makes it doubtful that valid conclusions can be drawn from any journal-based analysis.

Finally, it is not evident from Lockett and McWilliams's analysis whether consideration was given to management scholars publishing, for instance, in psychology journals or vice versa. Their analysis identifies neither the authors of articles nor the party doing the citing or being cited. It is, thus, impossible to know whether their findings are due to real discipline effects or the consequence of what might be termed subject "contamination" across journals and disciplines (H. Small, personal communication, July 16, 2004). By way of example, management scholars and psychologists regularly publish (alone and as coauthors) in the very journals Lockett and McWilliams have categorized as belonging to either management (e.g., *Academy of Management Journal*) or psychology (e.g., *Journal of Applied Psychology*). In establishing dichotomous categories, Lockett and McWilliams have effectively camouflaged the cross-fertilization of ideas that occurs across disciplines. Citation patterns at the discipline level may be of some interest; however, only an analysis at the author level is capable of revealing the direction in which ideas are flowing.

Theoretical Issues

Perhaps more to the heart of my reaction to Lockett and McWilliams's article is that we draw an opposite conclusion from the same data. Yes, relatively speaking, management as a discipline may (if one accepts Lockett and McWilliams's methodology) import a larger share of citations from other disciplines than it exports. Rather than seeing this as an indication that management is an immature or more applied discipline, I interpret this finding as underscoring several points that advantage management and, in contrast, disadvantage other social sciences.

Scholars reaching as far back as the classicist Urwick (1971) have recognized that management is an integrating discipline, drawing on all the social sciences. This is not only obvious in the references management researchers cite but also in the composition of management departments and from the membership of professional management associations. In comparison to economics or psychology or sociology departments, management departments and associations are much more accepting of colleagues from other academic backgrounds. This explains, in part, why it is so unusual to see management Ph.D.s with appointments in these other disciplines, but quite common to see psychologists and sociologists (and an occasional economist) teaching in a management department.

Furthermore, when, as a management scholar, I scrutinize the Lockett and McWilliams data, I see three other disciplines that are largely "self-feeders" (Xhignesse & Osgood, 1967, p. 780), with economics being the most cannibalistic among the group. As a discipline, economics is oriented toward itself; the Lockett and McWilliams data suggest it is a self-contained science that risks ossification due to intellectual inbreeding. Such incestuousness may account for what some allege is the parochial nature of the economics literature (reflected in a low level of interdisciplinary knowledge building) as well as an insular pattern of auto-erotic self-referencing (reflected in a high level of intradisciplinary citations; Pieters & Baumgartner, 2002). In striving to avoid such self-dependency, I see the objectives and intended audiences of the management discipline's leading journals (and professional associations) to be admirably diverse. Moreover, in my view, it is another plus for management that its journals are open to multiple information networks, thereby, facilitating the cross-fertilization and synthesis of ideas.

The exact dynamics of how knowledge crosses disciplinary frontiers is only now being understood. Efforts to map the passageways through which various disciplines influence one another are becoming increasingly common. In one such application of relevance to the present discussion, Small (1999), based on an analysis of cocitation links, was able to show how a 1989 *Academy of Management Journal* article by Eisenhardt was part of an information path that began in management and ended in astrophysics, a journey across 331 documents. The path involved research in 18 different fields, including geoscience, materials, chemistry, physics, biomedicine, proteins, and optics. Small's research highlights the unexpected connections that may tie different disciplines together.

To the extent discovery and innovation take place across scientific boundaries, I believe that management—with its multidisciplinary focus—is in an enviable position relative to other less heterogeneous social sciences. Furthermore, in my view, to the degree the management discipline continues to rest on an ecumenical body of knowledge is cause for being optimistic that management scholars will play a sustained role in creatively reaching out and integrating ideas from other disciplines. Thus, as someone interested in the development of science as a whole, I am quite reassured by the management discipline "going afield" to create new knowledge. Whereas I applaud Lockett and McWilliams's effort, I find that the management discipline's cup is neither half-full nor half-empty. In fact, it may runneth over.

REFERENCES

- Allen, M. P. (2003). The "core influence" of journals in sociology revisited. *Footnotes*, 31(9), pp. 7, 10. Retrieved July 20, 2004, from www.asanet.org/footnotes/dec03/fn11.html
- Amin, M., & Mabe, M. I. (2000). Impact factors: Use and abuse. *Perspectives in Publishing* (1). Retrieved July 31, 2004, from www1.elsevier.com/homepage/about/ita/editors/perspectives1.pdf
- Carpenter, M. P., & Narin, F. (1973). Clustering of scientific journals. *Journal of the American Society for Information Science*, 24, 425-436.
- Eisenhardt, K. M. (1989). Making fast strategic decisions in high-velocity environments. *Academy of Management Journal*, 32, 543-576.
- Hyman, R. (1995). How to critique a published article. *Psychological Bulletin*, 118, 178-182.
- Lockett, A., & McWilliams, A. (2005). The balance of trade between disciplines: Do we effectively manage knowledge? *Journal of Management Inquiry*, 14, 139-150.

- Pieters, R., & Baumgartner, H. (2002). Who talks to whom? Intra- and interdisciplinary communication of economics journals. *Journal of Economic Literature*, 40, 483-509.
- Small, H. (1999). A passage through science: Crossing disciplinary boundaries. *Library Trends*, 48, 72-108.
- Urwick, L. F. (1971). Why the so-called "classicists" endure. *Management International Review*, 11, 3-15.
- Xhignesse, L. V., & Osgood, C. E. (1967). Bibliographical citation characteristics of the psychological journal network in 1950 and in 1960. *Psychological Bulletin*, 22, 778-791.

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