



On the role of bibliometrics in the knowledge society: bibliometric quicksand or bibliometrics challenge?

Sur le rôle de la bibliométrie dans la société du savoir : sables mouvants bibliométriques ou défis bibliométriques

Voici une tentative de réponse aux questions suivantes :

Pourquoi les bibliothécaires deviennent-ils sceptiques face à la bibliométrie ? Les raisons du scepticisme proviennent-elles des changements émergeant de l'ère électronique ou existe-t-il des raisons immanentes à cette crise de la bibliométrie qui sont compliquées par ces changements ? Les bibliothèques modernes avancées nécessitent-elles le service et l'assistance de la bibliométrie ? Que doivent faire les bibliométriciens pour survivre professionnellement et rester utiles dans un environnement mouvant ? La bibliométrie est-elle un cours nécessaire pour les écoles de bibliothéconomie ? Comment devrait-elle être enseignée ?

This paper is an attempt to answer to the following questions: *Why do librarians become more sceptical to bibliometrics? Do the reasons of these sceptics refer to the emerging changes of the era of electronic communications or are there some IMMANENT reasons for the crisis of bibliometrics that were just complicated by these changes? Do modern advanced libraries really need bibliometric services and assistance? What are bibliometricians to do to survive professionally and retain their usefulness in the changing environment? Is bibliometrics a necessary subject in the curriculum of a library school? How should it be taught?*

Bibliometrics decay

Nowadays bibliometrics is getting less and less popular. A lot of bibliometricians are on the point of giving up using the very term "bibliometrics" ⁽¹⁾, and it becomes more and more difficult to insert a bibliometric presentation into the program of a good conference in librarianship: the organisers of such conferences invite mostly papers on electronic issues and treat bibliometric topics as negligible.

Such a state of affairs is very understandable because:

1. On-line and CD-ROM rapid access to powerful databases (including the full text ones) gives people the impression that bibliometric assessment of documents is of no more use: this assessment is (really) of a retrospective nature, not very rapid, sometimes very labour-intensive and, therefore,

expensive. As on-line access is really fast, it now seems simpler to undertake a fast interactive retrieval on a variety of remote databases than to investigate any bibliometrically grounded limitations for reasonable sources of the retrieval beforehand. Also, the opportunities of electronic access made a lot of people think that it is now not very useful to have journal collections in situ, while the best thing that bibliometricians could really effectively do for librarians was the development of the lists of necessary scientific journals.

2. Enthusiasts of the "information era" (i.e. electronic documentary communications) again forecast the dying off of the scientific journals (including now the electronic ones, too). The principal scheme of this potential piece of future events is vividly featured in the J.S. Katz's paper entitled "Bibliometric quicksand" ⁽²⁾. Hence, the conclusion given is that the dissemination of "electronic papers" - not synchronised and regulated by a journal format of presentation - will make bibliometricians "definitely standing in the quicksand of change" ⁽³⁾ and, possibly, to perish as "no techniques are available for automatically classifying large numbers of articles" while more articles that are not restricted by journal limitations are expected to appear ⁽²⁾.

Invalid implication ?

Are the "external" reasons for bibliometrics decay (like those featured

above) really based on valid implications? E.g. will scientific journals really die? Since 1948 it has been forecasted plenty of times using, practically, the same essential arguments (except the electronic form of articles dissemination), but the journals are still here. Will the scientists prefer not to publish their works in well-reputed journals and thus lose the privilege of telling their colleagues that "my papers are published in the most cited journal in my field"? Electronic communications ARE mighty, but the ambition of a human being has not been reduced since Adam and Eve... Moreover, will the possibilities of electronic publications really significantly increase the number of papers to be published? As there will be no more limitations in article size it seems more likely that the scientists' ambition will provoke them to publish LONGER papers to take a privilege to say that "my last paper is 60 pages long" (Well, lets say 120 kilobytes). Then, why must we think that the databases accessible directly via WWW or wherever will need no more comparative bibliometric assessment? The more databases that are easily available, the more time one has to spend to pick up the same items from the various databases which are still different in volume, principles of documents selection, prices etc. Why should we imply that there will be no reason to start the information retrieval with the papers that gained the most quantity of citations? Could we imagine that scientists will stop citing each other? And so on...



FEATURE

ARTICLES

The real nature of bibliometrics crisis ?

In my opinion, the reasons like those put forward in the first part of this paper are not really the cause of librarians' disappointment in bibliometrics, but just an accomplice of it. The point is that besides these "external" reasons for decay there are INTERNAL ones, e.g. too much schematic mode of bibliometricians' thinking, too uncertain interpretations of the obtained results etc. Such facts WE'RE ALWAYS TRUE, and the aforementioned new conditions just gave more background to seeing them.

What do I mean by "uncertain interpretations"? While bibliometrics is an implement for quantitative assessment, the bibliometricians have not really arrived at any mutual agreement on account of those specific properties that are under assessment⁽¹⁾.

The examples below will make this rather paradoxical statement clearer. Thus, when we just count documents the reason of the study is not to assess any property at all, but to directly measure the quantity of the documents (if one prefers, it may be stated that such "property" as "productivity" of document collection is measured, but, anyhow this is the case of DIRECT measurement which does not cause any uncertainty in a basic interpretation). But starting with the citation analysis the essence of the study is no more a direct measurement, but an INDIRECT ASSESSMENT... The clue question is "the assessment of what?". The bibliometricians say: "of impact", "of quality", "of significance", "of value" (etc.) of the cited documents, their authors, journals that published these documents and so on. Such terms are being used ARBITRARILY, and the choice of the specific term is often determined just by an author's intuition. But such terms as "impact", "value", "quality" and "significance" are NOT the synonyms. They indicate at DIFFERENT properties of a document, while the use of a SPECIFIC bibliometric method for an indirect assessment of some properties of a document can ADEQUATELY (i.e. with the least degree of intermediation) evaluate only one specific latent property.

The rest can be assessed, too, -- but in a still more indirect way, by making use of more conceptual intermediates, as derivatives from the "first" ("matching") property which most closely corresponds to the chosen indicator under the direct measurement. There might be the whole "chain" of such derivatives, but every new "link" (intermediate) is being assessed less and less accurately⁽⁴⁾. Unless this is not realised by bibliometricians before a study design has been started, the snow-slip of misinterpretations is almost inevitable. The terminological chaos in the nominations of the properties to be assessed that is caused by the lack of understanding of what a use of a specific method makes it possible to assess PAR EXCELLENCE when an indirect assessment is undertaken, cause, in its turn, very vague interpretation of the results. And the practical recommendations suffer. And, consequently, librarians would not care much about any bibliometric recommendation.

*Bibliometricians
have to understand
the reasons
of sceptics
and become distinct
in their promises
and interpretations*

The challenge

Does the above mean that bibliometricians will not professionally survive or that they are not able to offer the effective service to librarians any more? I think one has always to meet the challenge. Bibliometricians have first to understand the basic reasons of the present sceptics to

their activity. In response they must become very distinct in both their promises and interpretations of the facts they discover for their potential users. In order to achieve this they need to transfer the focus of their attention from refined mathematical procuring to the speculative consideration of fundamental concepts of the subjects of their studies, or, to tell it roughly, to acquire better command of common sense. They must undoubtedly keep on teaching bibliometrics at library schools - and even more persistently, - but in a different manner. They must really foresee as much of the emerging changes of the new electronic reality as possible and, correspondingly, change the mode of their thinking. May we wish it or not, some new objectives are really here to be realised.

NOTES:

1. See the discussion on this point in the author's paper: "Notion of a document: a center of "gravity attraction for getting metricians together" (*Scientometrics* 30 (1994) 2-3: p. 511-516.)
2. Katz J.S.; *Bibliometric quicksand; EASST Newsletter* 13 (1994) 4: p. 11-12. In this paper its author mentions that he simplifies the picture of his vision, but keeps it "reasonably approximate the general process". So do I throughout the present paper as well.
3. The best discussion of the heart of this problem can be read in papers and books by Prof. V.M. Motylev from St.-Petersburg (unfortunately, all the works were published in Russian).
4. This problem is reflected in: Lazarev V.S.; *Citation analysis: what property of cited documents is really reflected: further to the paper by Liisa Salmi; Newsletter to the European Health Librarians* (1995) 33: p. 16-17, Lazarev V.S.; *On chaos in bibliometrics terminology; Scientometrics* 35 (1996) 2: p. 271-277, Lazarev V.S.; *Properties of scientific documents that are qualitatively assessed in bibliometric studies; International Journal of Information Sciences for Decision Making* 1 (1997):p. 1-17. Some other author's papers are in Russian. More examples are given there, more argumentation is featured, more methods are discussed.

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