LITTLE SCIENTOMETRICS, BIG SCIENTOMETRICS ... AND BEYOND?‡

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Although the field of scientometrics/bibliometrics is rapidly growing, and the interest in scientometric indicators is constantly rising, the field is in a crisis: subfields are drifting apart, the field is lacking consensus in basic questions and of internal communication, the quality of scientometric research is questioned by other disciplines. Among the causes stated are: the loss of integrating personalities; shift from basic and methodological research to applied bibliometrics; domination of the interests of science policy and business in commissioning and funding research; vendor policies and failing quality-management on the side of database-producers; misuse of bibliometric research results and disregard for scientific standards. To overcome the situation, the authors plead for integrative and interdisciplinary research approaches, for reinforcing fundamental, methodological and experimental research programs in scientometrics, for independent funding of research, and for an enhancement of scientometric databases. The need for acknowledged technical and scientific standards in research and publication is stressed. Finally, the establishment of a Code of Ethics for the field of scientometrics is proposed.

1. Introduction

The sharp rise the metrics of science took since the late sixties is generally acknowledged today. It is indicated by a growing number of publications and a growing scientific community. In an increasing number of studies in science of science quantitative methods are used. In the various attempts of science policy to assess and evaluate science, the help of the seemingly objective bibliometric

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indicators and the easily accessible empirical basis of bibliographical data have become very popular.

Originally, the field has been characterised by the personalities of enthusiastic researchers much in the way of a "hobby", to later integrate interdisciplinary approaches as well as mathematical and physical models on one side, and sociological and psychological methods on the other, not speaking of the long tradition of library science.

Since the beginning of the eighties, bibliometrics has evolved into a distinct scientific discipline with a specific research profile, several subfields and the corresponding scientific communication structures (publication of the international journal *Scientometrics* in 1979 as the first periodical specialised on bibliometric topics; international conferences since 1983). The funding of big projects seems to have become the regular way of financing research in scientometrics. Thus, from "Little Scientometrics" the field has become "Big Scientometrics".

Unfortunately, this "success-story" is somewhat contrasted by negative developments: three decades after the publication of one of the founding works in bibliometrics *Little Science, Big Science*,¹ the evolution of this discipline in methodology, in theoretical modelling and in the formulation of its objectives seem to have stagnated. The young discipline – bibliometrics, informetrics and scientometrics* – has not used efficiently its great possibilities: communication among special fields has come to a halt, subdisciplines are drifting apart. There is a tendency that scientometrics is exclusively guided by the immediate interests of science policy and planning, and that its scientific content is reduced to the mere presentation of data sets. On the other hand, some theoreticians of the field seem to fall short of reality and have passed the border-line between basic research and speculation.

2. Biblio-/Sciento-/Informetrics in a crisis: Teething troubles or agony?

2.1. Symptoms of a crisis

There are a number of elements which mark the actual state of bibliometrics/informetrics/scientometrics/technometrics and which can be regarded as symptoms of a crisis.

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*In the following, bibliometrics is used synonymously for bibliometrics, informetrics, scientometrics and technometrics unless indicated otherwise.