

strates that strong co-citation links can be used to construct cross-disciplinary pathways through the scientific literature, which in turn can support interdisciplinary knowledge discovery. Jian Qin presents a methodology for semantic pattern analysis of keywords from bibliographically coupled documents and discusses the potential to incorporate such techniques for knowledge discovery into information retrieval tools.

Somewhat ironically, the overall value of this collection is weakened by its exclusive focus on the contributions of library and information science to current progress in KDD. Limiting the scope in this way diminishes the importance of multi-disciplinary collaborations for the future success of automated approaches to true knowledge discovery, and may have led to the inclusion of papers somewhat peripheral to the central topic. Further, the individual contributions to this collection would have been better served by a more explicit sense of their relationships both to the broader topic in the context of other domains and in association to one another. Even so, these papers provide thought-provoking insights from a traditional perspective on an emerging field. The volume would be a useful addition to the professional library and an excellent resource for supplemental course readings in library and information science.

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**The Web of Knowledge : Festschrift in honor of Eugene Garfield.** Edited by Blaise Cronin & Helen Barsky Atkins. Medford, NJ: Information Today, Inc., 2000. 564 p. ISBN 1-57387-099-4.

Eugene Garfield's 75<sup>th</sup> birthday is the occasion for this book honouring his contribution to the field of information science. This work is a compilation of papers written by outstanding researchers in information science and other specialties. All share the belief that the citation indexes that were produced by the Institute for Scientific Information (ISI) as a result of Garfield's ideas have brought about a paradigm shift similar to that in the sociology of science.

The content of the book is not merely a compilation of papers; on the contrary, its goal is to provide a

comprehensive description of the main research themes for which the Science Citation Index (SCI) and related products play a remarkable role as information resources. The book contains five sections devoted to the most relevant research topics based on SCI. Considering the difficulties of maintaining a unified structure in a work written by thirty seven different authors, we can say that the result is an interesting hybrid. It is a cross between an introductory work to many of the important research issues in the areas of bibliometrics, the science of sciences, and related topics; and a work of the type "perspectives on..." these fields that could be used as a manual for university students. It is also an indispensable source for learning the history and the origins of ISI.

It is important to point out, even though we do find in here highly specialized topics, that the book is suitable for an audience wider than that of the equally highly specialized researcher. Its narrative, essay style and limited mathematical content make it easy to read. *The Web of Knowledge* is an adequate guide to the topics it covers for any professional engaged in scientific information or any researcher who has worked with citation indexes or wants to know more about their potential uses. The editors obviously had a wide and varied audience in mind when they outlined the contents, a potential audience made of the millions of scientists and information professionals who use citation indexes nowadays.

The work is divided into five broad sections: 1. Historical perspectives. 2. The scientific literature. 3. International issues. 4. Evaluative bibliometrics. 5. Social networks analysis.

Section one is especially significant. Various researchers, including some, such as Joshua Lederberg, who were close to Eugene Garfield and his ideas, reveal the man to us. They show us Garfield's enterprising, persevering, and enthusiastic temperament and help us to understand his ultimate success in creating a scientific citation index, despite important difficulties and high costs. In a sense, it could be said that Garfield is like the robot picture of a scientist whose qualities allow him to change the history of a discipline. The essays included in the first chapter show us how Garfield overcame adversities in the early years of his work on the index and went on to transmit his strong faith in his simple and elegant "idea" first to researchers and finally to partners willing to finance its realization. These papers also show the innovative aspects of SCI, such as its multi-disciplinary character and the possibility of tracking scientific ideas through

space and time. Some authors stress the fact that Garfield saw a relationship between indexes and research from the very beginning, something that was to be formally recognized some time later, as is the case with the analysis of patents. In our opinion, such a historical perspective is present in many other contributions throughout the book and papers such as those written by Robert K. Merton and Jonathan R. Cole could have been relocated in Section One.

Worthy of mention among the papers in Section Two dedicated to scientific literature are Jack Meadow's review of the theories of scientific growth formulated by Derek de Solla Price forty years ago, a contribution by Stephan Cole on the role of journals in the transfer of scientific knowledge, and the paper by Peter Vinkler on the measurement of scientific growth and new indicators. In general, this second section, which illustrates the possibilities offered by the SCI, is a tribute to both Garfield and to Price.

Section Three is devoted to international issues. The most remarkable contributions are its general introduction, which is suitable for non-specialist readers, and the excellent study by Subbiah Arunchalam of international collaboration applied to the cases of India and China. The section includes interesting, original data and is, to date, the most complete description published of the scope and possible biases of the ISI. The characteristic features of the ISI – its attention to basic disciplines such as physics, mathematics, and chemistry, its biases in favour of certain countries and, especially, in favour of large publishing companies – are clearly described in the last paper of the Section by Tibor Braun, Wolfgang Glänzel and András Schubert.

Section Four focusses on evaluative bibliometrics, and not surprisingly it contains the largest number of papers. The essays in this section confirm the role of citation indexes as a tool for scientific evaluation. The papers by Anthony F.J. van Raan and Peter Ingwersen dealing with evaluation methodologies are of particular interest. They show an overall agreement in considering what really matters when the scientific activity has to be evaluated. Papers by Charles Oppen-

heim and by Francis Narin, Kimberly S. Hamilton and Dominic Olivastro, devoted to the analysis of patents, are also outstanding. The contribution by Michael E.D. Koenig and Mary Westermann-Cicio on the uses of citation indexes in the field of firms and organizations is also worthy of mention.

The last section, on social network analysis, offers a glimpse into the new horizons in the SCI and citation analysis research. The papers by Henry Small and Howard D. White describe new applications of the pathways concept, the interdisciplinary links and the possibilities of mapping science as a unified whole. In the case of White, the citation analysis under the perspective called "oeuvre" of individual authors or "ego-centered" is interesting.

In conclusion, this work does not give the impression of patchwork that is common in books written by many authors, especially in books published to honour somebody – the editors did a good job. *The Web of Knowledge* offers a panoramic view of the main topics that form bibliometrics, scientific evaluation, sociology of science, and other areas for which the SCI has become an indispensable tool. The bibliographic references appear to have been chosen with care, and they are an excellent guide to go deeper into the literature of the studied topics. We may be missing a few contributions by important theoreticians of bibliometrics, but the editors may have consciously excluded them so that their book would remain easy to read.

*The Web of Knowledge* is an excellent introductory guide, almost a manual, to a fertile knowledge territory located somewhere between information science and sociology of science

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