Studies on Utilizing the Three Famous International Index Systems to Evaluate Scientific Research Level of Higher Learning Institutions

Xun Liu, Beijing University of Technology, China
Changyu Huang, Beijing University of Technology and Chinese Academy of Sciences, China
Weiliang Qian, Beijing University of Technology, China
Yong-Chang Huang, Beijing University of Technology, Chinese Academy of Sciences, and CCAST, China

ABSTRACT

Science Citation Index (SCI), The Engineering Index (EI), and Index to Scientific & Technical Proceeding (ISTP) are widely accepted and used to evaluate the scientific research level of higher learning institutions by many countries’ science and technology field currently. After research, the authors point out the blemishes in this method and put forward the problems that need to be noticed, and then, under current conditions, bring forward brand-new standards and methods to estimate research level, efficiency, and fund exploitation. One shouldn’t over-emphasize the total amount of papers collected in SCI, EI & ISTP when evaluating the scientific research level of higher learning institutions, whereas using ‘comprehensive factor’ analysis method can make it more scientific and efficient.

Keywords: Citation Index, Combinative Factor, EI, ISTP, SCI

BRIEF INTRODUCTION OF SCI, EI AND ISTP

With the reform of the research system successively deepened in the world, the question how to evaluate the research result causes more and more extensive concerns of the society. Currently, scientific field has gradually accepted the data-evaluating method of citation analysis provided by 《Science Citation Index》 (SCI), 《The Engineering Index》 (EI) and 《Index to Scientific & Technical Proceeding》 (ISTP).
This is an objective, fair & quantitative evaluation method, and is also a general-accepted international method. When evaluating the research level of universities, one usually takes the total number of papers collected by SCI, EI and ISTP as the standard. Every year, some organizations would rank the universities and research institutions according to the total collected amount. Through studies, we think that this method lacks strict theoretical basis, is not scientific & rational enough and has already resulted in some mistakes in the attitude of many universities toward SCI, EI and ISTP. Therefore, we hold the view that we should appropriately make use of the three famous index systems to reasonably evaluate the research level of universities with objective attitudes.

SCI, edited and published by Institute for Scientific Information (ISI) in America, is a kind of Search Publication that reflects the relationship of scientific and technological literature and citation, and is also a tool to evaluate scientific & technological publications and papers with the method of metrology. SCI covers extensive fields, including mathematics, physics, chemistry, engineering, agriculture, forestry, medicine and so on, while life sciences, medicine, chemistry and physics possess the biggest proportion.

EI, the earliest article abstracts of engineering technique in the world, which started publication in October 1884, is edited and published by the Engineering Incorporation now. As one of the three famous indexical systems, EI is a large-scale indexical system mainly embodying engineering technique periodicals and conference literature. Now it has become the world-class authoritative indexical system and general-accepted international statistic source.

ISTP is a proceeding index database published by ISI, mainly including important literature of various conferences around the world. The ISTP covers many fields including life sciences, clinical medical, physics, chemistry, engineering technique, applied sciences, biology, environmental and energy science etc. Annually, the ISTP reports 4000 varieties of meetings and collects more than 200 thousand papers.

PROBLEMS OF USING THE SCI ETC. TO EVALUATE THE RESEARCH EFFICIENCY OF HIGHER LEARNING INSTITUTIONS

Currently, science & technology field and higher learning institutions of many counties pay great attentions to the papers collected by SCI, EI and ISTP. After researches, one can notice that, under the situation that the developments of periodicals are fast and their quantities are also improved continuously, there are some mistakes existing in the understanding of science and technology field and library & information field of many counties for SCI, EI & ISTP.

The statistics of quoted articles offered by SCI, EI & ISTP is very reliable and scientific to serve as the basis of estimating academic achievements. It provides firm basis for evaluating the science & technology level of scientific research organizations. But it should be noticed that there are still some disadvantages in SCI, EI & ISTP. The conception of quoted articles in SCI, EI and ISTP is based on the assumption that the authors have absorbed and used the references. However, the complexity and variability of motivation in quoting references make the assumption less rigorous. Therefore, there exist some uncertain reasons in estimating system of SCI EI, and ISTP which are completely founded on quoting analysis.

As well, it is inevitable that there are some problems in using SCI, EI and ISTP to estimate the scientific research level of scientific research organization and universities. On one hand, this method inspires many universities to make better researches and, as a result, the level of science & technology has been increased. It makes a firm foundation for universities’ modernization and internationalization. At the same time, it has aroused great impacts in the society that universities are graded according to the total number of articles embodied by SCI, EI & ISTP. However, researches have already proved that although it has some rationality in level grading of universities in this method and
The Competitive Advantages of a Holistic Approach to Supply Chain Management
[www.igi-global.com/article/competitive-advantages-holistic-approach-supply/70750?camid=4v1a](www.igi-global.com/article/competitive-advantages-holistic-approach-supply/70750?camid=4v1a)

Beyond Intelligent Agents: E-Sensors for Supporting Supply Chain Collaboration and Preventing the Bullwhip Effect
[www.igi-global.com/chapter/beyond-intelligent-agents/28695?camid=4v1a](www.igi-global.com/chapter/beyond-intelligent-agents/28695?camid=4v1a)