Chapter-II

REVIEW OF LITERATURE

Existing studies, on the subject related to bibliometrics, scientometrics and mapping of Journal have been taken from the Journals, books and e-resources by the researchers, that have been carefully studied by identifying the variables and scope of study. The literature analyzed and reviewed were as follows.

Uriora-Maldonado, M., dos Santos, R. N. M., & Varvakis, G. (2012) have explained that, over last decades there has been a growing interest on developing research and formulating public policy by using the Innovation Systems approach. However, as evidenced on the academic literature there is a lack of systematic, chronological and synthesizing studies indicating how this field has evolved over time. This paper has as main objective to consolidate the state of the art of academic research on IS, based on a bibliometrics study on literature published over the past 35 years. The results are discussed under the following perspectives: general results, chronological distribution, author relevance, articles and cited references of relevance, journals relevance and institutions and countries relevance. The paper ends with a discussion of the main implications and limitations of the study.

Aguillo, I. F. (2012) has explained. the academic bibliographic database provided free-of-charge by the search engine giant Google, has been suggested as
an alternative or complementary resource to the commercial citation databases like Web of Knowledge (ISI/Thomson) or Scopus (Elsevier). In order to check the usefulness of this database for bibliometric analysis, and especially research evaluation, a novel approach is introduced. Instead of names of authors or institutions, a webometric analysis of academic web domains is performed. The bibliographic records for 225 top level web domains (TLD), 19,240 university and 6,380 research centres institutional web domains have been collected from the Google Scholar database. About 63.8% of the records are hosted in generic domains like .com or .org, confirming that most of the Scholar data come from large commercial or non-profit sources. Considering only institutions with at least one record, one-third of the other items (10.6% from the global) are hosted by the 10,442 universities, while 3,901 research centres amount for an additional 7.9% from the total. The individual analysis show that universities from China, Brazil, Spain, Taiwan or Indonesia are far better ranked than expected. In some cases, large international or national databases, or repositories are responsible for the high numbers found. However, in many others, the local contents, including papers in low impact journals, popular scientific literature, and unpublished reports or teaching supporting materials are clearly overrepresented. Google Scholar lacks the quality control needed for its use as a bibliometric tool; the larger coverage it provides consists in some cases of items not comparable with those provided by other similar databases

Yang, C. C., & Tang, X. (2012) has explained Bibliometrics data contain rich co-authorship network, text and temporal information. In this work, we employ a hybrid approach that incorporating content and social network
similarity to conduct a bibliometrics analysis across the information retrieval and World Wide Web domains using the DBLP dataset

Da Silva, R., Kalil, F., De Oliveira, J. P. M., Martinez, A. S. (2012) have discussed about literature in Bibliometrics since the Hirsch proposal, the so-called h-index. Ranking papers according to their citations, this index quantifies a researcher only by its greatest possible number of papers that are cited at least h times. A closed formula for h-index distribution that can be applied for distinct databases is not yet known. In fact, to obtain such distribution, the knowledge of citation distribution of the authors and its specificities are required. Instead of dealing with researchers randomly chosen, here we address different groups based on distinct databases. The first group is composed of physicists and biologists, with data extracted from Institute of Scientific Information (ISI). The second group is composed of computer scientists, in which data were extracted from Google-Scholar system. In this paper, we obtain a general formula for the h-index probability density function (pdf) for groups of authors by using generalized exponentials in the context of escort probability. Our analysis includes the use of several statistical methods to estimate the necessary parameters. Also an exhaustive comparison among the possible candidate distributions are used to describe the way the citations are distributed among authors. The h-index pdf should be used to classify groups of researchers from a quantitative point of view, which is meaningfully interesting to eliminate obscure qualitative methods.
Rouprêt, M., Drouin, S. -, Faron, M., Glanard, A., Bitker, M. -, Richard, F., . . . Lefèvre, J. -. (2012) analyzed the results of the bibliometric system and analysis of scientific publications (SIGAPS) in the Assistance publique-Hôpitaux de Paris (AP-HP) and compare the scientific production among the various surgical disciplines of the academic hospitals of Paris and define the place of urology. Methods: The publications from 115 surgical departments between 2006 and 2008 were included. Only surgical departments were considered in the current study. The following data were taken into account: the hospital department of origin, the number of articles published, the number of first place, last places, the number of full-time unit, the SIGAPS score. Statistical analysis focused on the quality and on the quantity of published articles per surgeons and per department. There were eight academic departments of urology identified within the AP-HP. Results: The database contained information for 115 surgical departments. The mean number of articles published by department was 42.89±27.34 (13.2 to 110.75). The mean number of publications per full-time surgeon was 6.7±2.59 (3.77 to 12.84), or a mean of 2.25±0.86 released by full-time and by year. The median score SIGAPS of surgery was 304 with a wide interval (122 to 903.5). Urology was the specialty with the highest median score compared to other surgical specialties. The department, which published the most, was the center 1, in comparison with the center 6 which was publishing the most in A/B ranking journals. Conclusion: Urology was the absolute leader by far in terms of scientific publications in the AP-HP when compared to other surgical disciplines. The discipline is organized efficiently to juggle clinical work and research indicating a certain dynamism of the teams that invest there to fulfill
the missions assigned to them in the University Hospital and the part of the autonomy of the universities.

**Prozesky, H., Boshoff, N. (2012)** have explained Citations to published work are gaining increasing prominence in evaluations of the research performance of scientists. Considering the importance accorded to gender issues in South African science, it is surprising that (to our knowledge) no research has as yet ascertained the extent of sex differences in citations to the published work of scientists in this country. Our literature study shows that studies that have been conducted elsewhere tend to neglect in their analyses important gender-related and other factors, such as the sex composition of multi-authored papers and the extent of foreign co-authorship. Against this background, we illustrate the difficulties inherent in measuring the quality aspect of sex-specific research performance by means of an analysis of a dataset of articles (n = 229) that were published between 1990 and 2002 in the field of invasion ecology and in journals included in the Thomson Reuters Web of Science. Each article has at least one South African author address. The results indicate that foreign co-authorship is a better correlate of high citations than the sex of South African authors, and this is true irrespective of whether the annual citation rate or window period is used, whether or not self-citations are excluded, and whether or not the number of authors is controlled for by calculating fractional counts. The paper highlights these and other considerations that are relevant for future gender-focused bibliometric research, both in South Africa and beyond.
Hung, J. (2012) This study investigated the longitudinal trends of e-learning research using text mining techniques. Six hundred and eighty-nine (689) refereed journal articles and proceedings were retrieved from the Science Citation Index/Social Science Citation Index database in the period from 2000 to 2008. All e-learning publications were grouped into two domains with four groups/15 clusters based on abstract analysis. Three additional variables: subject areas, prolific countries and prolific journals were applied to data analysis and data interpretation. Conclusions include that e-learning research is at the early majority stage and foci have shifted from issues of the effectiveness of e-learning to teaching and learning practices. Educational studies and projects and e-learning application in medical education and training are growing fields with the highest potential for future research. Approaches to e-learning differ between leading countries and early adopter countries, and government policies play an important role in shaping the results.

Abramo, G., D'Angelo, C. A., & Costa, F. D. (2011). Development of bibliometric techniques has reached such a level as to suggest their integration or total substitution for classic peer review in the national research assessment exercises, as far as the hard sciences are concerned. In this work we compare rankings lists of universities captured by the first Italian evaluation exercise, through peer review, with the results of bibliometric simulations. The comparison shows the great differences between peer review and bibliometric rankings for excellence and productivity.
Markscheffel, B. (2011) has explained Bibliometric analyses enable the measurement of scientific information and allow an evaluation of scientific productivity and efficiency within certain limits. On the other hand an ongoing interest in webometric analysis can be observed. Till now these two parts of informetrics research areas are separated in their interpretation. In this paper we will summarize our experiences in terms of providing a holistic view on both bibliometric and webometric studies with the help of TopicMaps-based ontologies. We will explain the problems dealing with the visualization of quantitative aspects of TopicMaps with the help of a special framework. Finally we will give an outlook on the potential of ontologies providing an expanded view on the examined context.

Pagel, P. S., & Hudetz, J. A. (2011). The h-index is used to evaluate scholarly productivity in academic medicine, but has not been extensively used in anaesthesia. We analysed the publications, citations, citations per publication and h-index from 1996 to date using the Scopus® database for 1630 (1120 men, 510 women) for faculty members from 24 randomly selected US academic anaesthesiology departments The median (interquartile range [range]) h-index of US academic anaesthesiologists was 1 [0-5 (0-44)] with 3 [0-18 (0-398)] total publications, 24 [0-187 (0-8515)] total citations, and 5 [0-14 (0-252)] citations per publication. Faculty members in departments with National Institutes of Health funding were more productive than colleagues in departments with little or no government funding. The h-index increased significantly between successive academic ranks concomitant with increases in the number of publications and total citations. Men had higher median h-index than women
concomitant with more publications and citations, but the number of citations per publication was similar between groups. Our results suggest that h-index is a reasonable indicator of scholarly productivity in anaesthesia. The results may help comparisons of academic productivity across countries and may be used to assess whether new initiatives designed to reverse recent declines in academic anaesthetic are working.

**Pagel, P. S., & Hudetz, J. A. (2011).** The h-index allows the evaluation of scholarly output in academics, but this bibliometric statistic has not been applied extensively to measure productivity in anaesthesiology. The authors tested the hypothesis that the h-index is dependent on academic rank, American College of Graduate Medical Education (ACGME) accreditation of the training program, and National Board of Echocardiography credentials in perioperative transesophageal echocardiography (TEE) in United States academic cardiothoracic anesthesiologists. Design: Observational. Setting: Internet analysis. Participants: United States academic cardiothoracic anesthesiologists. Interventions: None. Measurements and Main Results: Faculty members from 30 randomly selected fellowship programs with or without accreditation were identified using the Society of Cardiovascular Anesthesiologists web site. The status of each faculty member's credentials in perioperative TEE was defined using the "verify certification" function on the National Board of Echocardiography web site. Publications, citations, citations/publication, and the h-index for each faculty member were obtained using Scopus. Two hundred fifty-nine cardiothoracic anesthesiologists (204 men and 55 women) were identified (8 instructors [3%], 123 assistant professors [48%], 56 associate
professors [22%], 63 professors [24%], and 9 chairpersons [3%]). The average cardiothoracic anesthesiologist had an h-index of 6 ± 7 with 28 ± 46 publications, 499 ± 988 total citations, and 13 ± 18 citations per publication. The h-index increased significantly (p < 0.05) among ranks (instructors [1 ± 1], assistant professors [3 ± 3], associate professors [7 ± 5], professors [12 ± 8], and chairpersons [18 ± 13]). Significant differences in the number of publications and total citations also were observed among ranks. Differences in the h-index among ranks were observed regardless of program accreditation status or transesophageal echocardiographic credentials. Faculty members working in American College of Graduate Medical Education accredited programs had more publications and citations and higher h-indices than their counterparts in programs that were not accredited. Except for program directors, the scholarly output of academic cardiothoracic anesthesiologists with or without transesophageal echocardiographic credentials was similar within each academic rank. Conclusions: The results show that the h-index increases progressively with academic rank and is dependent on fellowship program accreditation status but not transesophageal echocardiographic credentials in United States academic cardiothoracic anesthesiologists.

**Meyer, M. (2011).** Has discusses how stylized facts derived from bibliometric studies can be used to build social simulation models of science. Based on a list of six stylized facts of science it illustrates how they can be brought into play to consolidate and direct research. Moreover, it discusses challenges such a stylized facts based approach of modeling science has to solve.
Qu, Q., Zhang, X., Fang, Y., Zhang, X., & Liu, J. (2011). To analysis the paper and citation of 11 journals of Traditional Chinese Medicine, with the aim to provide a reference for the evaluation of those journals. Method: A bibliometric analysis was conducted to study 11 journals of Traditional Chinese Medicine and its papers. Results: The total amount of the published papers increased from 3570 in 2003 to 5951 in 2009; funded papers increased from 26.70% to 62.14%; 5 of the journals shortened the issues, the other 6 journals increased the pages. 24413 authors published their papers in 2009, the average cooperation degree of the authors was 4.10; 72.47% of the papers were from universities and their affiliated hospitals; the average publishing stagnant time was 283.46 days; the average number of citations per article was 8.94; the main (84.85%) type of the citation was journal literature; language of the citations was mainly (71.09%) Chinese; the Price Index was 40.35%. Conclusion: The journals of Traditional Chinese Medicine made a rapid development during the past few years, and the academic level increased gradually. Universities and their affiliated hospitals are the major outputs of research papers. The publishing stagnant time is relatively long.

Moppett, I. K., & Hardman, J. G. (2011). Bibliometrics provide surrogate measures of the quality and quantity of research undertaken by departments and individuals. Previous reports have suggested that academic anaesthesia research in the UK is in decline. We wished to provide a comprehensive description of current and historical published output of UK anaesthesia researchers. Methods Bibliometric indices (Web of Science®) were calculated for anaesthesia researchers in the UK for the whole period covered by
the database, and for 2004-8. A parallel search was made using the Scholar meter™ tool, which parses output from Google Scholar™. Calculated indices included total number of publications; total number of citations; citations per paper; h-index; g-index; and modified impact index. Results One hundred and four individuals and 23 academic departments were identified. Median values (inter-quartile range) for the indices were: total papers 57 (24-95) (individuals for the whole period), 11 (6-20) (individuals 2004-8), 50 (30-70) (departments 2004-8); total number of citations 571 (175-1328), 93 (38-207), 383 (239-845); h-index 13 (8-20), 6 (3-8), 11 (9-14). Four departments were ranked in the top 5 for all indices. Conclusions The general distribution of bibliometric data is similar to that seen in other specialties in Europe and North America. Four departments contribute to more than 50 of published anaesthesia research output in this data set. These data provide useful comparative tools for individuals, departments,

Bhona, F. M. D. C., Lourenço, L. M., & Brum, C. R. S. (2011). The present study had as objective to carry through a bibliometric survey on domestic violence from articles from an international database index’s. Electronic search in three different databases was carried through (Web of Science, Psyc Info and Lilacs). It associated expression "domestic violence" with the words: "man", "woman", "child", adolescent" and "elderly". The articles published between the years of 2006 and 2009 had been selected, which had been analyzed through the reading of the heading and abstracts. From the 636 collected articles most was published in the 2006 year. They were more published by the magazines: "Journal of Family Violence", "Violence Against Women" and "Journal of Interpersonal Violence". Women victims had constituted the main focus of
articles, followed of children. The biggest part of publications approach only one type of victim of the family violence. The identification of the man as fractioned of the domestic violence predominated.

**Tang, H., Wu, Y., & Lu, J. (2011).** The purpose of this paper is to explore the research status of MES by employing bibliometric analysis. The data for the study were obtained from core journals of China journal net database and engineering village (EI) from 1990 to 2009. Statistical analysis of citation number and word frequency was made on the data. The results reveal the most representative authors and journals by examining the citation number. Word frequency analysis presents that some relevant information technology contributing to the achievement of MES is developed increasingly at home. And the research abroad is entered a more mature stage, emphasizing on the analysis and decision making of problems by applying the results of MES.

**Abramo, G., & D'Angelo, C. A. (2011) have explained** National research assessment exercises are becoming regular events in ever more countries. The present work contrasts the peer-review and bibliometrics approaches in the conduct of these exercises. The comparison is conducted in terms of the essential parameters of any measurement system: accuracy, robustness, validity, functionality, time and costs. Empirical evidence shows that for the natural and formal sciences, the bibliometric methodology is by far preferable to peer-review. Setting up national databases of publications by individual authors, derived from Web of Science or Scopus databases, would allow much better, cheaper and more frequent national research assessments.
Andreas Strotmann, Dangzhi Zhao (2010) discusses some of the limitations imposed by these databases, and reports on a method to overcome some of these limitations that was used with great success to delimit an emerging and highly interdisciplinary biomedical research field, stem cell research. The resulting field delimitation and the citation network it induces are both excellent. This multi-database method relies on using Pub Med for the actual field delimitation, and on mapping between Scopus and Pub Med records for obtaining comprehensive information about cited-references contained in the resulting literature. This method provides high-quality field delimitations for citation studies that can be used as benchmarks for studies of the impact of data collection biases on citation metrics, and may help improve confidence in results of scientometric studies for an increased impact of scientometrics on research policy.

Wolfgang Glänzel (2010) has narrated over the opportunities of probabilistic models in scientometrics. Four examples from different topics are used to shed light on some important aspects of reliability and robustness of indicators based on stochastic models. Limitations and future tasks are discussed as well.

Koen Frenken, Sjoerd Hardeman, Jarno Hoekman (2009) proposed a research program to analyse spatial aspects of the science system. First, we provide a review of scientometric studies that already explicitly take the spatial dimension into account. The review includes studies on (i) the spatial distribution of research and citations, (ii) the existence of spatial biases in collaboration,
citations and mobility, and (iii) the citation impact of national versus international collaborations. Then, we address a number of methodological issues in dealing with space in scientometrics. Finally, to integrate spatial and non-spatial approaches, we propose an analytical framework based on the concept of proximity. A proximity approach allows for combining hypotheses from different theoretical perspectives into a single framework.

Mehrnoush Mozaffarian, Hamind, R and Jamali (2008) explored and tested gender differences in the authorship of Iranian journal articles. A list of articles published by Iranian authors in ISI journals in 2003 was obtained from the Web of Science. The names of authors were searched in a specific database as well as the web to find their first names and hence their gender. The articles were then broken down by gender and subject category. International collaborations of the authors were also investigated. The productivity of female authors at the individual level as measured by article per author share was lower than male authors. In total, females accounted for 6 per cent and males for 94 per cent of the articles published in 2003. A chi-square test showed that female contribution was significantly lower than expected. The article highlights the need for qualitative studies on the gender aspect of scientific productivity in Muslim countries.

Pouris, A. (2007) identified trends over time, major institutional contributors, journals in which South African authors publish their research, international collaborators and performance in comparison to four comparator countries (India, Brazil, South Korea and Australia). The major findings of the
investigation are as follows: nanoscale research in South Africa is driven by individual researchers interests up to date and it is in its early stages of development; the country's nanoscale research is below what would one expect in light of its overall publication output; the country's nano-research is distributed to a number of Universities with subcritical concentration of researchers.

Vinkler, Peter (2007) reviewed that Scientometrics cannot offer a simple consistent method for measuring the scientific eminence of individuals. The h-index method introduced by Hirsch was found applicable for evaluating publications of senior scientists with similar publishing features, only. Some simple methods using the number of citations and journal papers, and the number of citations obtained by the most frequently cited papers are suggested and tested to demonstrate the advantages and disadvantages of such indexes. The results indicate that calculating scientometric indexes for individuals, self-citations should be excluded and the effect of the different bibliometric features of the field should be taken into account. The correctness of the indexes used for evaluating journal papers of individuals should be investigated also on the individual level.

Kademani, B.S. et al., (2007) focused on its publication growth characteristics, language, format and media of communication, research quality, institutional productivity, patterns of research collaboration, and broad and narrow subject areas of interests of Indian institutions and scientists. A broad comparison of India's research output with select countries, particularly with China, has also been made.
Rajpal Walke and Dhawan, S.M. (2007) highlighted the growth and publications size of the Indian publications in materials science during 1993-2001. It also analyses various other features of publications output such as modes of communication, areas of research priority, research quality, nature of collaboration, and institutional productivity.

Kademani, B.S. et al., (2006), analysed quantitatively the growth and development of nuclear science and technology research in India in terms of publication output as reflected in International Nuclear Information System (INIS) (1970-2002) database. During 1970-2002 a total of 55313 papers were published by the Indian nuclear scientists in various domains: physics (23033), chemistry (16368), life and environmental sciences (7203), engineering and technology (6960), other aspects of nuclear and non nuclear energy (981) and isotopes and radiation application (768). Year-wise growth of publications and input of records to INIS database by India and other countries were analysed. The total number of records input to INIS database by India was 30356 (54.88%) and by other countries and international organizations 24957 (45.12%). The average number of papers published per year was 1676.15. The average Indian contribution to the world literature was 2.25%. Authorship and collaboration trend was towards multi-authored papers. Intensive international collaboration was found during the period and bilateral collaboration accounted for 80.06% of the total collaborative papers. More than 99% of publications were published in English. More than 60% of publications were published in journals. Most preferred journals by the scientists were Pramana 1327 (3.95%), Indian Journal of Pure and Applied Physics 1104 (3.29%), Physical Review-D 925 (2.75%),

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Journal of the Indian Chemical Society 783 (2.33%) and Indian Journal of Chemistry-A 734 (2.19%). High frequency indexer assigned descriptors were: gamma-radiation (4076), temperature-dependence (3220), experimental-data (2749), radiation-doses (2306) and India (2000).

**Angadi, M. et al., (2006),** attempted to analyse quantitatively 358 publications published by the social scientists of Tata Institute of Social Sciences during 2001-2004 in various Departments and Research Units for authorship pattern and collaboration trend. The results indicate that 90.22% of papers were single authored followed by two authored papers - 5.86% and three authored papers 3.35%. Most prolific authors were Shalini Bharat (21), M. M. Koganuramath (18), Mallikarjun Angadi, (13), R. N. Sharma (13), Chhaya Datar, (12), Siva Raju, (12), and Sarthi Acharya, (10). The most preferred journals by the social scientists were: Economic and Political Weekly, Indian Journal of Social Work, and Indian Journal of Labour Economics, with four papers each. Publication Density observed in the present study was 1.46.

**Kademani, B.S. et al., (2006),** attempted to provide detailed quantitative analysis of Indian contributions on thorium in terms of publications output as per International Nuclear Information System database during 1970-2004. A total of 2399 papers were published by the Indian scientists in the field of thorium. There were only nine publications in 1970. Thereafter, a steady growth was observed except for the period 1983-1985. The highest papers (188) were published in the year 2000. USA with 8049 (28.05 per cent) and India with 2399 (8.30 per cent) publications were the top two countries who published work on thorium.
Authorship and collaboration trend was towards multi-authored papers as 85.70 per cent of the papers were collaborative. There were 79 international collaborative papers. Bilateral collaboration accounted for 90.14 per cent of total collaborative papers. Bhabha Atomic Research Centre, Mumbai topped the list with 1251 authorships followed by Indira Gandhi Centre for Atomic Research, Kalpakkam with 168, Atomic Minerals Division, Hyderabad with 71, Utkal University, Bhubaneswar with 43 and Saha Institute of Nuclear Physics, Kolkata with 31 authorships, respectively. The journals most preferred by the scientists for publication of papers were: Journal of the Indian Chemical Society with 78 papers, followed by the Indian Journal of Chemistry A with 60 papers, Bulletin of Radiation Protection with 56 papers, Journal of Radio Analytical and Nuclear Chemistry with 54 papers, Radiation Protection and Environment with 37 papers, Exploration and Research for Atomic Minerals and Journal of Geological Society of India with 35 papers each. English was the most predominant language used by the scientists for communication.

**Gupta, B.M. and Dhawan, S.M. (2005)** reviewed that Computer science is of central importance to India for its impact on the national economy and society at large, and its role in shaping India as a technology superpower. This paper analyses the status of computer science research in India in terms of publication output, its areas of strength and weakness, and the leading institutions and individual scholars involved in computer science research in the country.

**Kumaravel, J.P.S. (2005)** analysed the data downloaded from Dialog's Biotechnology and Chemical Engineering abstracts for the period from 1988 and
2000. The population and the GNP are taken for a particular year and correlated with the research output. Result shows the collaborative authorship trend and that there is no significant relation between research and the total population or the GNP.

Schloegl, Christian and Stock, Wolfgang G. (2004) presented in this article was to investigate international and regional (i.e., German-language) periodicals in the field of library and information science (LIS). This was done by means of a citation analysis and a reader survey. For the citation analysis, impact factor, citing half-life, number of references per article, and the rate of self-references of a periodical were used as indicators. In addition, the leading LIS periodicals were mapped. For the 40 international periodicals, data were collected from ISI's Social Sciences Citation Index Journal Citation Reports (JCR); the citations of the 10 German-language journals were counted manually (overall 1,494 source articles with 10,520 citations). Altogether, the empirical base of the citation analysis consisted of nearly 90,000 citations in 6,203 source articles that were published between 1997 and 2000. The expert survey investigated reading frequency, applicability of the journals to the job of the reader, publication frequency, and publication preference both for all respondents and for different groups among them (practitioners vs. scientists, librarians vs. document lists vs. LIS scholars, public sector vs. information industry vs. other private company employees). The study was conducted in spring 2002. A total of 257 questionnaires were returned by information specialists from Germany, Austria, and Switzerland. Having both citation and readership data, we performed a comparative analysis of these two data sets. This enabled us to
identify answers to questions like: Does reading behavior correlate with the journal impact factor? Do readers prefer journals with a short or a long half-life, or with a low or a high number of references? Is there any difference in this matter among librarians, document lists, and LIS scholars?

Dutt, B., Garg, K.G. and Bali, A. (2003) explained the analysis of 1317 papers published in first fifty volumes during 1978 to 2001 of the international journal Scientometrics indicates the heterogeneity of the field with emphasis on scientometric assessment. The study indicates that the US share of papers is constantly on the decline while that of the Netherlands, India, France and Japan is on the rise. The research output is highly scattered as indicated by the average number of papers per institution. The scientometric output is dominated by the single authored papers, however, multi-authored papers are gaining momentum. Similar pattern has been observed for domestic and international collaboration.

Mohan, S., Gupta, B.M. and Dhawan, S.M. (2003) described the results indicate that materials science in India is broad based and covers most of the important sub-areas, and is based on inherent strength. Most of the work involved bilateral rather than multilateral collaboration. The top collaborating countries were the USA, Germany, France, UK and Japan. Collaborative linkages with developing countries accounted for only about 10% of the total papers. Ten top Indian institutions contributed nearly 50% of the collaborated papers. The major areas of collaboration were theoretical studies, metals and alloys, electronic materials and superconducting materials.
REFERENCES


