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Publishing Trends in Library and Information Sciences Across European Countries and Institutions

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ABSTRACT

Ten bibliometric indicators were used to assess European publishing intensity in journals listed in Scopus under the subject category "Library and Information Science" between 2003 and 2012. The findings were analyzed for the 20 countries and 25 research institutions with the greatest output in that period. The indicators calculated included normalized impact, number and proportion of highly cited papers and the distribution of papers by the quartiles defined in the Scimago Journal Rank (SJR). SJR is a measure of the scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where such citations come from. With SJR, the subject field, quality and reputation of the journal have a direct effect on the value of a citation. The analysis covered 11,931 Western and 939 Eastern European papers published in 149 journals. The highest output growth rates were found for Spain, Poland, Portugal, Italy, Greece and Austria. The highest impact ratings were attained by European institutions whose members are prolific authors of papers on informetrics. On the whole, the articles were written primarily in English, Spanish, German or French, while the publications most widely cited appeared in English language journals. This study presents bibliometric data that shed light on the status of Library and Information Science research in Europe today, in the framework of the European Higher Education Area.

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INTRODUCTION

The association between university libraries and bibliometric activities can be traced back to the nineteen sixties, when the discipline began to be used to create, manage and assess journal collections (Line, 1978). Interest in learning and using bibliometric techniques has recently rallied with the growing concern around the provision of support services for research.

Universities, research institutions, professors and researchers are immersed in increasingly dense accountability processes and performance assessments due to the pressure exerted by policy makers eager to improve decision-making and reorient and enhance public management of academic science and research (Herther, 2009; MacColl, 2010). Bibliometric indicators can help professors and researchers objectively ascertain the effect and impact of their research and furnish that information in performance assessment processes. That has generated a demand for and an interest in the bibliometric studies conducted primarily by university libraries, the institutions most familiar with the use of citation databases (Corrall, Kennan, & Afzal, 2013). The changes detected in researchers' academic environment also induce libraries to create content addressing information per se rather than only the use of information. Bibliometric-based measurement of professors' impact has thus been added to their research support services. Research impact may be understood to mean any recorded and verifiable effect of the research conducted by one author or group of authors on other actors or organizations (Wouters, 1999).

Ball and Tunger (2006) suggested that bibliometrics opens up a new business area for university libraries, contending that libraries are the sole interdisciplinary and independent institutions able to centralize these services. Drummond and Wartho (2009) described the organizational change undertaken in the University of New South Wales library in the wake of the Australian Government's implementation of a research assessment program entitled Research Quality Framework (Haddow, 2007). The result was the creation of the Research Impact Measurement Service, in which bibliometric indicators are used to measure the impact of faculties' and academics' research. Recent literature contains descriptions of similar services in libraries affiliated with the universities of Buffalo, U.S. (Hendrix, 2010), Vienna, Austria (Gumpenberger, Wieland, & Gorraiz, 2012), Queensland, Australia (Thomas, 2013) and Granada, Spain (Torres-Salinas & Jiménez-Contreras, 2012). Academic librarians providing research support services must, then, understand metrics, data sources and rankings and the respective background to be able to furnish their institutions' researchers with suitable advice (Pagell, 2014).

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The creation and propagation of global university rankings have aroused a good deal of interest of late, inasmuch as they have affected higher education institutions, primarily in the context of an increasingly competitive global market for higher education, with the intensification of transnational assessments of university status, reputation, quality and performance (Hazelkorn, 2013). Rankings set comparable objects on an ordinal scale based on measurements or scores associated with the objects to be compared. A number of authors have reviewed the major university rankings (e.g. Rauhvargers, 2011; Chen & Liao, 2012). One specific type of selective and global university ranking, focusing exclusively on research effort or results, deploys bibliometric indicators and draws from large databases such as Web of Science (WoS) or Scopus to analyze research published and cited. Examples can be found in the Leyden (www.leidenranking.com) and Scimago Institutions (SIR) rankings (www.scimagoir.com).

The present study was conducted along those lines, applying bibliometric indicators to articles published in journals listed in the Scopus Library and Information Science category to compare performance in the major European countries and research institutions from 2003 to 2012. The Scopus database of abstracts and citations of peer-reviewed academic literature was chosen to build the bibliometric indicators used here. Its large size, measured in the number of LIS journals listed (190 titles in 2012), ensures extensive coverage of national and western European academic output, papers in languages other than English and articles authored in eastern Europe (Hoogendoorn, 2008).

The research focused essentially on the acceptance of the number of citations received by a paper as a valid indicator of scientific community use and acknowledgement of its findings. Indeed, bibliometric indicators are the standard measure used at different levels of aggregation and across subject areas and geographies in the routine quantification and assessment of research results and their impact (Garfield, Malin, & Small, 1978; Narin, 1976; van Raan, 1996; Wouters, 1999; Borgman & Furner, 2002; Moed, 2005). For a number of reasons, such analyses have always been controversial (MacRoberts & MacRoberts, 1986, 1989, 1996; Adler, Ewing, & Taylor, 2009). Firstly, the exact reasons for citing a given paper are unknown (Nicolaisen, 2007). Secondly, citation practice and frequency often vary among research communities depending on their communication mores, number of publications reviewed, accessibility of the literature to researchers, languages covered and number of researchers making contributions in the fields considered. Reading habits consequently differ across disciplines and institutions and such variations are difficult to calibrate (Bornmann & Daniel, 2008). Thirdly, incomplete coverage by the databases chosen for analysis may lead to fundamental errors or bias due to the exclusion of technical reports, professional articles or books, which are not indexed. All this affects the accuracy of certain analyses (Meho & Yang, 2007), a problem compounded by the variations in institution and author names included in databases (Jacso, 2009), which may induce erroneous attribution (van Raan, 2004). Due to technical and methodological limitations, then, bibliometric analyses must be established, applied and interpreted cautiously, and always in keeping with best practice (Hicks, Wouters, Waltman, Rijcke, & Rafols, 2015).

BACKGROUND AND PROBLEM POSED

In the United States, rankings in general first began to be used to compare researcher and student performance more or less at the same time as bibliometric studies were introduced, in the early twentieth century (Cattel, 1906; Godin, 2006). Such assessments were conducted with growing intensity throughout that century by official bodies (Stuart, 1995). Bibliometric rankings are a specific instance of that approach. One of the most common ways to present indicator values is by listing countries, institutions or individual authors in descending order (May, 1997; Adam, 1998; King, 2004). Such rankings estimate and compare the competitiveness of research further to a specific portfolio of indicators that establish standards of achievement or results.

A sizeable number of studies have determined LIS output and researcher and journal productivity in the U.S. by counting the number of publications and citations listed in Social Science Citation Index (SSCI) bibliographic records (e.g. Hayes, 1983; Budd & Seavey, 1996; Budd, 2000; Adkins & Budd, 2006; Blessinger & Frasier, 2007). Based on the mere quantification of citations and a single indicator (number of papers/number of citations), such rankings establish a hierarchical list of universities and curricula on the grounds of the scientific impact of their publications, an exercise that has often proved controversial. Some authors contend, for instance, that the number of LIS papers and citations should not be taken from a single database such as *Web of Science* and advocate the use of others for measuring individual researcher or country outputs (Meho & Spurgin, 2005; Meho & Sugimoto, 2009). Since the introduction of the h-index (Hirsch, 2005; Alonso, Cabrerizo, Herrera-Viedma, & Herrera, 2009), studies have been conducted that rank researchers further to that indicator (Cronin & Meho, 2006).

LIS has not been unaffected by the research growth in nearly all countries, including developing countries (Wagner, 2008), in the wake of the creation of national scientific communities (Schott, 1993). In that respect, research has become a planet-wide endeavour, fathering bibliometric studies that characterize the national dimensions of LIS research. Examples can be readily found: Taiwan (Huang & Lin, 2011; Cathy Lin, 2012), China (Wang, 2011; Ma, 2012; Xiao, Zhang, & Li, 2015), Korea (Yang & Lee, 2012), Malaysia (Yazit & Zainab, 2007), Iran (Horri, 2004), Canada (Wolfram, 2012), Australia (Wilson, Boëll, Kennan, & Willard, 2011), Poland (Sapa, 2007) and Spain (Jiménez-Contreras, Delgado López-Cózar, & Ruiz Pérez, 2006; Grupo Scimago, 2006).

Other studies have a multi-national scope, comparing several nations in a given region. Based on an analysis of articles published in 21 core journals indexed in the Social Science Citations Index (SSCI) in 1980–1999, Uzun (2002) quantified the output of 19 Eastern European and developing countries. The largest contributions were made by India in 1980–84, Nigeria in 1985–1994 and China in 1995–1999. On the grounds of the activity index calculated (Frame, 1977), this author found that from 1980 to 1999 LIS research was most intense in Nigeria, Saudi Arabia, Botswana and Kuwait, and the least intense in Brazil, Taiwan, Mexico and India. Park (2008) studied 1397 papers published in 1967–2005 in 20 top LIS journals to ascertain the authorship patterns in the Asia and Pacific region, defined to include Australia, China, South Korea, Taiwan, Singapore, Japan, New Zealand, Malaysia, Thailand and Philippines. The findings revealed that authorship and collaboration differed in library science and information science journals. Australia, New Zealand, Taiwan and South Korea were the most productive countries in the former and Australia, China, South Korea, Singapore and Taiwan the most productive in the latter. A comparative analysis of Latin American output from 1966 to 2003 on a sample of 324 records listed in the Social Science Citation Index (Herrero-Solana & Ríos-Gómez, 2006) analyzed output by country. Brazil, Mexico and Chile were found to have the most prominent output, and individual authorship was observed to prevail. The U.S. was the most frequent collaborator, the National Autonomous University of Mexico the most productive institution and the journals *Scientometrics* and *Journal of the American Medical Informatics Association* the primary communication vehicles.

This study aimed to identify the European countries, universities and research institutions engaging most intensely in LIS, using bibliometric indicators to characterize their scientific output. To that end, the following mix of indicators was deployed: basic indicators available for decades, relative or normalized indicators that correct certain biases and advanced network analysis indicators that denote 'influence' or 'prestige'. The findings should help anyone engaging in the profession to understand the status of Library and Information Science research in Europe today, in the framework of the European Higher Education Area.

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