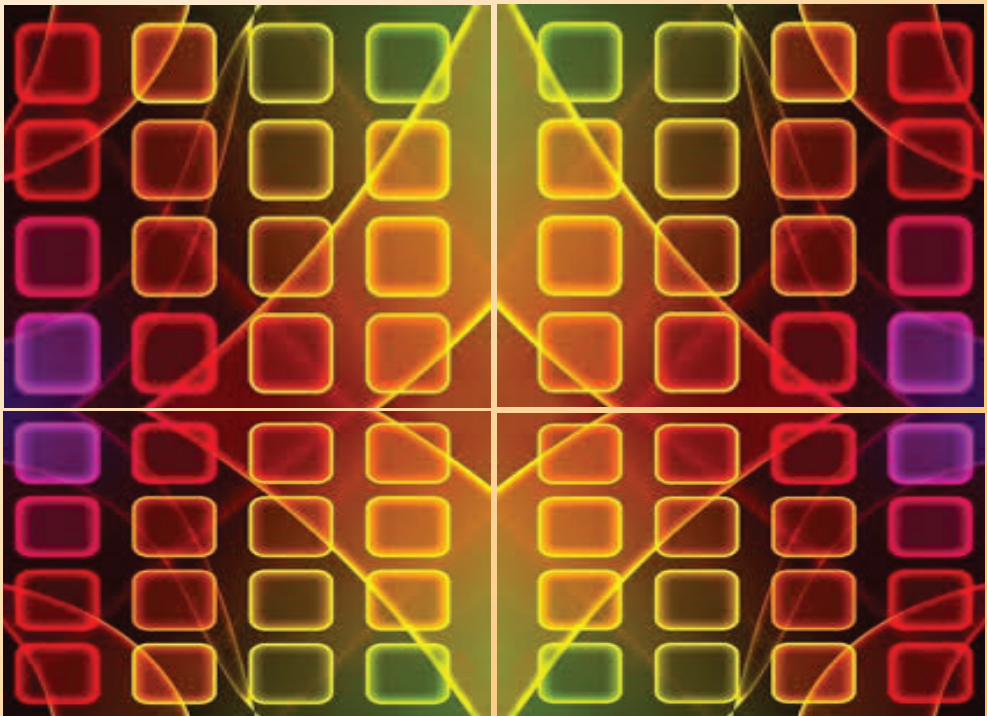


Emerging Trends in

Information and Knowledge Management



Editors:

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Section Seven: Role and Impact of Information and Knowledge Centres

The Role of Academic Libraries in Webometrics Ranking of Universities in Kenya

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Abstract

Academic institutions now operate in highly competitive environments. Consequently, myriad mechanisms for rating the services and impact of universities have emerged as a means of influencing the choice of potential students, faculty and partners. Webometrics has emerged in the recent past as one of the most popular frameworks for measuring the impact of universities. This mechanism puts great emphasis on research productivity and dissemination. Academic libraries have developed and implemented strategies to enhance their ranking. The role and levels of involvement of academic libraries in these strategies is unclear. This study analysed the role of academic libraries in enhancing Webometrics ranking of their parent institutions. It also examined the degree to which libraries are currently involved in enhancing the Webometrics ranking of their institutions as well as how they can scale up their roles. This study was designed as an exploratory survey because webometrics is a relatively new concept. Primary data was collected through key informant interviews with academic librarians. The respondents were selected through information-oriented purposive sampling. Additional data was collected through literature review. The data was analysed using descriptive statistics. The study established that academic libraries in Kenya are, to a great extent, involved in webometrics strategies through the development of the institution's repositories, generation of web content as well as publishing and providing access to updated e-resources. This involvement is effective because it facilitates enhanced scholarly communication, resolute institutional web presence, collaboration and networking among institutions, and ultimately endorsement of the institutions' webometrics ranking. The involvement can be scaled up through effective ICT policies and infrastructure, continuous training, involvement in library consortia, and high quality content development. The findings of this study may be used by academic libraries to mainstream their role in enhancing the research productivity and impact of their institutions hence facilitating a favourable ranking.

Keywords: *Webometrics, academic libraries, Kenya, universities ranking, role of librarians*

Background of the Study

All over the world, libraries are dedicated to providing equitable access to information for all; be it in written, electronic or audiovisual forms (Emeka, 2014). Silvani, Sirilli and Tuzi (2010) assert that academic libraries play one of the most important roles by meeting the information needs amongst university communities through free access to information services, platforms and products. These tools build bridges between individuals locally and globally in knowledge creation and sharing. In industrialised countries, access to modern information technology is currently one of the most attractive academic library services (Dadzie, 2015). In most African countries, academic libraries share a common trait – they have established themselves as an integral part of a national education and information system (Ikechukwu, 2009). They offer access to information, are highly service-oriented, and constantly improve their services through co-operation and networking (Krolak, 2005). Academic libraries are hybrid libraries that offer traditional media, and in the recent times, have a strong focus on providing access to online information (Rabai, 2013). In Kenya, academic libraries are increasingly cooperating with other community organisations as well as engaging in diverse activities including social readings, creative writing classes, and orientation on information and communication technologies and the Internet (Odera, 2011).

One major area that libraries, especially academic libraries, are continuously making a significant contribution is in webometrics. The information science field of webometrics is defined by Bjorneborn and Ingwersen (2004) as the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the web drawing on bibliometric and informetric approaches. More generally, it is perceived as the study of web-based content with primarily quantitative methods for social science research goals using techniques that are not specific to one field of study. The term *webometrics* was coined in 1997 by Tomas Almind and Peter Ingwersen in recognition of the fact that informetric analyses could be applied to the web (Almind & Ingwersen, 1997). Webometrics, therefore, is the quantitative analysis of web phenomena, drawing upon informetric methods, and typically addressing problems related to bibliometrics. Webometrics was triggered by the realisation that the web is an enormous document repository with many of these documents being academic-related (Silvani *et al.*, 2010).

The ranking of world universities, according to Aguillo, Ortega and Fernández (2008), is based on webometrics methods that consider the documentation published and made accessible via the Internet, specifically the size (page count) and impact (external in-links). In this way, all institutions at the

university level contribute content to the general performance of the university (measured through its official website). This contribution is quantified through webometrics. Webometric methods have been widely applied in Europe, and to a lesser extent in other continents such as Asia, Australia and Africa (Noh, 2012). Against this background, the current study examined the role of academic libraries in webometrics ranking of universities in Kenya.

Rationale of Study

Webometrics ranking of universities has gained popularity in the recent past in Kenya. Consequently, universities have put in place strategies to enhance better ranking each year. Most of the strategies currently used by universities in Kenya to enhance their ranking are anchored on the performance of ICT departments. The role of the academic library in this regard is unclear. Given that webometrics was originally developed to enhance the access of scientific knowledge through open access, academic libraries stand a better chance in supporting better ranking for their parent institutions. This is largely because academic libraries are the centres of scholarly work in universities and support the generation, collection, organisation and dissemination of scholarly work through myriad platforms of which open access publishing has become pivotal. Therefore, universities should involve academic libraries more in their efforts to get better webometrics ranking. This study makes a case for better involvement of academic libraries in institutional strategies to earn better ranking by demonstrating the potential role they can play.

The specific objectives of this study were to analyse the current levels of involvement of academic libraries in webometrics strategies of universities in Kenya; the effectiveness of this level of involvement; and rationale and strategies for scaling up this involvement. The authors also proposed a framework on how to involve academic libraries more effectively in institutional strategies to enhance webometrics ranking by universities in Kenya.

Theoretical Framework

The study leading to this chapter was anchored on the Information-Centered Research (ICR) theory. This theory is an e-research theory that focuses on a new information source by 1) developing generic research tools that can be applied across a number of problem areas; and 2) identifying relevant research problems. The ICR theory was developed by Thelwall and Wouters (2005). The ICR theory argues that information scientists should explore new web-based data sources in order to identify the disciplines in which they may be useful

and the methods that may be applied to extract data from them (Thelwall & Wouters, 2008). ICR approaches are currently applied by researchers as they contribute directly to knowledge in the form of publications or reports. They also deliver the information and associated processing techniques to appropriate knowledge domain experts who use the same for collaborative or solo research. ICR has been considerably criticised as an approach that roots for the delivery of data sources rather than dissemination of individual facts (Greenberg, 2009). The authors are of the view that an increasingly important strand of research within webometrics is the generation of metrics from the impact of academic articles using evidence from web searches for mentions of them. Thus, the Information-Centered Research theory is absolutely relevant to this study because it postulates that librarians should be pro-active information scientists on the web, directing researchers to useful tools and data sources which address their needs. This can directly boost institutional ranking based primarily on research and teaching-oriented data.

Literature Review

Webometrics is defined within the framework of informetric and bibliometric studies. Almind and Ingwersen (1997) identified the Web as an important source for measuring documents and information. After a short period, information scientists recognised that many powerful web measurements could be conducted using the new powerful advanced search features of the search engines. Historically, the development of webometrics is traced to the first half of the twentieth century from statistical studies of bibliographies and scientific journals. The term is associated with cybermetrics as a generic subfield (Holmberg, 2010).

Glanzel and Schubert (2005) observe that web presence measures the activity and visibility of institutions of higher learning and is a good indicator of impact and prestige of universities and colleges. The ranking summarises the global performance of the institutions, provides information for prospective students and scholars, and reflects the commitment to the dissemination of scientific knowledge. Currently, webometrics ranking of institutions of higher learning worldwide is published by the Cybermetrics Lab, a research group of the Spanish National Research Council (CSIC) located in Madrid. Webometrics ranking intends to motivate both institutions and scholars to have a greater web presence that reflects their activities accurately. According to Khan and Park (2011), if the web performance of an institution is below the expected position according to their academic excellence, university authorities should reconsider their web policy and promote substantial increases of the volume and quality of their electronic publications.

The original aim of webometrics ranking of world's universities was to promote web publication. Bar-Ilan (2005) indicates that open access initiatives, electronic access to scientific publications and the other academic material are the primary targets of webometric ranking of world's universities. Academic libraries, on the other hand, are entrusted with the generation of scientific publications (e-journals, repositories) and other scholarly resources. Due to this reason, Hertzal (2012) observes that the contribution of the academic library to the web performance of the corresponding university has been elevated. The contribution of academic libraries to webometrics ranking of universities is considered to be very high, due to the large amount of content stored on the library websites and repositories. The digitalisation of printed content and the creation of digital collections conform to a wide set of digital issues and plays a paramount role in the progression of webometrics ranking of institutions (Tolosa, 2010). Moreover, other units continue to emerge within academic library websites which are suitable for storing and making available large amounts of digital content, mainly online catalogues, digital collections and repositories and hence greatly contributing to better webometrics rating of the corresponding university (Mahmood & Richardson, 2012).

Methodology

The study which led to this chapter adopted an exploratory survey design because webometrics is a relatively new concept in Kenyan academic institutions. The exploratory survey design is a research design conducted about a research problem when there are few or no earlier studies to refer to. Exploratory survey design gathers preliminary information that helps define problems and suggest hypotheses. This design is applied when gaining insights and familiarity for later investigation or undertaken when problems are in a preliminary stage of investigation.

In this study, the target population included key staff members in academic libraries of five (5) selected public universities in Kenya. The selection of the five universities was based on recent webometrics rankings. In this respect, the authors picked the best two universities, two average ones, and the last one on the ranking. Based on the January 2016 webometrics ranking, the selected universities were the University of Nairobi, Kenyatta University, Dedan Kimathi University of Technology, Karatina University and Egerton University respectively. The respondents included the librarians working on the institutional repositories and ICT teams involved in webometrics. These respondents were selected through information-oriented purposive sampling. Using this technique, the authors subjectively picked respondents

who were acquainted with the concept of webometrics in a deliberate effort to gain pertinent information on the research issues. The use of information-oriented purposive sampling enabled the researchers to reach a targeted sample quickly. Further, it made it easier to get a sample of subjects with specific characteristics (Barton, 2001). The authors picked one librarian and one ICT specialist from each of the five universities; giving a total of ten respondents. The respondents were picked because they were deemed capable of providing pertinent information regarding the role of academic libraries in webometric ranking of universities in Kenya.

Primary data was collected through structured interviews using an interview schedule. A structured interview is a quantitative research approach commonly employed in survey research. The authors used the interview schedules as guides to ask the respondents a series of questions on the subject of the study. The data collected was analysed through descriptive statistics. Descriptive statistics were adopted for this study because they help describe, show or summarise data in a meaningful way. The outcomes of the qualitative data generated from open-ended questions in the interviews were analysed and categorised in themes in accordance with research objectives and was reported in a narrative form.

Findings and discussions

This section presents and discusses the findings of the study. The first section presents the response rate and background characteristics of the participating staff members. The rest of the sections are presented based on the research objectives.

Demographic information

The respondents consisted of librarians and ICT specialists of whom six (60%) were male while four (40%) were female. With regard to age, the majority of them (80%) were between 20 and 30 years old while two (20%) were between 31 and 40 years old. Pertaining to working experience, a majority of the library staff (60%) had a working experience of five years and above; 30% had three to four years of experience whereas one (10%) had one to two years of experience. These findings indicate that the majority of university staff involved with institutional repositories and other ICT related tasks are generally male and young individuals. These findings concur with the general perceptions that most of the male librarians are engaged in more technical than customer relations roles in libraries.

Current levels of involvement of academic libraries in webometrics strategies of universities in Kenya

To establish the level of involvement of librarians in webometrics strategies, the respondents were first asked to indicate the extent to which their university libraries were involved in webometrics practices. The majority (80%) of the respondents were of the view that their university libraries were involved in activities aimed at enhancing webometrics ranking to a great extent; the remainder (20%) indicated that their university libraries were involved to some extent. The respondents were further asked to specify the ways in which their university libraries were engaged in activities to enhance webometrics ranking. They stated that their libraries were involved by developing and updating the university's institutional repository (IR); publishing and providing access to current e-resources; and developing and publishing web content through the library web sites. These activities were aimed at increasing the volume and quality of web content related to the university. These contribute greatly to the size parameters of the webometric ranking criteria.

Effectiveness of current levels of involvement of academic libraries in webometrics strategies of universities in Kenya

The study was also interested in determining the effectiveness of the current levels of involvement of academic libraries in webometrics strategies of universities in Kenya. The respondents were first asked to indicate whether their libraries' engagement in webometrics was effective. All the ten respondents (100%) indicated that their libraries' engagement in webometrics was effective. The respondents were further asked to indicate the ways in which their libraries' engagement in webometrics was effective. They stated that the libraries were effective in enhancing webometrics ranking of their universities through enhanced scholarly communication by publishing in digital open repositories; development and provision of access to quality e-resources which endorse the universities' webometrics ranking; reinforcement of universities' web presence through increased web content; development of back-links to universities' domains; as well as promotion of collaboration and networking among universities to aid teaching and learning in the institutions. These findings indicate that academic libraries play an important role in generating and marketing content which enhances the web presence and impact of their institutions. The findings are in accord with the assertion by Hertzal (2012) that webometrics have been widely applied in academic libraries to facilitate storage of large amounts of electronic content such as scientific papers in repositories, digital collections, and a wide range of digital assets on library websites.

Rationale and strategies for scaling up involvement of academic libraries in webometrics strategies of universities in Kenya

The study further investigated the rationale and strategies for scaling up the involvement of academic libraries in webometrics strategies of universities in Kenya. In this effort, the respondents were first asked to point out whether academic libraries should be involved with webometrics or not. All the ten respondents (100%) indicated that academic libraries should indeed be involved in issues related to webometrics. The respondents were then asked to explain how academic libraries in Kenya can be effectively involved in webometrics. They explained that this could be done by implementing effective ICT policies; developing efficient web platforms like e-repositories so as to ensure active web visibility; building the competence of staff on open access scholarly communication; training key stakeholders on the benefits and impact of webometrics; developing and/or participating in library consortia such as the Kenya Library and Information Services Consortium (KLISC); developing high quality content; creating more web pages to improve the visibility of universities; uploading of diverse formats of web content; supporting academic staff to increase their web presence by creating accounts on platforms such as Google Scholar and ResearchGate; as well as upgrading systems to keep pace with the latest information technology trends. These findings are in agreement with the argument by Khan and Park (2011) that for the web performance of an institution to be at the expected position according to their academic excellence, university authorities should reconsider their web policy and promote substantial increases of the volume and quality of their electronic publications.

Conclusion

The study established that academic libraries in Kenya are, to a great extent, involved in webometrics strategies through the development of the institution's repositories, generation of web content, as well as publishing of and providing access to updated e-resources. This involvement is effective because it facilitates enhanced scholarly communication, increased institutional web presence, improved collaboration and networking among institutions, and ultimately better endorsement of the institutions' webometrics ranking. Nonetheless, this involvement should be scaled up by the libraries taking more roles in content creation, quality assessment, marketing and preservation.

Recommendations

This chapter recommends that academic librarians should lead the efforts by universities to enhance their webometrics ranking. This recommendation is based on the understanding that libraries manage the dissemination of organisational scientific research output through institutional repositories, self-archiving systems as well as other forms of scholarly communication including the publishing of journal articles. Besides, given their training, librarians have the capacity to assess and enhance the quality of scholarly content to make them more relevant to the information needs of their users. This can be achieved through diverse information repackaging approaches. The academic librarians should also lead the development of content creation, sharing and archiving policies which support effective dissemination of scientific output from the universities to their academic counterparts and the society at large. In this effort, the libraries can work with the departments of ICT as well as the corporate communications and marketing units in their universities.

Recognising the fact that most university web sites in Kenya are erratic due to infrastructural challenges, the researchers recommend that the university network administrators and ICT departments should make necessary arrangements to eliminate functional and infrastructural impediments by regularly updating their websites and ICT infrastructure to keep up with the current proliferation of Internet-based resources that are increasingly becoming freely available. Besides enhancing up-times of their web sites, these interventions would also increase the reach of the content on the web sites thus enhancing their impact.

Practical Implications of the Findings

The findings of this study may be used by academic libraries to mainstream their role in enhancing the research productivity and impact of their institutions hence facilitating a favourable ranking. The findings may also be used by academic institutions to develop appropriate job descriptions for academic librarians which go beyond the traditional roles by including tasks associated with webometrics. Academic institutions offering training in library and information science may also apply the findings to revise their curricula to integrate modules which build the skills of librarians to undertake webometric tasks competently.

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Editors' Bio data



Prof. Tom Kwanya, PhD, is an information scientist with several years of practical industry experience. He has developed and implemented information and knowledge management strategies; conducted knowledge audits; developed models and frameworks for knowledge elicitation and representation; established digital libraries and resource centres; as well as conducted capacity building and mentoring consultancies in the South, East, West and Horn of Africa regions. He has also taught information and knowledge management; development communication; technology-mediated communication; public relations; and infopreneurship in public and private universities in Kenya. He is a published author of several refereed journal articles, conference papers and two monographs. His current research interests include digital trends in information services; information seeking behaviour in digital contexts; infodemiology and infoveillance; library innovations; knowledge management; and infopreneurship. He is a member of the Knowledge Management Professional Society (KM Pro), Association for Health Information and Libraries in Africa (AHILA), Kenya Library Association (KLA), Computer Society of Kenya (CSK), and Public Relations Society of Kenya (PRSK). He currently serves as the Chairperson of the Department of Information and Knowledge Management at The Technical University of Kenya (TUK). He is also a Research Fellow in the Information Studies Programme at the University of KwaZulu-Natal in South Africa.



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Technology is constantly changing the way people seek information, communicate and collaborate. Consequently, information users in the modern era have embraced new information seeking behaviour as well as expectations for better usability, faster response times to their needs, and constant access to unrestricted information services. These expectations and the challenges therein have triggered new conversations on how to discover, invent and/or share knowledge in this age. These conversations have led to a drastic change in the environment in which libraries and information centres currently work.

This publication is a collection of invaluable experiences and ideas from information and knowledge management specialists on how best to manage and thrive professionally in the emerging infosphere. It postulates the different ways in which information and knowledge workers continue to collaborate with their stakeholders to create and sustain an information universe that facilitates the effective creation, collection, validation, organisation, sharing, usage and perpetuation of knowledge in a dynamic knowledge economy.

This book has 40 chapters covering the following themes:

- Emerging Trends in Libraries and Information Centres;
- Knowledge Sharing and Diffusion;
- Indigenous Knowledge;
- Records Management;
- E-Governance;
- Information and Knowledge Management Education;
- Role and Impact of Information and Knowledge Centres;
- Legal and Ethical Issues in Information and Knowledge Management;
- Social Media in Information and Knowledge Management; and
- Digital Trends in Information and Knowledge Management.