

# Contribution of Academics towards University Rankings: South Eastern University of Sri Lanka

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**Abstract:** The aim of this study is to analyze the publication habits of academics of South Eastern University of Sri Lanka and to quantify the research output and make the academics aware their specific responsibility in bringing the respective university to world class level through research output. Bibliometric study of publications of academics was carried out by short survey and comparison is done with the webometric analysis based on Google Scholar, Web of knowledge of Thomson Reuters and SCOPUS Database. The finding is though the academics of South Eastern University of Sri Lanka has published their research findings in the form of books, peer reviewed, refereed journals and conference proceedings, very few of them are indexed in ISI and included in the Web of Science and SCOPUS database. This study recommends the academics to publish their research findings at ISI indexed journals with high impact factor and deposit their publications at Institutional repository in order to uplift the position of the university in the league table.

**Keywords:** Ranking of Universities, Research productivity, publication pattern, bibliometric study, webometric ranking (W.R)

## Introduction

Ranking of World Universities has attracted much attention of university academics all over the world. Roles of academics especially their research activities and publications influence much in ranking the universities. This paper discusses about the contribution of academics and research performance of South Eastern university of Sri Lanka in ranking and

it explores the evaluation criteria for ranking universities. Publication pattern of academics is important as this is the prime indicator for visible indexes and citations. Rankings attempt to measure performance of a university beyond national borders. Also it helps to avoid evolving new institutions of higher education without academic traditions as well as without a respectable reputation. In addition, ranking supports to measure the output and performance by resources spent by establishing evaluation process, performance indicator and reporting schemes.

South Eastern University of Sri Lanka was established in 1995 with a very few young academics. Now, it has a population of 98 permanent academics for four faculties, those are Faculty of Arts & Culture (FAC), Faculty of Commerce and Management (FMC), Faculty of Applied Sciences(FAS) and Faculty of Islamic studies and Arabic Languages(FIA). Though many academics actively engaged in research activities and published their research findings in many formats and different sources those are not so visible and so that the university has not yet attained its proper place at the league table of ranking. Therefore it is important to study the research productivity of the university and make the academics to realize their implications in relation with university ranking.

## Objectives

The aim of this study is to analyze the publication habits of academics of South Eastern University of Sri Lanka and to quantify the research output in terms of publications and citations received. Specifically this

study explores the Web of Science database and SCOPUS database to quantify the ISI indexed research publication of South Eastern University of Sri Lanka. In addition this study analyzes the results of Google Scholar for the particular university. Also, this identifies the ways and means to upgrade the position of this university to world class level by making the academics to realize their responsibility and contribution in this regard.

## Methods

Survey method was used to obtain data from academics of South Eastern University. Quantitative approach to data collection and analysis was used. The research instrument is a questionnaire which includes open and closed ended questions in order to identify the publication pattern of the academics. The academic population is 98 in number which is considered as sample, too. 49 questionnaires were returned as a response rate of 50%. In addition Web of Science of Thomson Reuters and SCOPUS database searches were carried out to measure the ISI indexed papers of South Eastern University of Sri Lanka during 1996-2013. Results retrieved from Web of Science and SCOPUS were compared with results retrieved from Google Scholar and the list of local publications.

## Literature Review

### Ranking Universities

Ranking the universities by bibliometric measures was practiced from 2004 onwards. Bibliometric measures indicate number of publications in indexed journals and number of citations they had received. There were some pits and falls observed and criticisms arose by using bibliometric method for ranking. In this method larger and older institutions may be ranked top. Age of an individual potentially affect the lifetime citation levels. The older they are, the greater the opportunities accrue citations. To avoid such problems for smaller and young institutions, publications per capita for a specific period was used then. However bibliometric ranking was undergone many criticism and instead webometric ranking has been presently used.

### Evaluation of Research productivity

To evaluate research productivity of a particular academic or a research scholar as well as of an institution is done by two ways. Those are bibliometric study and scientometric study.

1. **Bibliometric Study;** Lancaster (1991) defined the term 'bibliometrics' can be applied to any form of quantitative analysis relating to the production, distribution and use of the published or semi published literature.

2. **Scientometric study.** Qualitative and quantitative study of scientific communication is called as scientometrics. Scientometric profile of a university is an indicator of the scientific activity of a university.

Bibliometric and Scientometric studies are used to evaluate the growth of the literature in some subjects/ disciplines, individual contributions in terms of publications, quality of the sources (eg. journals) in which the publication appear, how much literature exists in various languages, what sources authors cite and how much the work of an individual, groups or organization is cited. In other words how many citations are received? Quantitative measures of research productivity are mainly by publications and citations received. The extent and type of publication of the research results is the most obvious and immediate impact of a particular research productivity.

### Problems in Bibliometric methods:

- Self citing is a potential problem. Some authors over citing their own work. This is to increase their citations received and to increase the impact factor of a particular journal.
- Inconsistencies of method of referencing.
- Language bias preferential citing (eg. Sri Lankans preferably cite another Sri Lankan's paper)

Van Raan (2005) argues that though citations are good indicator of performance over a long period of time, peer review should be coupled/ counted with bibliometric analysis.

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## Indexes

Research papers which are indexed at International indexes such as Science Citation Index (SCI), Social Science Citation Index (SSCI) and Arts and Humanities Citation Index (AHCI) are the prolific indicators of research and development of a particular university. Scientists who dedicate much of their time, energy, intellectual ability and money for conducting research should identify the appropriate publication for publishing their work. Institute for Scientific Information (ISI) indexed journal list will be helpful to select the journal for publication and this citation is indexed at Web of knowledge. Web of Science was produced by Thomson Reuters for information in the Sciences, Social Sciences, Arts and humanities. This is an online database comprising SCI, SSCI and AHCI.

In addition ISI has created ISI HiCi (Highly Cited). ISI HiCi identifies top 250 academic researchers (depending on discipline) across 21 broad subject areas. Among 19 are Science subjects and Social Sciences are also covered but only on two areas. Those are 'Economics and Business' and 'Social Sciences general'. Goodall, 2005 expressed that at present no highly cited category exists in Arts and Humanities.

## Citations

Citations are references to authors in other academic papers as acknowledgement of their contribution to a specific research area. Citations are measures of quality. It helps for quick assessment of individual research output and quality. Citation analysis is concerned with which authors are most cited, which journals are most cited, who cites whom and which journals cite which journals.

Citation is the best indicator of the use of a publication. Citation is important in evaluating the potential impact of a research work. Source of the citation is another potential indicator of quality of a work.

## Research impact

Number of time a particular publication has been cited in a particular period of time is counted as a measurement of research impact (Lancaster (1991)). In other words, the number of citations received in a

particular period of time can certainly be taken as a measure of potential impact. The research output of an institution is the sum of the output of individual members.

## Impact factor

Dissemination of information regarding a research result is mainly carried out through scholarly journals. Articles in scholarly journals are frequently considered to be the tangible end result of a research project. Journals are ranked according to their impact factors. Mean citations rate for papers published in a particular journal is known as impact factor. Impact factor is measured by the following formula.

$$\text{Impact Factor} = \frac{\text{No. of citations received in year 3 by articles published in year 1 \& 2}}{\text{No. of articles published in year 1 \& 2}}$$

The most obvious measures of the impact of a research group or an institution is based on the prestige of the sources in which they publish and those based on how much they are cited and by what sources they are cited. Testing the impact is mainly done by analyzing the citation indexes such as SSI, SSCI and AHCI. Nowadays web of Science is heavily used for this purpose.

## SCOPUS Database

SCOPUS is a bibliographic database containing abstracts of academic journal articles. This covers 20,500 titles from over 5000 publishers all over the world of which 19,500 are peer reviewed journals in scientific, technical, medical and social sciences. The main and reputed international scientific journal publisher, 'Elsevier Science' is the owner of this database. It is accessible only by subscription.

## Web of Science

Web of Science is the world's leading citation database covers over 12, 000 of highest impact journals including open access journals and over 150,000 conference proceedings. This is produced by Thomson Reuters (ISI) and comparatively less coverage than SCOPUS database. Web of Science is the premier research platform for science, social sciences, arts and humanities. It is also accessible by subscription.

## Academic Ranking of World Universities (ARWU).

Higher Education at Shanghai Jiao Tong University (SJTU) ranked universities in 2004. This is known as Academic Ranking of World Universities (ARWU). SJTU ranked according to bibliometric methods. Criteria and indicators are given below (Liu and Cheng (2005)).

- Quality of Education: Alumni, Nobel prizes/field medals
- Quality of faculty: Staff's Nobel prizes and field medals
- Research Out put : Articles published in Nature, Science and citations of SCI, SSCI

After that many countries have ranked their universities by using the criteria of SJTU. Then webometric method has been introduced by Cybermetrics Lab, Spain. This is known as webometric analysis, based on this world universities are ranked.

## Web of World University Ranking (WWUR)

Techniques derived from bibliometrics and scientometrics were used to develop web indicators for ranking web which is called as webometric ranking. This was first done in 2004 by Cyber metrics Lab, Spain to promote public dissemination of scientific knowledge, especially through open access initiatives. Universities' web presence was considered as its global performance, the quality of its departments, services, the impact of its outputs and its international prestige. Nearly 20,000 institutions are ranked in webometric ranking. Indicators used in webometric ranking are as follows.[ Aguillo and Labajos (2010)].

**Visibility(V)50%** : Total number of unique external links received by a site, especially university's web domain. This is evaluated by using Yahoo search and Exalead. This is known as 'impact'.

**Activity (50%)**: Activity is measured by size, rich files and openness by scholar. Activity includes size (20%), rich files 15% and scholar 15%.

**Size (S) (20%)**: indicates the number of pages recovered from the largest engines. Those are Google, Yahoo, Live Search and Exalead. This is known as 'presence'.

**Rich Files(R) (15%)** : indicates the number of text files in Acrobat format(.pdf), doc, docs and ppt, extracted from Google and Yahoo. This is known as 'excellence'.

**Scholar(Sc) / 15%** : means the calculate of the mean of the normalized total number of papers and those(Recent papers) published between 2004-2012 found Google scholar. This is known as 'openness'

The four ranks are combined according to a formula maintaining the ratio 1:1 between Visibility and Activity.

Visibility [50%] : Activity [50%]

[Size(20%)+RichFiles(15%)+Scholar(15%)]

## Results and Discussions

Totally 98 questionnaires were distributed to get the publications details of the academics of South eastern university of Sri Lanka. Only 49members (50%) have responded. Respondents profile was compiled by faculties, highest qualifications achieved and their designation. Among the respondents 14 (29% ) are from FAC, 16 from FAS(32%), 15 (31%)are from FMC, 01(2%) is from FIA and 03 (06%) from Library. Majority respondents 30 (61%) are Senior lecturers and a very few 14 (29%) lecturers and 5(10%) from probationary lecturers.. Among them 17 (35%) respondents have attained doctorates and others 27 (55%) lecturers have masters level education. Only 05 (10%) have Bachelors degree only.

**Table 1 : No. Of publications for single Authorship**

Type of Publications	FAS	FAC	FMC	FIA	LIB	Total
No. Of books published	02	22	02	03	-	29
No. Of chapters of books published	-	12	01	-	01	14
No. of international refereed journal articles	06	05	09	05	01	26
No. of international non-refereed journal articles	05	03	01	-	-	09
No. of local refereed journal articles	23	27	12	05	06	73
No. of local non-refereed journal articles	01	36	04	-	-	41
No. of papers in conference proceedings	15	48	31	06	05	105
No. of abstracts for presentations	22	78	21	38	01	160
<b>TOTAL</b>	<b>74</b>	<b>231</b>	<b>81</b>	<b>57</b>	<b>14</b>	<b>457</b>

According to Table 1; total numbers of single authored publications of the respondents are 457 of which 29 books, 14 chapters of books, 26 international refereed articles, 09 international non-refereed articles, 73 local refereed articles, 41 local non-refereed articles, 105 papers in conference proceedings and 160 abstracts of presentations. Table 2 shows the types of publications of the respondents with co-authors.

**Table 2 : No. Of publications for Co-Authorship**

Type of Publications	FAS	FAC	FMC	FIA	LIB	Total
No. of books published	03	16	-	12	02	33
No. of chapters of books published	-	05	01	-	-	06
No. of international refereed journal articles	18	03	03	-	02	26
No. of international non-refereed journal articles	06	01	-	-	-	07
No. of local refereed journal articles	19	05	04	-	-	28
No. of local non-refereed journal articles	03	-	-	-	-	03
No. of papers in conference proceedings	18	03	10	--	-	31
No. of abstracts for presentations	72	14	14	-	02	102
<b>TOTAL</b>	<b>136</b>	<b>50</b>	<b>32</b>	<b>12</b>	<b>06</b>	<b>236</b>

Total number of publications for co-authorship is 236 which are comparatively lower than single authorship. The numbers of co-authorship publications

are 33 books, 06 chapters of books, 26 international refereed articles, 07 international non-refereed articles, 28 local refereed articles, 03 local non-refereed articles, 31 papers in conference proceedings and 102 abstracts of presentations.

This result indicates that SEUSL academics have published many more literatures as monographs, chapters of books, journal articles, conference proceedings and abstract of presentations. They have preferred single authorship than co-authorship. But, academics of FAS have published more international refereed journals with co-authors. Academics of FAC have published comparatively more books and chapters of books than the other faculties. In contrast academics of FAS and FMC have preferred both national and international refereed journals than publishing books. All faculties have given attention on presentations which were published as abstracts only.

It is important to check whether these are indexed in Google Scholar, SCOPUS Database and Web of Knowledge of Thomson Reuters. The results have been tabulated in the table No.3 below.

**Table 3 : No. of articles and citations retrieved for SEUSL**

Faculties	Google Scholar		Web of Science		SCOPUS
	articles	citations	articles	Citations	Articles
FAS	40	140	02	33	24
FAC	15	23	-	-	01
FMC	14	08	-	-	01
FIA	01	2	-	-	-
LIB	01	2	-	-	-
<b>TOTAL</b>	<b>71</b>	<b>175</b>	<b>02</b>	<b>33</b>	<b>26</b>

While Google scholar has 71 hits for South Eastern University of Sri Lanka SCOPUS Database has only 26 hits and Web of knowledge has only two. Though SEUSL has 52 international refereed journal articles for both single and co-authorship, SCOPUS shows only 26 papers. The main reason is they have failed in indicating the affiliation as SEUSL. Many authors have mentioned the affiliation of other universities in which they read for their post graduate studies. The different in number of hits of SCOPUS

and web of Science might be due to the impact factors of the journals. If the journals have highest impact factor only it will be appeared in web of science. Also, SCOPUS has more coverage. All the indexed papers are abstracted in SCOPUS while the citations received by SCI, SSCI and AAHCI only recorded in Web of Knowledge.

It is worth noting that FAS has published 24 ISI indexed papers as per SCOPUS and 40 articles in Google Scholar. In addition It has received more citations in Google scholar (Figure 1) and even in Web of Science. The two hits for Web of Science are from Computer Science and Mathematics. Citations of other local publications were unable to trace even the authors do not have records of their citation

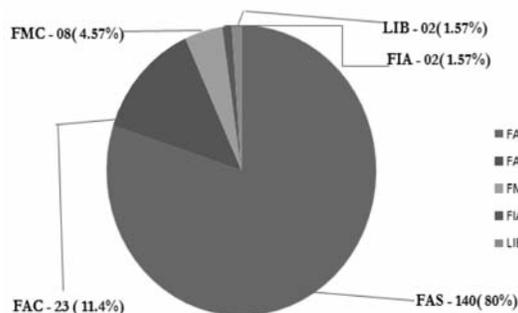


Figure 1: Citations count from Google Scholar

Considering the SCOPUS database search results; SEUSL has started publish their research papers in 1998 and there was no publications were abstracted in SCOPUS from 1999-2005. From 2006 onwards it has again got publications. In 2007 more number of abstracts recorded in SCOPUS. The diversity of publications by streams indicated that comparatively there were more papers published by Scientists belong to Physics department and then by Mathematics and Material Science.

## Conclusion and Recommendations

Majority academics of South Eastern University of Sri Lanka are enthusiastically engaged in research and publication activities. However Social Scientists have published most of their research findings as monographs and local languages. Very few papers have been published in ISI Indexed journals whilst other researches were published in local journals and conference proceeding and majority of them are not indexed even in Google scholar. Therefore the research activity of the university is not visible in web, thus cause the university's position at lower level. To increase the visibility and web presence of our university the following recommendations are given to get more attention.

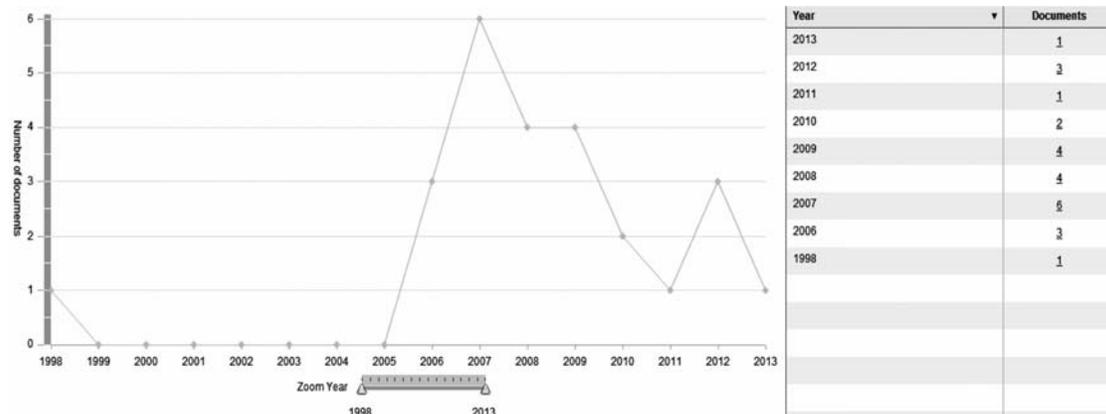


Figure 2 : Search results for South eastern University in SCOPUS Database

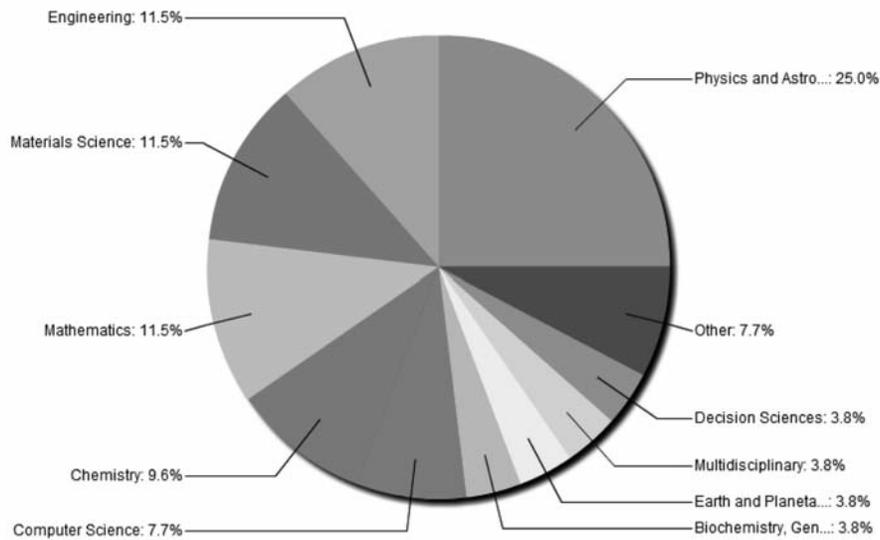


Figure 3 : SCOPUS results split by subjects

- Establish Institutional Repository (IR). This should be initiated by Librarian, but collaboration with faculties and administration is important. This repository should possess all publications of the university, academics, researchers, alumni's and students'. When deposit publications of researchers published by prestigious publishers copy rights and legal site should be given more attention. This can be obtained by particular researcher with the help of library academics.
- Deposit the local publications of academics especially monographs in local languages at IR. Metadata at least the bibliographical detail with abstract will work well in this regard.
- Motivate staff in research and publication works. Especially motivate them to publish at Open Access journals and monographs. This will enhance accessibility and citations of their papers.
- Though the academics have published many more local and international refereed papers, publishing in ISI indexed journals with high impact factor should be motivated.
- Engage in collaborate research with other universities, research institutions and organizations national as well as international level.
- When publishing paper with co-authors in collaborative researches, affiliation must be given.
- Updates university websites at a regular periodicity and explicit the links.
- Develop web pages of staff, update them and link them with the university's domain.
- In webometric ranking all the static and dynamic web pages are counted. Therefore encourage the academics to use dynamic web pages for academic works. Especially Course Management Systems have to be established for each course, Black boards and blogs can be used in online communication. In this case avoid bad practices in web naming and give more attention at the domain name as uniform.
- Administrators and non academics too should contribute in increasing the visibility of South Eastern University.

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