ON STATUS OF RESEARCH OUTPUT OF THE CENTRAL UNIVERSITY OF GUJARAT

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ABSTRACT

This paper presents a scientometric analysis of research publications of the Central University of Gujarat (CUG). The publications published in 2010 to 2014, indexed in Web of Science (WoS) were considered for the analysis. Different scientometric indicators have been calculated to give better insight of the research performance measured in terms of quality as well as quantity. Moreover, collaboration at different levels such as author, institution is measured along with the status of collaboration at international level. The major research areas have been also explored. This study provides a very brief but informative summary of research publications at CUG.

KEYWORDS: Scientometrics, Research Measurement, Research Competitiveness

Central University of Gujarat in Gandhinagar, Gujarat, India was established through an Act of Parliament, Central Universities Act, 2009 by Government of India. Scientometric analysis has emerged in the last few years and basically deals with the study of measuring and analyzing science, technology and innovation. The objective of the study is to achieve an analytical view of overall research status of CUG using standard scientometric techniques in the recent past. Some other similar studies for several institutions have been done in the past (Singh et al., 2005; Lee, 2003; Jeevan & Gupta, 2002).

DATA COLLECTION

For collecting the publication metadata, the renowned Web of Science (WoS) index was used which covers a selected group of journals and conferences. The data was collected for the period 2010-2014. The query used for the collection of data was: [OG = "CENTRAL UNIVERSITY OF GUJARAT" Timespan=2010-2014, Indexes=SCI-EXPANDED, SSCI, A&HCI]. The data was obtained in April 2015. There are different types of record such as article, proceedings paper, book review, note, review, meeting abstract, letter, editorial material etc. Each record in WoS consists of 61 fields including meta-data about the records, such as paper title, author address, citation references etc.

METHODOLOGY

The standard Scientometric methodology was followed to compute various parameters like Average Citation Per Paper (ACPP), Cited Percentage (CP), proportion of Highly Cited Papers (HiCP) and Internationally Collaborated Papers (ICP), and different quality indexes (h-index, g-index, hg-index, P-index). The authorship pattern has been identified along with their performance indicators. The top productive authors were identified and their performances were accessed based on their publications’ impact. The most collaborating institutions and countries have been recognized using extraction of information from affiliation text. Finally the major research areas were explored using WoS category information and mapping them to a predefined 14 major areas of research. The parameters have been obtained by a programmatic analysis of the collected data using R.

RESULTS

Research Output and Growth Trend

Total 61 publications were found for the period 2010-2014. Figure 1 shows the year-wise growth of total papers (TP). An increasing trend was observed in the last 5 years.
The authorship pattern, shown in figure 2, depicts that the number of papers with more than three authors has been increasing over the years. It is a clear indication of increasing collaborative research among the researchers. Total 96.72% (59) papers were co-authored whereas 22.95% (14) papers were internationally co-authored.

The percentage of internationally collaborated papers (ICP) increased in the period 2010-2012 and then decreased in the years 2013 and 2014 (shown in figure 3).

In table 1 and table 2, the most participating countries and institutions in collaboration with CUG are listed. It can be seen that United States and Jawaharlal Nehru University top in these list, respectively.

The research impact can be measured as the number of citation received by the publications. Moreover, the number of highly cited papers (HiCP) is also a good indicator of quality publications. The top 5% mostly cited papers count in ICP. Both the average citation received by per paper (ACPP) and HiCP are presented in figure 4. It shows that the...
ACPP is highest for the year 2011 whereas the HiCP value is highest in the year 2014.

Figure 4: The ACPP and HiCP percentages over the period 2010-2014

In addition to measuring the citation impact the percentage of cited papers is also calculated (shown in figure 5) and it is observed that the publications of year 2011 were cited 100% but later the percentage of cited paper decreased. This is due to the fact that publications need a minimum time span to be spread and cited.

Figure 5: The percentage of cited papers in 2010 to 2014

The popular performance indexes such as h-index, g-index, hg-index and P-index are also calculated to see the overall performance of the institution (shown in figure 6). All the indexes follow same trends. It is also seen that the publications of 2012 over performed the best in the period.

Figure 6: Different performance indicators over the years

Top Authors and Major Research Areas

The top performing authors in terms of total publications (TP) are found and their corresponding performances are also measured. The top 5 authors are listed in table 3.

Table 3: Top authors (in terms of TP) and their indicators

<table>
<thead>
<tr>
<th>Author</th>
<th>TP</th>
<th>TC</th>
<th>h-insde</th>
<th>g-insde</th>
<th>i10-insde</th>
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<td>4</td>
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</table>

The major research areas are explored using the WoS categories which are grouped to 14 predefined major research areas such as Physics (PHY), Mathematics (MAT) etc. Chemistry (27%) and Biological Science (16%) are the most researched areas followed by Medical Science (13%) in CUG.
CONCLUSION

The study is the result of detailed scientometric analysis of CUG’s research publications during the period 2010-2014. The publications indexed in WoS have been analyzed and different scientometric indicators were obtained. This result may be useful for prospective students, researchers and research policy makers in the institution and relevant bodies.

REFERENCES

