15TH INTERNATIONAL CONFERENCE ON SCIENTOMETRICS and INFORMETRICS.

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BOGAZICI UNIVERSITY. ISTANBUL- TURKEY.

Application for participation at the Doctoral forum.

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Research Topic: Can counts of Mendeley readers be used to predict the future citation impact of academic articles in computer science, construction engineering and manufacturing engineering?

Description of doctoral research project:

Social web sites have become important platforms for researchers to measure the impact of their work. Altmetrics is the term used to describe metrics for publications derived from social web sites. Mendeley is an academic social web site for managing references, creating online profiles and sharing with peers. It has an open Applications Programming Interface (API) that can be used for compiling usage indicators with a database of 2.6 million users as of October, 2013 (Mohammadi et al 2014).

Currently, Mendeley readership statistics seems to be the most closely related to citation counts, in comparison to other altmetrics, because Mendeley reader counts appear to correlate more highly with citation counts than do other altmetrics (Thelwal and Wilson 2014). Mendeley particularly used by undergraduates and postgraduates, whereas citation can only be made by authors. Mendeley data seems to be available more quickly than citation data as it is not subject to delays in publication (Mohammadi and Thelwal, 2014).

Citation analysis has been used in the past by researchers as an important tool in bibliometrics to assess the performances of scholars, research groups, departments and institutions (Moed, 2006. P.71). According to Ruiz-Castillo (2012), differences in publication and the practice of citation in scientific articles are characterized by different distributions of references and citations. For example, during 1998-2002, Economics and Business and Molecular Biology and Genetics had 62,685 and 150,237 articles respectively, representing 1.3% and 3.1% of the total number of all scientific publications. The study further revealed that citation distributions are highly skewed, and deduced that citation distributions can be represented by power law or Pareto distributions.

A Survey conducted by Mohammadi, Thelwall and Kousha (2014) indicates that out of 860 Mendeley users, about 55% who bookmarked articles in Mendeley had actually read them or intended to read and to cite them in their publications. However not all readers record their articles in Mendeley, so the data does not actually represent all readers, but most importantly the survey shows that Mendeley bookmark counts seems to be an indicator of readership; considering its impacts both academically and professionally. Another study by Mohammadi and Thelwall (2014) indicates that an overall correlation between Mendeley

readership counts and citation for the field of social sciences was found to be higher than in the field of humanities.

Similar studies have been carried out which measure the correlations between citation and altmetrics: Mendeley readership altmetrics for medical fields (Thelwal and Wilson, 2014), an altmetrics analysis of Mendeley users categories (Mohammadi et al 2014), Mendeley Bookmarks and readership (Mohammadi, Thelwall and Kousha, 2014), and Mendeley readership altmetrics for social sciences and humanities (Mohammadi and Thelwall, 2014). The extent of the studies in the fields of computer science, manufacturing engineering and construction engineering is still unknown, however this study aims to fill the gap by analysing how counts of mendeley readers can be used to predict the future citation impact of academic articles in computer science, manufacturing engineering and construction engineering.

Research Questions:

1. To what extent do Mendeley readership counts correlate significantly, strongly and positively with citation counts in all the fields of computer science, construction engineering and manufacturing engineering?

2. Do Mendeley readership counts fit the same type of distribution as that of citation counts for all fields of computer science, construction engineering and manufacturing engineering?

Methodology:

All the fields in computer science, construction engineering and manufacturing engineering within Scopus will be selected for the research study. I will download the articles of the above mentioned fields from Scopus for the year 2011. The year 2011 is chosen to give a considerable period of the time to attract citation and readership counts. Details of the most recent journal articles and the oldest articles from each field from 2011 will be downloaded from Scopus in April, 2015. A number of statistical tests will be carried out on the downloaded data set such as: descriptive statistics, power law and lognormal distribution. The tests will be done in order to assess whether one model fits a data set significantly better than does another.

Motivation for participation:

My desire to participate in the doctoral forum and the conference is to acquire new knowledge about how to carry on effectively with my research work. The doctoral forum will give me the opportunity to meet, interact, exchange and gain useful knowledge from research students with similar research backgrounds.

With the presence of some senior researchers, I hope to acquire fresh ideas through interactions about how to improve on my research project, and also to discover some new software tools which can be of help for analysing altmetric data.

Refernces:

Moed, H.F. (2006) *Citation analysis in research evaluation.* Springer Science & Business Media.

Mohammadi, E., Thelwall, M., Haustein, S. and Larivière, V. (2014) who reads research articles? An altmetrics analysis of Mendeley user categories. *Journal of the Association for Information Science and Technology.* pp. 1-28 .

Mohammadi, E., Thelwall, M. and Kousha, K. (2014) Can Mendeley Bookmarks Reflect Readership? A Survey of User Motivations. *Journal of the Association for Information Science and Technology.*

Mohammadi, E. and Thelwall, M. (2014) Mendeley readership altmetrics for the social sciences and humanities: Research evaluation and knowledge flows. *Journal of the Association for Information Science and Technology* **65**(8), pp. 1627-1638 .

Ruiz-Castillo, J. (2012) The evaluation of citation distributions. *SERIEs* [online]**, 3**(1/2), pp. 291-310.

Thelwall, M. and Wilson, P. (2014) Mendeley Readership Altmetrics for Medical Articles: An Analysis of 45 Fields.