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The evaluation of the global research on the education: A scientometric approach

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Abstract

The scientometric analysis of the research has become one of the most used methods to assess the research performance of the individual researchers, departments, faculties, universities, countries, and journals in recent years. However, there has not been an extensive scientometric evaluation of the global research on the education to examine the development of the research in this area. The purpose of this study was to carry out a scientometric evaluation of the global research performed by the higher education institutions on the education for the period from 1980 to 2011. The scientometric analysis has a great potential to gain valuable insights into the evolution of the global research on the education, complementing the scientometric studies in the other fields such as renewable energies as well as students with disabilities providing a unique insight on the incentive structures for all the key stakeholders in the field. It was concluded in this context that the incentive structures may have not been well designed to produce superior research performance in educational research as in hard sciences such as Engineering and Health Sciences especially in the design of the rules for the academic appointments and promotions in universities.

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1. Introduction

1.1. *The importance of the educational research*

The importance of the educational research as a public policy issue at a global scale has been well established (e.g. Albanese & Mitchell, 1993). The emphasis has been mostly on the reading behavior in children, medical education, student learning and teaching processes, and alcohol abuse in college students, as the most cited papers.

1.2. *The importance of the scientometric research*

There has been a significant interest in the research community in general to evaluate the research activities through the use of the scientometric methods (Konur, 2011a-k, 2012a-i).

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1. 3. *Issues*

Despite the increasing importance of the research on the educational research and the scientometric research, separately, there has been no published scientometric study of the educational research in the scientific community as of December 2011.

Therefore, the aim of this paper is to carry out a scientometric evaluation of the educational research published in the journals indexed by the Social Sciences Citation Index (SSCI), published during the last three decades to identify the main trends and issues in this field, as the first ever study of its kind.

2. **Material and methods**

A search was carried out in Social Sciences Citation Index (SSCI) using the ISI Web of Knowledge database (v.5.4- Web of Science) of the Thomson Scientific Inc for the period from 1980 to 2011 (November), in November 2011. These indices have become the gold standard for the scientometric analysis (e.g., Konur, 2011a-k, 2012a-i). The traditional methods of scientometric research as applied in many scientific fields were applied in this study.

The whole SSCI was searched at first and the subject heading of “Education and Educational Research” was selected for the study where the address of the authors was from a university, college or institute for the period from 1980 to 2011.

The search was refined restricting the research output to “articles”, “reviews”, and “proceedings papers”. It is clear that this piece of study is sensitive to the use of these keywords in the abstract pages of the papers (e.g., Konur, 2011a-k, 2012a-i).

3. **Results**

3. 1. *Document type*

179,832 references were found in total for the entire search period from 1980 to 2011 (November) as of November 2011.

69.6% of the references were articles followed by book reviews (16.7%), editorial materials (5.5%), proceedings papers (2.6%), note (2.3%), and reviews (2.1%). The other materials constituted 3.9% of the sample. It was noted that in some cases more than one document type might be assigned for a document as the total percentage of the item was 102.6%.

The search was refined restricting the research output to only the first three items: articles, reviews, and proceedings papers, resulting in 128,929 papers constituting 71.7% of the sample. This formed the main sample for the paper. In the research assessment of the researchers, institutions and countries, articles, reviews, and proceedings papers have been considered as the core group (e.g., Konur, 2011a-k, 2012a-i).

3.2. *The most prolific authors*

The research on the most publishing authors has been an important aspect of the scientometric research as the results of study have enabled the readers to locate those researchers with potential to influence the field of study (e.g., Konur, 2011a-k, 2012a-i).

Based on the new sample of 128,929 papers, the most publishing 20 authors were located, publishing between 72 and 172 papers. These 20 authors published 1,603 papers altogether comprising 1.2% of the sample. Number of citations per paper changed from 0.69 to 26.39 whilst h-index varied from 4 to 33. These authors had 32 papers with over 100 citations.

The most publishing authors were “Matson JL” (172 papers), followed by “Fuchs LS” (121 papers), “Fuchs D” (112 papers), “Pascarella ET” (112 papers), and “Roth WM” (110 papers).

3. 3. *The most prolific countries*

The research on the most publishing countries has been an important aspect of the scientometric research. Thus, an exercise was carried out to determine the most publishing 20 countries. The Table 2 shows that the most

publishing single country on the educational research was the USA with 79,566 papers, comprising 61.7% of the sample. The next most publishing four countries were England (9.6%), Canada (5.4%), Australia (4.9%), and Netherlands (2.2%).

3.4. The most prolific institutions

The most prolific institution analysis provides valuable information on the comparative contribution of institutions and reflects the public emphasis on the ranking of the institutions by scientometric methods.

The most publishing 20 research institutions published together 28,659 papers, comprising 22.23% of the sample. It was found that the “Univ Wisconsin” of the US was the most prolific institution (1.86% of the sample), followed by “Univ Illinois” (1.79%), “Univ N Carolina” (1.56%), “Univ Minnesota” (1.20%), and “Univ Georgia” (1.19%), all from the USA, suggesting that the research in this area has been well diffused with many research centers across the globe. These results are also in line with the results on the most prolific countries and most prolific authors as the universities were from the most publishing countries such as the US.

3.5. The language of communication

The main type of communication was English, comprising 97.3% of the sample. The other languages were German (1.4%), Spanish (0.4%), and Portuguese (0.2%) with the addition of new national journals to the indices in recent years with severe language effect in university rankings.

3.6. Publication years

It is notable that the number of publications jumped significantly in 2005 from 4,173 papers to 4,512 papers and making a peak in 2010 with 7,945 papers. Otherwise, the number of publications between 1980 and 2005 was steady changing between 3,000 and 4,000. The portion of publications during the 1980s, 1990s, and 2000s was 25.81%, and 36.22% of the sample, respectively. These data provide further evidence that the educational research has been a mature research area since 1980 unlike biofuels (e.g., Konur, 2011 a-k, 2012a-i).

3.7 The most prolific journals

The most publishing 20 journals, publishing between 1,215 and 2,511 papers on the educational research were found. “Phi Delta Kappan” was the most publishing journal with 2,511 published papers, comprising 1.95% of the sample; followed by “Educational Leadership” (2,376 papers), “Computers Education” (2,274 papers), “Journal of Learning Disabilities” (1,854 papers), and “Journal of School Health” (1,847 papers). These most publishing 20 journals as a whole contributed to the 24.64% of the sample publishing 31,762 papers. These findings suggest that the research in this area have been well diffused on the journals basis.

3.8. The most prolific subject areas

The decomposition of scientific literature into disciplinary and subdisciplinary structures is one of the core goals of scientometrics.

“Education Educational Research” was the subject area where 100.0% of the sample was published. This was followed by “Rehabilitation” (11.83%), “Psychology” (9.35%), “Health Care Sciences Services” (3.81%), and “Linguistics” (3.80%).

Another important finding from this table is that the research on the educational research was of the interdisciplinary nature following a similar pattern in bio-energy and biofuels (E.g., Konur 2011a-o, 2012a-i).

4. Conclusion

As the data on the historical progress of the research output show, the educational research has been an emerging high-profile research field in recent years (e.g. Albanese & Mitchell, 1993).

At the same time, the scientometric evaluation of the topical fields has also become a high profile research area (e.g., Konur, 2011a-k, 2012a-i).

Therefore, it has been timely to apply the scientometric techniques to the educational research as the first-ever full scientometric study of the educational research literature, complementing the other studies on hydrogen energy, bio-energy, biofuels, social sciences, and students with disabilities (e.g., 2011a-k, 2012a-i).

Results provided helpful insights into the research on the educational research in many fronts including the document type, sample size, the most publishing authors, the most publishing countries, the most publishing research institutions, the language of papers, the historical development of the research output, the most publishing journals, and the subject areas in the first strand of the analysis.

The results showed that the research on the educational research had been steady between 3,000 and 4,000 per year between 1980 and 2004 and doubled after that.

This provides further incentives for all the stakeholders of the research on the educational research, but especially for the researchers and their institutions and their countries to do more research in this area.

This first-ever scientometric study on educational research shows that the scientometric analysis has a great potential to gain valuable insights into the evolution of the research on the educational research as in the case of bioenergy, students with disabilities, and social sciences (Konur, 2011a-k, 2012a-i).

This study could further be extended to the scientometric study of the institutions, countries, and researchers in relation to the educational research to put the findings of this study in a wider picture (e.g. Konur, 2011a-k, 2012-ai).

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