Scientific Visibility in Educational Innovation Extracted from the Scopus Database

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Abstract: Educational innovation represents the attitude and process of generating new contributions, which can be carried out individually or collectively, for the solution of problematic situations that allow a transformation in environments where they are applied. This article analyzed the concept of educational innovation used in the research carried out at the Universidad Técnica Particular de Loja, which were indexed in the Scopus database from 2016 to 2019. In this context, the systematic mapping study (SMS) was applied to evaluate the quantity and types of primary studies in educational innovation that the UTPL has as scientific evidence in the last 4 years. The SMS methodology was used as a research methodology, it will allow sorting and classifying information in the field of Educational Innovation.

1 INTRODUCTION

Nowadays large databases publish research of various kinds, the number of these investigations is growing every day. However, it is very difficult for people to extract useful information from a data repository with large volumes of information.

The extraction of information (IE), is an area of research that automates the extraction of information from textual documents (de Abreu et al., 2013).

There are several methodologies in this area that make possible an extraction and ordered selection of documents. According to (Fader et al., 2011) and (Xavier et al., 2015), traditional IE is based on the training of an extractor with some previously defined objective relationships. The main drawback of traditional IE is its low coverage and good adjustment when applied to a particular domain. When texts are from different domains or contexts, human intervention may be necessary (Glauber and Claro, 2018).

According to (Petersen et al., 2008), a systematic mapping study (SMS) is a methodology frequently used in medical research. In recent years, it has been applied frequently in computer science or computer science, mainly in engineering. An SMS aims to classify, conduct a thematic analysis, identify forums and possible research gaps (Petersen et al., 2015). The difference with the traditional review is a rigid definition of the rules for conducting the study. To our knowledge, there is no mapping study on ”open information extraction” (Glauber and Claro, 2018).

2 METHODOLOGY SYSTEMATIC MAPPING STUDIES

According to (Budgen et al., 2008), systematic mapping studies (SMS) use the same basic methodology as SLR, but aim to identify and classify all the research related to a broad topic of educational innovation in place to answer questions about the relative merits of competing technologies that address conventional SLRs (Cornide-Reyes et al., 2019).

Figure 1 shows the process of the SMS methodology under the work domain Educational Innovation.

2.1 Systematic Mapping Study Process

An SMS provides a structure of the type of research reports and the results that have been published when categorizing them (Zhang et al., 2018).

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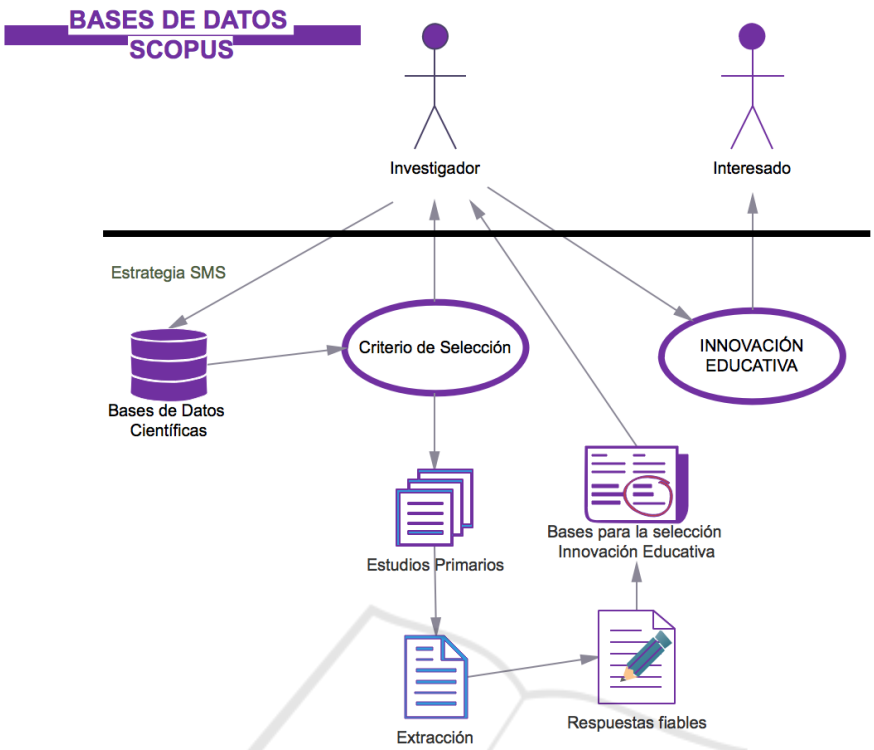

Figure 1: Process Methodology SMS in the Data Base Scopus.

2.2 Search Strategy

To develop the search strategy, it was necessary to consider the title, the abstract, the year, the authors and the keywords of the articles in the scopus electronic database and the procedures of the conference were identified according to the search strategy which is established below:

1) Keywords: Innovation, Education, Educación (spanish) and Innovación (spanish).

2) Search string: the following general search string is formed: ((”Innovation OR Innovación) AND (Education OR Educación”))

The reason to formulate a generic chain is that in the mapping study we want to cover all the literature that informs about the work of Educational Innovation.

2.3 Search Sources

To search many different electronic sources; no single source finds all the primary studies. In an attempt to conduct an exhaustive search, we should identify at least five relevant electronic sources. In the present work, only information was extracted from a single source considering that it is one of the sources where the UTPL has the largest publications. In the near future there will be an analysis of the publications that the UTPL has in other sources such as Latindex, Web of Science, Scielo, IEEE, etc.

3 RESULTS

Table 1: Number of articles years 2016 to 2019.

Data Base	Type Publications	Percentage
Scopus	Journals	44,19 %
Scopus	Conferences	55,81 %

The table 1, shows the percentage of publications in conferences and journals that exist in educational innovation in both language Spanish and English.

The Figures 2 and 3 and tables 2 and 3 show the results obtained from the application of the SMS methodology in relation to educational innovation extracted from the scopus database.

4 CONCLUSIONS

SMS works very well in the extraction of data as a research methodology both in a single domain and in several if required.

Table 2: Number of articles in journals - years 2016 to 2019.

Year	Journal Name	Quantity
A-2019	RISTI - Revista Iberica de Sistemas e Tecnologias de Informacao	1
A-2019	Smart Innovation, Systems and Technologies	2
A-2019	Retos	1
A-2019	Advances in Intelligent Systems and Computing	1
A-2019	Journal of Enterprising Communities	1
A-2018	Corpoica Ciencia y Tecnologia Agropecuaria	1
A-2018	RISTI - Revista Iberica de Sistemas e Tecnologias de Informacao	2
A-2018	Scottish Geographical Journal	1
A-2018	Revista Iberoamericana de Diagnostico y Evaluacion Psicologica	1
A-2018	Educacion XX1	1
A-2018	Revista de Investigacion Educativa	1
A-2018	Investigacion Operacional	1
A-2018	Revista de Estudios Regionales	1
A-2018	Investigaciones Regionales	1
A-2018	Espacios	3
A-2018	Business and Economic Horizons	1
A-2017	Prisma Social	1
A-2017	Inteligencia Artificial	1
A-2017	Journal of Cleaner Production	1
A-2017	Drug Discovery Today	1
A-2017	Magis	1
A-2017	Computers and Education	1
A-2017	Journal of New Approaches in Educational Research	1
A-2017	Revista Iberoamericana de Educacion Superior	1
A-2017	Espacios	1
A-2017	Revista Latina de Comunicacion Social	1
A-2016	Brazilian Journal of Infectious Diseases	1
A-2016	Frontiers in Computational Neuroscience	1
A-2016	Opcion	2
A-2016	Advances in Intelligent Systems and Computing	1
A-2016	Espacios	1
A-2016	Comunicar	1

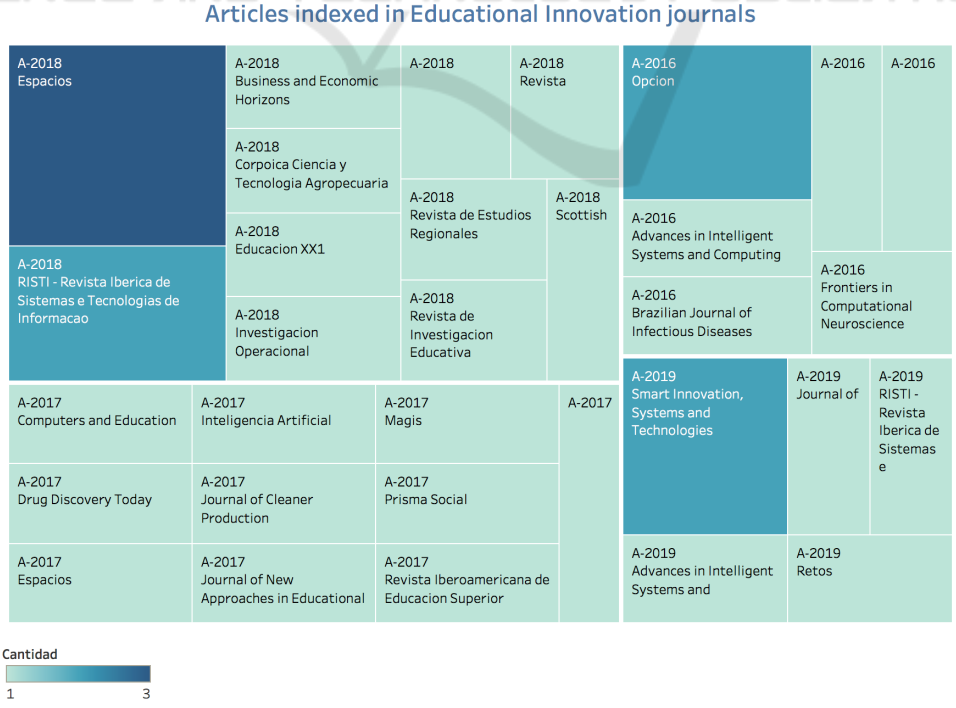

Figure 2: Publications in journals on scopus from 2016 to 2019.

Table 3: Number of articles in conferences-years 2016 to 2018.

Year	Conference Name	Quantity
A-2018	17th International Conference on Information Technology Based Higher Education and Training, ITHET 2018	1
A-2018	Iberian Conference on Information Systems and Technologies, CISTI	9
A-2018	IEEE Global Engineering Education Conference, EDUCON	2
A-2018	Proceedings - 2017 International Conference on Information Systems and Computer Science, INCISCOS 2017	1
A-2018	Congreso Internacional de Innovacion y Tendencias en Ingenieria, CONIITI 2017 - Conference Proceedings	1
A-2018	CEUR Workshop Proceedings	1
A-2017	Iberian Conference on Information Systems and Technologies, CISTI	12
A-2017	Proceedings - International Conference of the Chilean Computer Science Society, SCCC	1
A-2017	2017 7th International Workshop on Computer Science and Engineering, WCSE 2017	4
A-2016	Proceedings - Frontiers in Education Conference, FIE	1
A-2016	2016 International Symposium on Computers in Education, SIIE 2016: Learning Analytics Technologies	1
A-2016	IEEE International Symposium on Industrial Electronics	1
A-2016	ACM International Conference Proceeding Series	3
A-2016	Proceedings of 2016 SAI Computing Conference, SAI 2016	1
A-2016	Iberian Conference on Information Systems and Technologies, CISTI	6
A-2016	IEEE Global Engineering Education Conference, EDUCON	2
A-2016	2016 3rd International Conference on eDemocracy and eGovernment, ICEDEG 2016	1

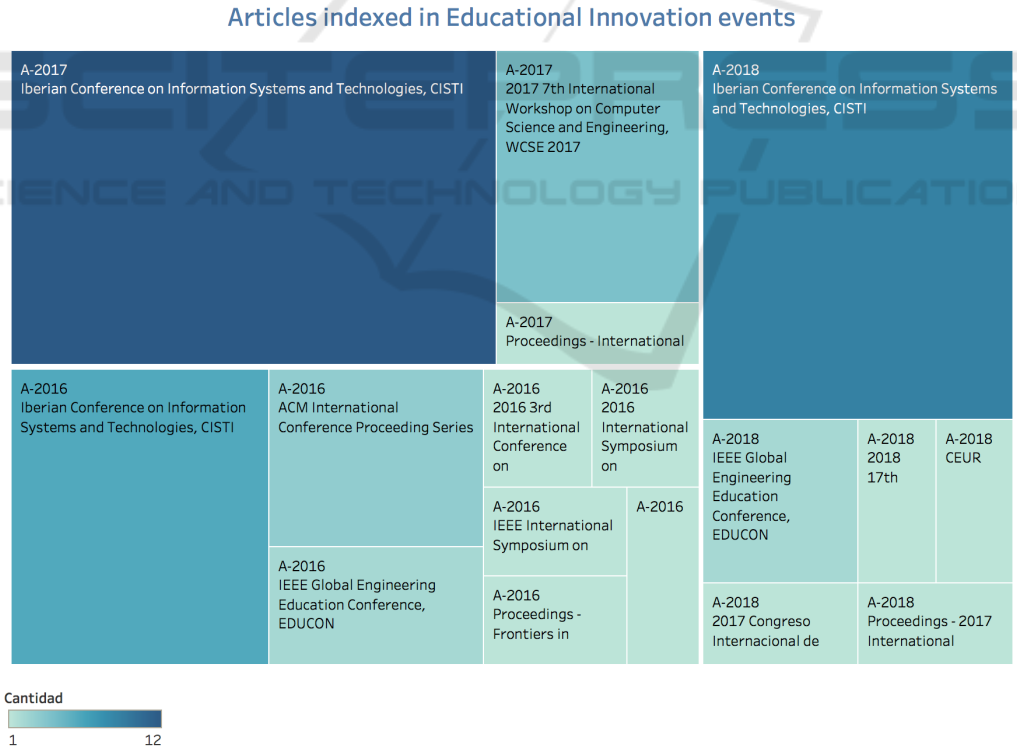

Figure 3: Publications in conferences on scopus from 2016 to 2018.

The results obtained supported by SMS can be represented through graphics, for easy interpretation, observing spaces of greater size and of relevant or strong color, corresponds to the journals in which there are major publications.

The UTPL has a high number of publications in journals such as: Spaces, RISTI, Opcion and Smart Innovation Systems and Technologies, however globally in these 4 years the publications in congresses has had greater prominence, the most outstanding being the CISTI event.

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