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THE SCIENTOMETRIC EVALUATION OF THE THESES ON THE 'ENVIRONMENT' FIELD*

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ABSTRACT

The environment is a whole area where creatures interact with and maintain their relations throughout their lives. Environment is all of the biological, geographical and social factors that influence lives at a given time, directly or indirectly, that determine the development. The aim of the study is to explore the multidisciplinary frame of environment and the characteristics of the literature on the environment. The method of study is scientometrics concentrate on some quantitative parameters (e.g. subject area, distribution of the papers by the year, most publishing research institutions) of scientific researches. Council of Higher Education (CHE) data base was scanned and analyzed thesis which published between the years 2004-2017. Data comprise of 219 theses which contain the word "environment" within title. The results of this study revealed that the theses were written in the field of environment dealing with especially "Attitude" maximum priority followed by "Environmental literacy" and "Effect".

Keywords: Environment, Scientometrics analysis, Council of Higher Education (CHE)

1. INTRODUCTION

Nature is the most important resource throughout human history. The first people were gathering and hunting in order to maintain their lives. In the following years, they started production with the settled life. The beginning of the production process, the presence of fire, the development of the industry and the advances in the technological field caused people to further destroy the environment.

The environment is a set of values that constitute the common existence of people. These values include living environments such as air, water, soil, as well as plants and animal communities that share these environments with people and various civilizations that humanity has created throughout history (Karabıçak & Armağan, 2004). The environment is defined as the biological, physical, social, economic and cultural environment in which living things continue to interact and interact with each other throughout their lives (Büyükgüngör, 2006: 9). The rise of environmentalism in the industrialized world in the 1960s was of great importance for discussions about the role of ecology and conservation in development. However, the perception that there are environmental issues of global importance was a distinctive and new characteristic of, new environmentalism 'that emerged in North America and

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Western Europe in the 1960s and 1970s (Adam, 2009: 50). The environmental problems at international level and their search for solutions started with the Stockholm Conference in 1972. In the Common Future Report published by the United Nations World Environment and Development Commission in 1987, the concept of sustainable development, which was dealt with in detail, allowed the efforts to protect the environment through concrete steps (Nemli, 2001: 211). Environment has continued to increase its importance until today. Parallel to this situation, researches in the field of environment continue with different perspectives. Thus, in this study in Turkey in the field of environment made Scientometric analysis of the written thesis and they are written in what branch of science theses written on this subject, answer some questions such as use of distributions and what methods over the years have been researched.

2. LITERATURE

Scientometrics focuses on communication in the sciences, social sciences, and the humanities. Scientometrics is a field most directly concerned with the exploration and evaluation of scientific research (Mingers and Leydesdorff, 2015: 1). Bibliometrics is a kind of content analysis that includes a frequency analysis of papers within various parameters (e.g., subjects, methods, and references) (Evren and Kozak, 2014: 67). Scientometrics is somehow similar considered with bibliometrics but the latter is concentrated on some quantitative parameters of studies. Bibliometrics studies are characterized by their use of statistics to analyze academic literature.

Pitsolanti, Papadopoulou and Tselios (2018) researched that the scientometric evaluation of academic staff of 50 Greek Science and Engineering University Departments is presented. 1978 academics were viewed in total. As a result of the study, the correlation between the academic rank and the scholars' h-index is quite low in some departments, which, under specific circumstances, could be an indication of the lack of meritocracy.

In the research conducted by Gupta, Dhawan and Gupta (2015) the publication examines 6800 global publications on "Internet of Things" (IoT), as covered in Scopus database during 2005–2014, experiencing an annual average growth rate of 98.63% and citation impact of 1.97. As a result of the study, there were only 10 highly cited papers (which came from 8 countries and involved 24 institutions and 41 authors), which had received 100 or more citations, and together got 2951 citations during 2005–2014. As a result of the study, Just 27.96% of the total global publications were cited one or more times during 2005–2014. Among subjects contributing to IoT, computer science contributed the highest paper share (64.93%), followed by engineering (43.01%), social sciences (4.65%), business, management and accounting (3.73%), physics (2.94%), and decision science (2.72%) during 2005–2014.

3. METHODOLOGY

The aim of the study is to evaluate the multidisciplinary frame of environment and the characteristics of the literature on the environment. Scope of the sampling frame of this study consist of theses/ dissertations provided in Council of Higher Education thesis data base which published. The sampling framework was based on a 13-year period (2005-2017) inclusive. To create the data, Council of Higher Education Thesis data base was searched for published theses that focused on contain the word "environment" title. Only access permission theses were included in the analysis, thereby excluding other theses. Content analysis has been generated by using Word Clouds Analysis which is one of the visual data analysis techniques.

Research questions have been determined as follows;

1. What is the distribution of theses according to years?

2. What is the distribution of theses according to type (MSc or PhD)?

3. What is the department of presented theses?

4. Which method (conceptual or empirical) is most frequently used?

5. What is the scope (where) of the theses?

6. Which subjects are the most popular?

4. RESULTS AND DISCUSSION

A total of 219 theses were collected in CHE with title "environment" between 2005-2017.Total number of Master of Science theses are 174, Doctor of Philosophy theses are 45.

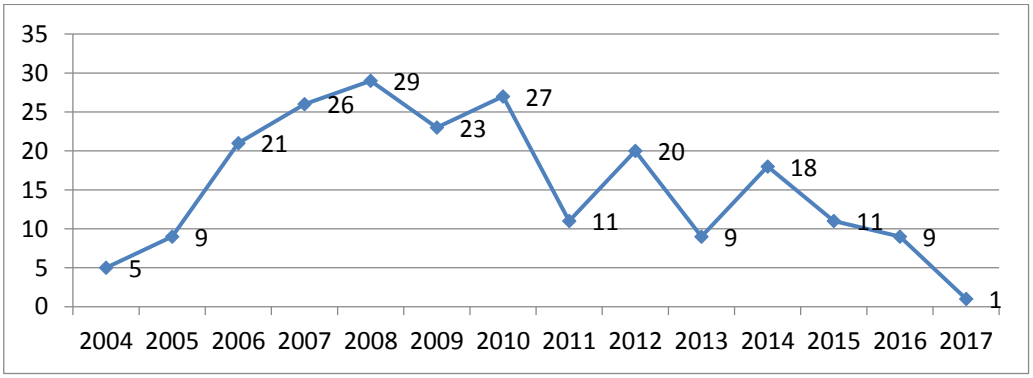

Figure 1. Publication Trends

Figure 1 indicates that theses are constantly on the increase till the 2008. Although the number of theses reflecting certain years increase and decline. This type of behavior is often influenced by the start/end of new departments. Zyoud, Fuchs-Hanusch, Zyoud, Al-Rawajfeh, & Shaheen, (2017) investigated the number of studies published by the Arab world and other countries on the environment between 1972 and 2015. The distribution of theses according to years is similar to the studies of Li, & Zhao, (2015) and Zyoud, Fuchs-Hanusch, Zyoud, Al-Rawajfeh, & Shaheen, (2017).

Table 1. Fields of Science

	MSc	Ph.D.	Total		MSc	Ph.D.	Total
Environmental Engineering	13	-	13	Industrial Engineering	4	-	4
Elementary Science and Mathematics Education	11	-	11	Landscape Architecture	3	-	3
Social Environmental Sciences	3	7	10	Public Administration	3	-	3
Science Education	8	1	9	Early Childhood Education	3	-	3
EU Politics and International Relations	7	2	9	Pre-School Education	2	1	3
City and Regional Planning	4	5	9	Geological Engineering	2	1	3
Economics	7	1	8	Management	1	2	3
International Relations	8	-	8	Total Quality Management	2	-	2
Biology	5	1	6	Urbanization and Environmental Problems	2	-	2
Business	6	-	6	Materials Science and Nanotechnology	2	-	2
Primary Education	4	2	6	Educational Sciences	1	1	2
				Primary School Teaching	2	-	2
Geography	6	-	6	Environmental Social Sciences	2	-	2
Environmental Sciences	3	2	5	Business Administration	2	-	2
Architecture	3	2	5	Environmental Social Sciences	2	-	2
Public Law	4	1	5	European Public Law and European Integration	2	-	2
Science Teaching	3	1	4	European Studies	2	-	2
Chemical Engineering	3	1	4	Accounting - Finance	2	-	2
Finance	4	-	4	Chemistry	1	1	2
Elementary Education	1	3	4	Others*	31	10	41
Total			**132**				**89**

* Others (Archaeometry, Animal Health Economics and Management, Building Physics and Materials, Building Science, Ceramic, Civil Engineering, Contemporary Management Studies, Communication, Curriculum and Instruction, Earth System Science, Eurasian Studies, European Union, Family Economics and Nutrition Education,

Industrial (products) Design, History of Architecture, Interdisciplinary Urban Design, Interior Architecture And Environmental Design, Labor Economics and Industrial Relations, Lifelong Learning and Adult Education, Management and Organization, Management Science and Engineering, Maritime Transportation Engineering, Mathematics Education, Mechanical Engineering, Mining Engineering, Political Science, Physics, Political Science and International Relations, Pre-School Teaching, Psychology, Principal Journalism, Public Administration and Political Science, Public Relations and Publicity, Secondary Science and Mathematics, Secondary Science and Mathematics Education, Secondary Social Sciences Education, Social Policy, Social Sciences Teaching, Sociology, Specific Law, Urban and Environmental Sciences, Urban and Environmental Sciences).

Table 1 contains branches of science on environmental studies. Table 1, shows that the most widely published theses in “Environmental Engineering” and after “Elementary Science and Mathematics Education”. Closely behind, “Social Environmental Sciences” and “Science Education” as follow. It can be said that in various fields of science (ranging from environmental engineering to teaching, architecture and management) research has been carried out on environment.

Most widely used research method is Empirical (150). Conceptual / Theoretical research method number is 69. The results of the research is similar to study of Zyoud et al. (2017). They found that main research activities that related mostly to field studies, collecting samples and measuring concentrations of different materials.

Figure 2. Research Areas of Theses

Figure 2 shows that where empirical investigations are conducted. According to this figure, the field researches have gained intensity in "Ankara", "İstanbul" and “Izmir”. It is estimated that the number of universities in İstanbul and Ankara are high and because of the wider and accessible samples in these cities.

Figure 3. Publications Distribution According to The Basic Issues

In order to reveal the most popular environment subjects between 2005 and 2017, the basic issues were examined. During 2005-2017, studies dealing with especially "Attitude" maximum priority followed by "Environmental literacy" and "Effect". When the theses are examined, it can be said that studies on environmental literacy, attitudes-behavior-perception towards the environment, have been intensified especially on students and candidates of teachers.

Zyoud at al., (2017) discussed the similarity in topics across non-Arab Middle Eastern countries (Iran, Turkey, Israel), and Arab world. They found that pollution, behavior and quality were the most frequent terms in the abstracts. Mamtora, Wolstenholme, & Haddow, (2014) and Zyoud at al., (2017)'s studies show similarities in some words below Figure 3.

5. CONCLUSION

An overview of the environmental theses, published in Council of Higher Education, was presented in this study. Publication year, type of theses, fields of science, subject, research methodology, and related to different scientometrics indicators was evaluated.

The results of the analysis showed that number of theses increase with progress in time. The research productivity in Turkey has significantly increased 2008-2010.

Nature of the theses indicates the heterogeneity of the field (fields of science). Most of the studies were performed in "Environmental Engineering" and after "Elementary Science and Mathematics Education" department.

In the study, it was observed that the theses were mostly written in large cities such as Istanbul, Ankara and Izmir or researched on the data obtained from these cities. The main reason for this situation is the high number of universities in Istanbul, Ankara and Izmir. In addition, it can be said that the reasons such as easy access to the desired data and the wide range of research opportunities lead to the concentration of theses in these three major cities.

150 theses were performed as field study. It is observed that applied (Empirical) studies are popular in the environment. The most emphasis subjects are "Attitude" and "Environmental Literacy". It can be stated that the environmental studies carried out in our country focus more on environmental awareness and environmental attitudes.

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