

ANALYSIS OF SCIENTIFIC PAPERS PUBLICATION TREND AS KNOWLEDGE MANAGEMENT INDICATOR FOR ACADEMIC COMPETENCES DETERMINATION

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ABSTRACT

Comparative analysis of scientific papers publication trend at main state universities in Serbia – University of Belgrade, Croatia – University of Zagreb, and Slovenia - University of Ljubljana is presented in this paper as knowledge management indicator for academic competences determination. The research was done by bibliometric analysis using SCOPUS as selected index-database for the period of last thirty years and specially focused on 2013. Following scientific areas were analyzed: business, management and accounting, chemistry, decision sciences, economy, econometry and financials, engineering, ecology, materials science, physics and astronomy, social sciences, chemical engineering and earth sciences.

Keywords: knowledge management, academic competences, university, scientific papers

1. INTRODUCTORY CONCEPTS

Knowledge Management (KM) can be defined as a systematic approach to managing intellectual assets and other information in a way that provides competitive advantage [1]. The purpose of knowledge management is to create, share and use knowledge more effectively [2], including following initiatives - gaining knowledge, creating new revenues from existing knowledge, and capturing individual's tacit knowledge for reuse, as well as a review of the predictors of a successful initiative [1]. According to main aspects of KM capability and effectiveness [3] - a resource-based perspective (comprising technology, structure and culture) and a knowledge-based perspective (comprising expertise, learning and information), there are numerous KM indicators: knowledge acquisition, knowledge creation, knowledge storage, and knowledge application [3].

But, knowledge management at academic level is more specific and also, very important for further knowledge diffusion. Therefore, main goal of that community is the collaborative production of new knowledge through research and scholarship [4], which is considered to influence positively the quality of whole scientific community. So, academic competence consists of the skills, attitudes, and behavior that contribute to success in the classrooms, including all mentioned KM indicators and depending significantly on scientific work of the professors [5-8]. The development of KM indicators has been advanced by the bibliometrics community [3-5], which now presents a standard procedure for analysis of academic competences as knowledge management indicators, which was already given in literature [9-12].

The main aim of this work is to underline importance of academic competences as knowledge management indicators in example of scientific papers publication trend at University of Belgrade (Serbia), University of Zagreb (Croatia) and University of Ljubljana (Slovenia).

2. METHODOLOGY

Research presented in this paper was done using data-mining method, as important tool for scientometric and bibliometric approach to the quantitative and qualitative evaluation, review, further usage and knowledge management based on relevant literature. Literature was analyzed by KOBSON [13], using SCOPUS as selected index-database, for following scientific areas: business, management and accounting, chemistry, decision sciences, economy, econometry and financials, engineering, ecology, materials science, physics and astronomy, social sciences, chemical engineering and earth sciences.

Data were collected by beginning of July 2013 for three main universities in Serbia, Croatia and Slovenia, respectively - University of Belgrade (UB), University of Zagreb (UZ), and University of Ljubljana (ULj), for the period of last thirty years - from 1982 up to beginning of 2013.

3. RESULTS OF THE ACADEMIC COMPETENCES ANALYSIS

Detailed review of the total number of scientific papers published annually at UB, UZ and ULj in international journals with impact factor (IF), for the period 1982-2012, is given in Table 1 and graphically presented in Fig.1.

Table 1. Review of annually published scientific papers in international journals with IF for UB, UZ and ULj – period 1982-2012

Year	University		
	Belgrade	Zagreb	Ljubljana
1982	42	48	44
1983	56	76	55
1984	114	124	76
1985	122	111	76
1986	93	141	83
1987	108	131	83
1988	161	192	119
1989	151	204	118
1990	265	226	151
1991	192	290	179
1992	213	239	198
1993	128	301	228
1994	129	303	239
1995	143	263	293
1996	437	591	564
1997	417	525	596
1998	458	561	566
1999	341	559	652
2000	336	608	773
2001	314	684	726
2002	392	756	839
2003	495	910	1153
2004	589	1055	1085
2005	817	1294	1369
2006	830	1331	1378
2007	1023	1597	1609
2008	1197	1696	1836
2009	1524	1899	1942
2010	1951	2176	1980
2011	2661	2384	2315
2012	3235	2150	2281
Total	18934	23425	23606

As can be seen, during last thirty years employed at University of Ljubljana published 36%, University of Zagreb - 25% and University of Belgrade - 29% scientific papers, comparing to the

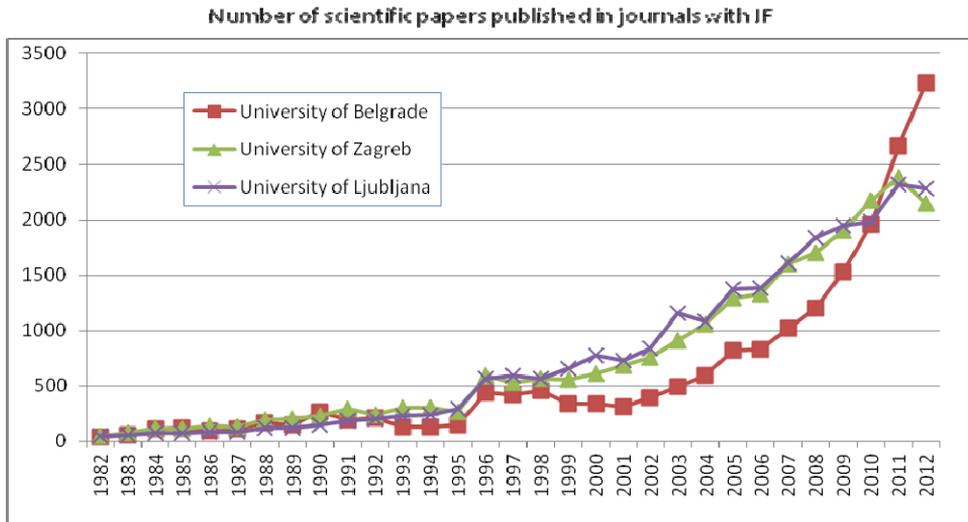


Figure 1. Graphical presentation of scientific papers publication trend at universities in Belgrade, Zagreb and Ljubljana in period 1982 to 2012

total sum of published papers for all three academic institutions. It can be noticed that positive trend increasing started slowly by middle nineties, and increased more rapidly after 2000. Also, last few years brought a change in the observed trend – University of Belgrade equalized with other two investigated universities in 2010, and last two year UB preceded significantly. That was probably one of the reasons explaining why University of Belgrade has been positioned at Shanghai List (*the Academic Ranking of World Universities*) since 2012, where all investigated academic institutions were positioned from 401-500 place.

Described trend and actual situation can be proved by review of the results obtained for the scientific papers published in international journals with IF in the first half of 2013, as presented graphically in Fig.2.

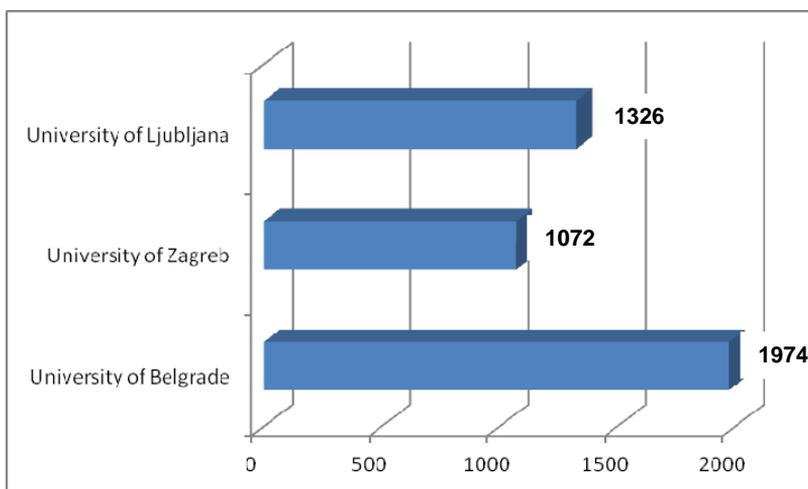


Figure 2. Presentation of scientific papers published in the first half of 2013 by the employees at three investigated universities

It is clear that scientific papers publication trend has an important influence to the quality of the academic competences, enables better scientific base for the education process, and makes more adequate conditions for improvement of curricula and easier process of knowledge transfer. Therefore, that item should be taken as knowledge indicator of high importance when academic institutions are involved.

4. CONCLUSIONS

This work gives the results of scientific papers publication trend analysis at main state universities in Serbia – University of Belgrade, Croatia – University of Zagreb, and Slovenia - University of Ljubljana. Publication of scientific paper in respected international journals was used to analyze academic competences as knowledge management indicators at mentioned high education institutions. Actual situation is promising with positive trend in last five years, especially for the University of Belgrade. But, it is important to do more significant efforts in scientific and research work in order to progress further at the Shanghai list of the Academic Ranking of World Universities.

5. ACKNOWLEDGEMENT

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