Students' Scientific Publications

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Students' publications are (in general) the same channel for transmitting the results of research work to the scientific community as the publications of mature scientists; so, they are a reasonable subject of scientometric research.

Students' publication activity plays an important role in the systems of higher education in the countries of the ex-USSR; and a potential **scientific** career of a domestic student substantially depends on his/her publication activity. So, for the students who care about such a career, publication progress is of almost a vital importance. With this regard, various stumble-stones that still hamper the publication activity of the students in the Republic of Belarus (e.g. postponed publication of the proceedings of the students' conferences, frequent practice of arbitrary limitation of the number of research papers to be accepted to a students' conference from one university, taking charges for publications from the students, arbitrary limitation of the volume of a student paper to be published in the books of collected papers, arbitrary limitation of the number of references to be cited in one paper etc.), being possibly not so much specific for this country, cause quite specific serious problems. Also, in contrast to Saint-Petersburg (Russia), there is no special journal for the student scientific papers, neither do we have any special records files for accounting such papers.

The above-mentioned problems are not only the reasons for corresponding scientometric studies to be fulfilled, but also the prerequisites for the various methodic limitations for such studies. E.g. it not possible to analyze the **complete** documentary flow of Belarusian students' publications in terms of a disciplinary and even species structure. In this case, a good way to fulfill a scientometric research is to analyze the proceedings of the regular national students' scientific multi-disciplinary conference, – but the proceedings of the conferences held in 1998 and later are still not published.

Therefore, in the present complex of studies the following subjects were under analysis: 1) official statistics of students' publications in the Republic of Belarus (that does not regard the subjects of their works, the species characteristics of them etc.) compared with the one of the Belarusian State Polytechnic Academy (that is the largest technical university in the country that trains the students in the largest number of technical disciplines in the country); 2) selected publications of Belarusian students in general and of the ones of Belarusian State Polytechnic Academy (BSPA), in the separate books of collected papers (practically, the best recent books and conference proceedings were chosen); 3) bibliographical references in the publications of Belarusian students in the economics, management and marketing; 4) bibliographical references in a sampling of the papers (unpublished) of the students of BSPA that were submitted to the national competition of students' research works.

Due to limitations to the size of an abstract, only some of the results and of the references can be presented.

1. The number of students' publications published per year in the Republic of Belarus increased twice since 1994 till 1998 (1741 vs. 3795 works published in the corresponding years). We think that this increase was stimulated by the research supervisors activity, by the activity of the students themselves, and **not** by the perfection of the publication system: a lot of conference proceedings are published with tremendous delays (e.g. when the students had already been graduated from university), a lot of works are rejected because of the arbitrary "quotas" for publication etc. A part of the published students works from the quantity of the

works just delivered at the conferences is 1/7 - 1/5 (depending on a concrete year). The portion of the works that remain unpublished seems to be too high: were the presentations so poor or was the publication process do difficult for young authors?

As for the analogous BSPA data, the number of publications also increased twice during the mentioned period. The ratio of the number of publications to the number of the students who were trained at the university increased also twice and reached the value of 1,13%. At the same time, the ratio of the number of publications to the number of the works delivered at the conferences increased less than twice and reached the value of 10.6% (approx. 1:10 vs. 1:7 - 1:5 for the country). The portion of the BSPA students' publications from the all students' publications remained the same.

These figures does mean that BSPA is not sufficient in training students as future researchers. They just reflect the insufficient activity of BSPA in publishing their papers. Thus, during 1994-2000 a lot of students' conferences were held at BSPA, but only for two of them proceedings were published. And as soon the students' conference entitled "New Materials and Technologies of Their Processing" (which peer-reviewed proceedings were published - the prominent specialists in material science being the peers) was held at BSPA, the ratio of the students' publications in the proceedings to the number of the students who study the corresponding disciplines and subjects reached 7.38% i.e. became 6,5 times more that its usual value. An increase was not caused by deterioration of the quality of the published papers!

2. Moreover, if we analyze some of the papers of the BSPA students published free of charge in the books of collected papers or in the international students' conferences proceedings (held and published in Belarus or in other ex-USSR countries) whose editors did not restrict the number of papers that can be submitted, we shall see that in a number of compendiums the portions of the BSPA students' publications are unusually large. In the case with proceedings of an international multi-disciplinary students' scientific conference held in Russia it exceeded e.g. the portion the all Ukrainian students' papers. It was also demonstrated that some of the BSPA students can overcome practically all the publication obstacles (except the financial one). Few of them are able to insert their papers in the non-profile compendiums, brilliantly masking the real subject orientation of their works by some formal tricks (as mature professors can do); multiplicate the presentation of one and the same data in various compendiums, taking into account the various interests of their readers, and, correspondingly changing the style and composition of their papers etc. The above-mentioned observations lead us to the conclusion that the publication potential of the BSPA students is much higher that is believed to be, and that not so much intensive publication activity of the BSPA students in general is mostly caused by the external circumstances. Of course, it would be better if the students paid more attention to the research itself, but not to the "to-publish-or-to-perish" tricks. However, these tricks demonstrate the role of the publication activity and the understanding of the latter by the students.

We have studied a number of the Belarusian books of students' collected papers in economics, management and marketing. It was discovered that the number of the Belarusian universities and colleges whose students are involved in the publishable studies in those subjects is steadily increasing, while the students of a number of technical universities produce a comparable number of papers in this subject with the one published by the students of economics universities and colleges. Economics occurred to be a specialty that the majority of Belarusian students (regardless the specialty of their education) consider as the most "important for life", and economics is the subject in which the most number of students' conferences is being held (Kuzura et all 1998). Being considered in the content of the above-stated, the data of this reference seem to demonstrate the "market mental orientation" of a lot of research done by Belarusian students.

3. It is known that in the structure of bibliographical references cited in scientific papers the so-called "cognitive bases" is being reflected i.e. the information conditions under which the citing paper was produced. The latter, to a certain extent, predetermines the potential value of a citing paper (Minkina 1983). Accordingly, **in the structure of bibliographical references in a sampling of citing papers their potential value is being reflected** – though, in a very indirect and stochastic manner as causal relation between the phenomena is a week one. There is also a problem of "deciphering" the structure of references – unlike the usual practice of citation studies where the figures of citedness level are just accounted.

However, the above considerations make it very much reasonable to study the structure of the references cited in the student' works. Especially, taking into account that the reference structure also reflects the literacy of the authors, their skills to work with relevant literature, – the qualities that are very important for students.

The average number of bibliographic references in the publications of Belarusian students in the economics, management and marketing is too small to conclude that such skills of them are sufficient. But the species structure of cited literature demonstrated that the students use all kinds of the documents that a mature specialist in a corresponding field might need. Chronological structure of the references reflects the student's skills to use the most recent publications most rapidly. So, both species and chronological structure characterizes the potential value of the sampling of students' publications quite favorably. However, in none of the approx. 200 papers not a single work created in a discipline other than economics (management, marketing) was cited. For the students, who just learn to produce the scientific product, it may be excused. More serious is the practical absence of the references to the works written in foreign languages.

About half of the papers had no bibliographical references at all: the editors do not oblige students to insert references, and they are happy to save book volume by welcoming works with no reference lists (See the introduction).

4. As for the study of bibliographic references in the unpublished students' works that were submitted to the Ministry of Education national competition of students' research papers in natural and applied science and social and economic science, the source of references was a random sample of such works (of BSPA students – in engineering industry, architecture, information technologies, mathematics, material science, transport and vehicles, power engineering, chemistry, economics and management) that were submitted in 1998-2000.

93,62% of the papers in applied and natural disciplines had bibliographical references. The average number of references in a paper is 5.87 (from 2.83 in the papers in mathematics up to 14.66 in the papers in chemistry); within the range of the "Price quota" of references there are only papers in information technologies and in chemistry. The part of the cited papers in foreign languages is 11.59% (9.78% – cited in papers in chemistry). The species structure of the references is presented by 13 kinds of documents including monographs (44.2% of the references), journal articles (22.46%), handbooks (14.49%). References to journal articles prevailed in the papers in chemistry only. References to the descriptions of inventions contained only in the works in power engineering, the same concerns the references to the PhD theses. References to the R&D activity reports were cited only in papers in chemistry. The chronological structure of the references may be characterized by the following facts: 13.41% of them cite the papers "aged" 0=...<1 year, 27.89% – the papers "aged" 0=...<5 years, the majority of cited literature is rather obsolete (in contrast with the data of paragraph 3).

As for the unpublished papers in economics and management, 100% of them had bibliographic references. 48.89% of the references refer to the literature "aged" 0=...<5 years in contrast with the published papers of Belarusian students in economics, management and marketing (paragraph 3) for which the correspondent part is about 75%.

Like in case with the published papers, there are just a few references to the literature in the foreign languages. As for the culture of references presentation, it is much higher than in the published papers devoted to the analogous subject.

The entire study resulted with more than 30 conclusions and 17 recommendation. It was designed in order to the development of recommendations for the perfection of the system of students' publications in Belarus.

References

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