Scientific Publication Productivity of the Information Sciences' Doctors in the Republic of Croatia

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Summary

In this paper the authors conducted an analysis on the Information Sciences' doctors' productivity. As a source, the Croatian Scientific Bibliography (CROS-BI) database was used, in which 106 of 134 doctors, who got their Doctoral Degrees from Croatian Universities in the period between 1978 and 2007, were listed. The research included published papers mostly, articles, lectures, posters and chapters in books, which amounted to 2,406 papers. The analysis of scientific productivity showed that 21% of Information Sciences' Doctors are not scientifically active. On the other hand, Information Sciences' Doctors are active in several scientific fields, with a 70% share in the field of Information Sciences and 30% share in other fields. Scientific papers were categorized by type, form and scientific field, put into tables and presented both numerically and graphically, giving us a complete review of Information Sciences' Doctors' publication productivity. This is the first paper that analyzes research activities of one part of the scientific community, that is, published researches of Information Sciences' Doctors that are financed by the Ministry of Science of the Republic of Croatia.

Key words: Information Sciences, doctors, publication, productivity, analysis

Introduction

This paper is an analysis of scientific productivity of authors with PhD degrees in Information Sciences. As a source, the Croatian Scientific Bibliography (CROSBI) database was used, in which 106 of 134 doctors, who got their Doctoral Degrees from Croatian Universities in the period between 1978 and 2007, were listed.[1] Data analysis began in April 2009 and was planned to end by the end of May. Upon the completion of analysis, a database with scientific papers written by Information Sciences' Doctors was done. The data was categorized in tables and presented both numerically and graphically using Microsoft Office Excel and Access tools for a better overview. With this paper the authors want to analyse the scientific productivity of Information Sciences' Doctors by paper type and category, and show the paper ratio between the Information Sciences field and other fields. The analysis is referred to paper type: mostly books, journals and conference proceedings, and categories: scientific or professional papers, or review articles. The CROSBI database contains 241,720 papers from various fields, and there are 38,834 papers within the Social Sciences field. This is the first paper that analyzes research activities of one part of the scientific community, that is, published researches of authors with PhD degrees in Information Sciences that are financed by the Ministry of Science of the Republic of Croatia.

Starting point for analysis

The doctors' papers were extracted from the Croatian Scientific Bibliography (CROSBI) database, which currently contains data for 190,000 scientific and professional papers and 4,000 *in extenso* papers from Croatian authors, and 243,802 papers altogether. The database, which has paper input possibility and web-interfaced searching, was made as an electronic bibliography by establishing adequate technological and communication conditions with joint initiative of computer and information specialists of the Ministry of Science of the Republic of Croatia and the Ruđer Bošković Institute library. The database is updated by the authors themselves, while the librarians, computer and information specialists secure the forms, standards and monitoring of the whole process. To ensure the information credibility, from 01.03.2007 new papers can be added only by using the AAI electronic identity. This AAI identity is owned by every scientist, teacher or a student, along with every employee of the Ministry of Science of the Republic of Croatia. The database provides guidelines for paper categories classification, determines that the scientific paper contains unpublished results of an original scientific research, and the scientific information is presented in a way that enables verification of the analysis and the data on

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[1] The data about Information Sciences' Doctors, who defended their dissertations on Croatian universities from 1978 to 2007, were taken from Đilda Pečarić's dissertation (2009).

which it is based. Professional papers contain already known, published results of scientific researches and focus on the practical use of data or their spreading in educational purposes. Professional papers also contain useful information in fields which are not related with the author's original research, and presented observations are not necessarily news in the given field. They must be written in a systematic and comprehensive manner, in accordance with reader's profile. Review article is a scientific paper which contains an original, concise and critical view of a field or a part of a field, in which the author is actively participating. The author's direct contribution to the field, regarding the already published papers, must be accentuated. It can be written by one or a group of authors, and it is usually written at the request of an editor. The database discerns the difference and the definition of grouping into books or conference proceedings. In specific situations, when the editor (or more editors) undertakes a complex task of collecting and processing materials from a conference, he lists the conference proceeding as a book, and himself as the editor. Individual conference presentations are added as "Conference Papers", and never as "Book chapters". The difference between a paper in the proceedings and in a magazine is the quality and extent of the paper[2]. Data about the researchers, projects and institutions are updated quarterly, respectively when the Ministry of Science of the Republic of Croatia publishes that data.

Methodology and sample

The analysis of Information Sciences' Doctors' productivity was conducted according to the list of 134 Doctors, who got their Doctoral Degrees in the period from 1978 to 2007. The sample was comprised of 53 women and 81 men of all ages. After receiving the list of Doctors, the database was being built from mid-April to mid-May and it would have ultimately contained all papers of all Information Sciences' Doctors, who were found in the used database (CROSBI). The database was searched using a basic author search, and each given result, except papers in the publishing process and paper abstracts, was imported into a database which was built in Microsoft Office Excel, and later transferred to Microsoft Office Access for easier processing of the collected data. The papers were processed in several categories, out of which the most important ones are: paper title, bibliographical unit, paper type, category (scientific, professional or other) and the scientific field to which the paper belongs. After paper categorization, the mentioned Microsoft Office tools were used to extract the information which was considered relevant for the research. Those were primarily the percentages of papers per categories, paper types, scientific fields and such. Results are contained in tables and presented with graphs for a better overview.

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[2] Source of categorization were taken from CROSBI database site http://bib.irb.hr/faq

While processing the CROSBI database, the authors often encountered the problem of incomplete data, i.e. for some bibliographical units some data was not listed. It was mostly data on paper category, or the scientific field of the paper. In such cases the authors marked these categories as "unknown".

Results

From 134 authors with a PhD in Information Sciences, 106 of them are scientifically active. During the CROSBI research, 2,406 papers were registered. They included various articles, comments, conference reports, popular articles, professional papers, studies, book chapters. The research showed that 21% of authors are not scientifically active. On the other hand, Information Sciences' Doctors are active in several scientific fields, with 70% share in the Information Sciences, and 30% share in other fields. The research was divided by paper type, and showed that the most of papers are scientific papers, respectively 69% or 1,677 papers, followed by professional papers which have a total of 14% or 334 papers, and 46 review articles, which make 2% of all paper types. 9% or 214 papers were listed as "unknown", and 5% or 135 papers were listed as "other" (Chart 1).
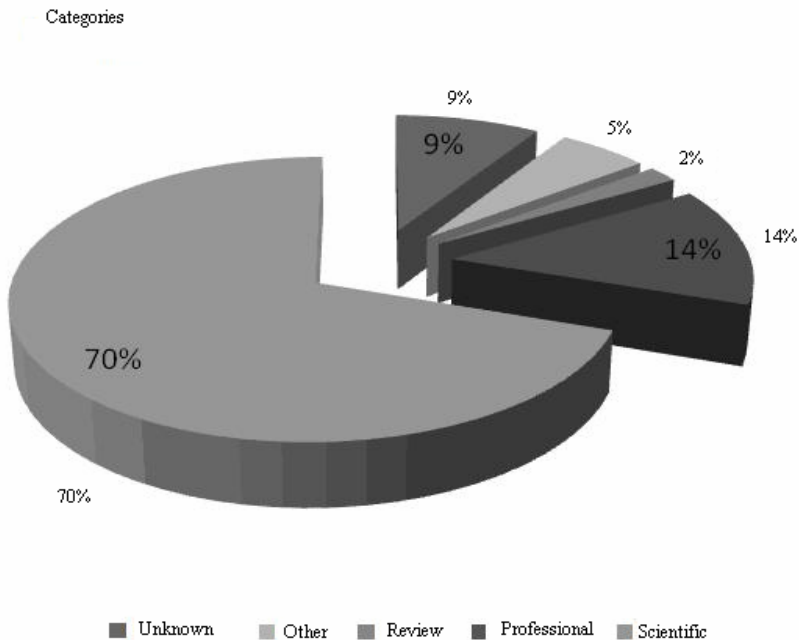

Chart 1.

From all 2,406 papers, 58% are listed as conference proceedings, 36% as magazines and 6% as books (Chart 2).

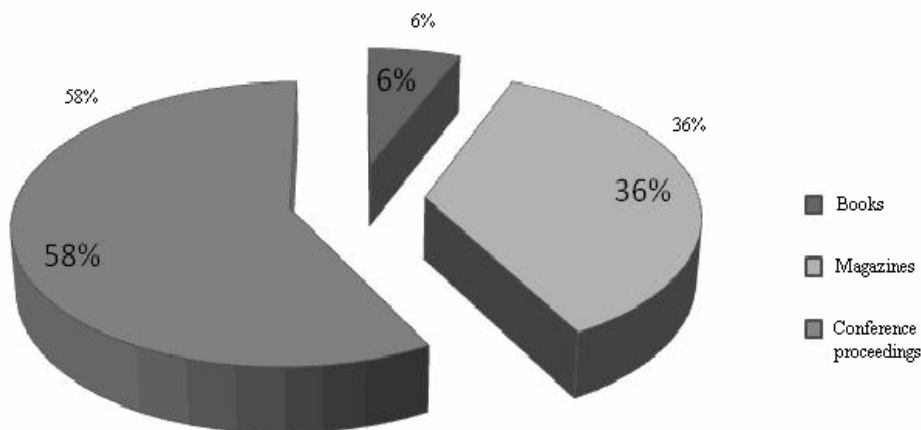Books, Magazines, Conference proceedings

Chart 2.

Although most of the papers in our database are from the Information Sciences field, there are also 179 papers from the Economics field, 88 papers from the Graphic Technologies field and 82 papers from the Computer Science field. In the total are 101 papers listed as "unknown field" (Chart 3).
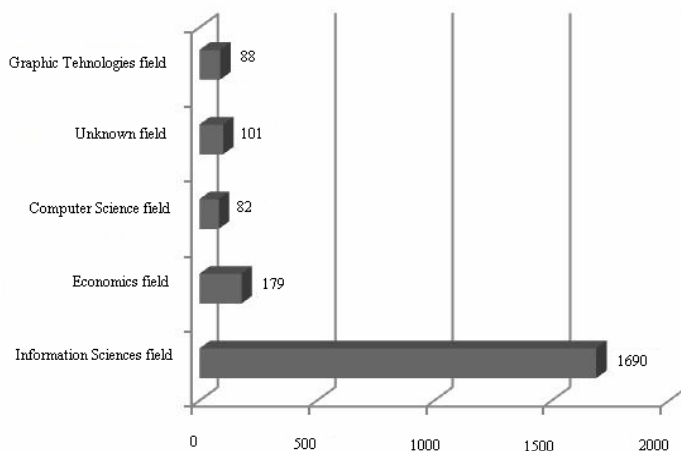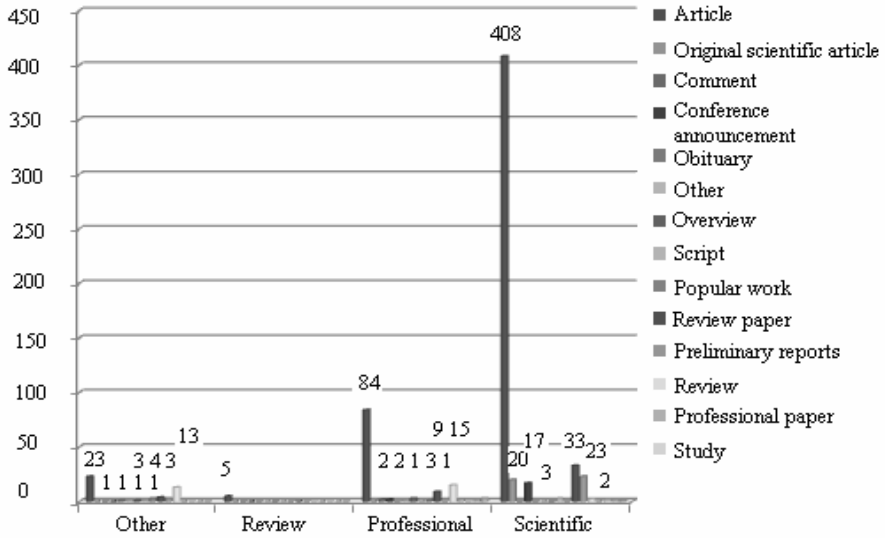

Chart 3.
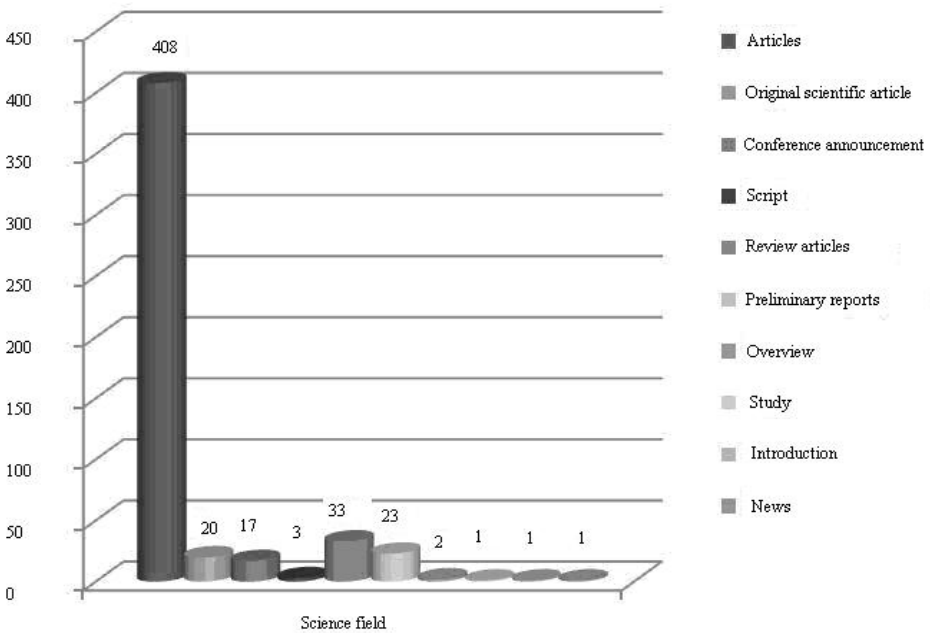
Magazines

Chart 4.

Scientific field in magazines

Chart 5.

The papers within magazines are divided in categories: scientific, professional, review and other. There are 509 papers categorized as scientific, 123 categorized as professional, 5 categorized as review, and 50 categorized as "other", which add up to 687 papers in magazines altogether. This shows that the majority of papers are in the category of scientific papers (Chart 4).

Out of 509 scientific papers in magazines, most of them, i.e. 408, are articles, 33 papers are review articles and 23 papers are preliminary reports (Chart 5).

The professional field contains 123 papers, with 84 articles as the majority, 15 overviews and 9 review articles. (Chart 6.)
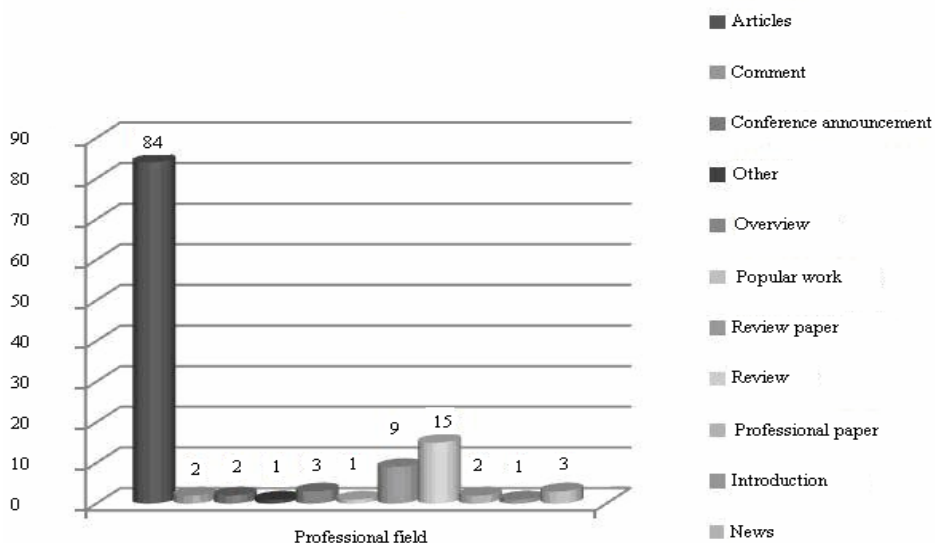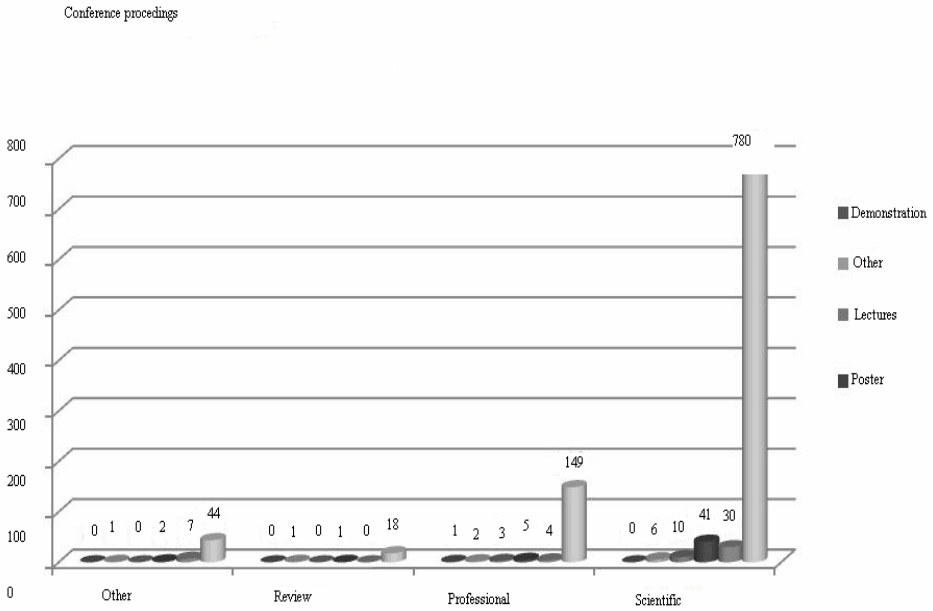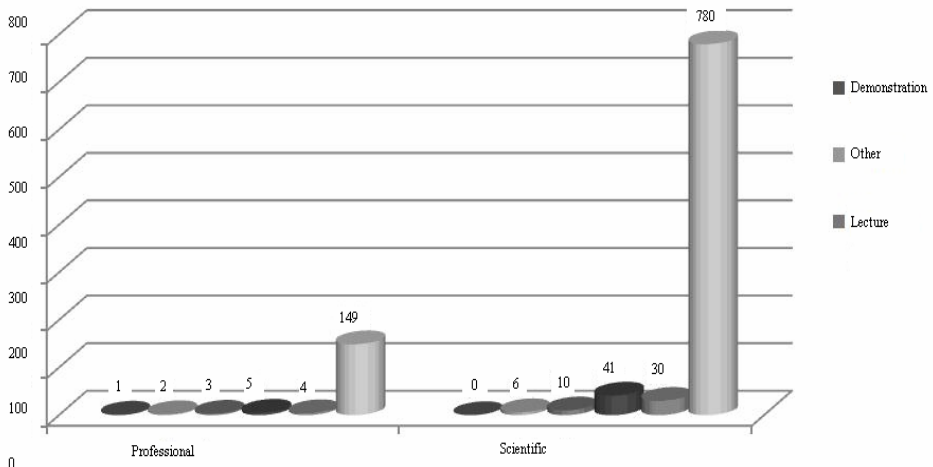

Chart 6.

The conference proceedings are also divided into categories. There are 1,105 papers altogether, divided into 867 scientific, 164 professional and 20 review papers. Again, the scientific category makes the majority of all categories (Chart 7).

Within the conference proceedings there are 867 scientific papers, and 164 professional papers. In both categories there are mostly papers in the form of lectures. There are 780 lectures in scientific category, and 149 lectures in professional category, followed by posters and invited lectures in both categories. The scientific category contains 41 posters, and the professional category contains 5 posters. Finally, there are 30 invited lectures in the scientific, and 4 invited lectures in the professional category (Chart 8).

Conference procedings

Chart 7.

Conference procedings, Professional-Scientific

Chart 8.

Conclusion

The analysis of scientific productivity showed that 21% of Information Sciences' Doctors are not scientifically active and are not listed in Croatian Scientific Bibliography (CROSBI) database. Papers are categorised by type, science field and form. The analysis was conducted by paper type and showed that the most of papers are scientific papers, respectively 69% or 1,677 papers, followed by professional papers which have a total of 14% or 334 papers, and 46 review articles, which make 2% of all paper types. 5% or 135 papers were listed as "other" and 9% or 214 papers were listed as "unknown". Analysis by science field shows that Information Sciences' Doctors are active in several scientific fields, with a 70% share in the field of Information Sciences and 30% share in other fields, mainly Economics, right after Information Sciences. Authors analysed database by form and found that the majority were conference proceedings (58% or 1,105) then magazines divided into all types of articles (36% or 509) and a minor number were books (6%). This paper shows that the most common field is Information Sciences, by the type that is scientific papers and in form it is conference proceedings with lectures, posters and demonstrations. With this paper authors gained unique database with papers of Information Sciences' Doctors with detailed information's. This is the first paper that analyzes research activities of Information Sciences' Doctors that are registered in a CROSBI. The problem with the database which was used is accuracy and missing data. Doctors have to be registered in the database and they have to submit their papers. This database only contains scientific papers which are made as part of project financed by Ministry of Science of the Republic of Croatia. Maybe this scientific productivity and research results are less accurate because only this database was used. On the other hand, it is the biggest database made by Ministry of Science of the Republic of Croatia and the Ruđer Bošković Institute library. Even though this research has some problems, it shows important side of the scientific community and its productivity.

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