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# Open Access in Croatia: a Study of Authors' Perceptions

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## Summary

*The most important participants of scientific communication are scientists. They are both producers and users of scientific information. Publishers, libraries, scientific associations and institutions have to ensure transmission of information but scientists are in the centre of scientific communication.*

*Open Access (OA) to peer-reviewed scientific information is relatively new form of scientific communication and is accepted by a number of worlds' scientists, universities, libraries and publishers. Numerous surveys of scientists' involvement in the open access movement have been published throughout the world, but Croatian scientists' perceptions have never been examined. In this paper, a study of Croatian scientists' perceptions of Open Access movement will be presented. The sample will consist of over 300 Croatian scientists who had published their papers in the last issues of Croatian scientific journals published on the Hrčak portal (portal of Croatian scientific journals) in 2008. Anonymous web questionnaire will be send to the scientists. They will be asked about their publishing experiences – how many scientific papers they publish yearly, are the journals they publish in OA journals, what are reasons for publishing (or not publishing) in OA journals, have they ever self-archived their scientific paper, and if yes - why and where. They will also be asked how they deal with copyright issues while self-archiving.*

*Results will be analyzed altogether as well as according to scientific field.*

*Results will show whether Croatian scientists are familiar with the Open Access movement, whether they practice submitting articles to OA journals and whether they self-archive their papers. Some proposals about future development of Open Access in Croatia will be presented.*

**Key words:** OA journals, OA repositories, scientific communication

## Introduction

Scientists are the reason why scientific communication exists – using scientific information they produce new information. Publishers and librarians also play very important role, but they would not have it without scientists. As Open Access (OA), during last decade, evolved into a global movement, researches of its influence on scientific communication have been made. We can talk about three kinds of researches. The aim of the earliest researches was to investigate effect of open access on citation impact. The second phase was investigating the reasons for higher citation impact of open access articles. The third group of researches was about participants of scientific communication, their role in open access movement, their habits and concerns about the OA. Those researches are mainly conducted by publishers, journal editors, organizations involved in promotion of OA or scientists who are interested in OA movement, its development and its future. We are here interested in the last kind of researches, specially the researches of authors of scientific papers published in scientific journals.

In 2004, Cozzarelli and co-authors surveyed more than 200 corresponding authors of accepted papers in journal Proceedings of the National Academy of Science (PNAS).<sup>1</sup> About half of the respondents were in favour of the open access option, willing to pay a surcharge to make their article freely available online at the time of publication.

In 2006, Swan and Brown published the results of their international cross-disciplinary study on OA.<sup>2</sup> The study had more than 1200 respondents and was focused on self-archiving. Almost half of the respondents have self-archived at least one article during the last three years (2003-2005). Self-archiving activity was greatest amongst those who published the largest number of papers, and only 20% of authors found some difficulties while depositing an article in a repository for the first time. It is also interesting that only 10% of authors knew of the SHERPA/RoMEO list of publisher permissions policies with respect to self-archiving. Swan and Brown found out that there were still a substantial proportion of authors unaware of the possibility of providing open access to their work by self-archiving.

Schroter and Tite made an electronic survey of almost 500 authors of research papers submitted in 2004 to three medical journals.<sup>3</sup> Less than 50% of the respondents reported that they were familiar with the term Open Access. Au-

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<sup>1</sup> Cozzarelli, N. R.; Fulton, K. R., Sullenberger, D. M. Results of a PNAS author survey on an open access option for publication. 2004. <http://www.pnas.org/content/101/5/1111.full> (1-2-2009)

<sup>2</sup> Swan, A.; Brown, S. Open access self-archiving : an author study. Truro : Key Perspectives Limited, 2005. <http://cogprints.org/4385> (1-2-2009)

<sup>3</sup> Schroter, S.; Tite, L. Open access publishing and author-pays business models : a study of authors' knowledge and perceptions. // Journal of the Royal Society of Medicine. 99 (2006), 141-148

thors concluded that, at that time, Open Access policies had had little impact on authors' decision of where to submit papers.

Studies similar to those described above have never been conducted in Croatia, among Croatian authors of scientific papers.

### **Aim, methodology and hypothesis of the survey**

In March 2009 an anonymous online questionnaire was sent to 345 Croatian scientists who had published scientific papers in the last issues of Croatian scientific journals that were available on the Hrčak portal (central portal of Croatian scientific journals) at that time.<sup>4</sup> Response rate was 170 (49.3%).

The purpose of the survey was to find out about Croatian scientists' perceptions of Open Access movement, concerning OA to their own scientific papers. Authors were asked about their publishing experiences – how many scientific papers they publish yearly, do they publish in OA journals, what are the reasons for publishing (or not publishing) in OA journals, have they ever self-archived their scientific paper, and if yes - why and where. They were also asked how they dealt with copyright issues while self-archiving.

Results will be analyzed altogether as well as according to scientific fields.

Formdesk website forms were used for creating an online, ten questions questionnaire. Formdesk offers various useful features, such as auto responds by e-mail, statistics, simple and advanced filters, results download, secure data transfer and many others. The questionnaire was available during two weeks period in March and April 2009 at: <http://fd8.formdesk.com/grgic/oa>.<sup>5</sup>

Before starting this cross-disciplinary survey of Croatian scientists' perspectives, following hypothesis were set up:

- there is a large acceptance of OA journals among the Croatian scientists from the fields of natural sciences and biomedicine and health (those fields have the longest tradition of OA acceptance in the global scientific community);
- Croatian scientists support free access to scientific information;
- Croatian scientists rarely self-archive their papers;
- the majority of Croatian scientists are aware of the importance and the possibilities of Open Access;
- Croatian scientists do not know enough about ownership of copyright of their published papers.

### **Results and discussion**

The analysis will show the answers to all the 10 questions. In some questions, correlations will be shown (e. g. scientific field – publishing in OA journals).

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<sup>4</sup> Hrcak : portal znanstvenih casopisa Republike Hrvatske. [www.hrcak.hr](http://www.hrcak.hr) (3-6-2009)

<sup>5</sup> Otvoreni pristup. 25. 3. 2009. <http://fd8.formdesk.com/grgic/oa> (5-4-2009)

### Question 1 - Scientific field

The majority of respondents are from humanities (46, or 27%) and social sciences (41, or 24,1%). Here we have to notice that the sample was chosen from the journals on the Hrčak portal and there are more journals from humanities and social sciences than from other fields. Table 1 shows answers to the question.

Table 1: Scientific field

Scientific field	No of respondents	Percentage
Humanities	46	27.0
Social sciences	41	24.1
Natural sciences	28	16.5
Biomedicine and health	19	11.2
Technical sciences	18	10.6
Biotechnical sciences	18	10.6
<b>Total</b>	<b>170</b>	<b>100.0</b>

### Questions 2 and 3 - How many scientific papers per year do you publish in Croatian/foreign scientific journals?

Types of the questions were multiply choice, select one. The answers to the questions are analysed according to the scientific field and the results are shown in Table 2.

Authors from humanities and social sciences publish more articles in Croatian journals. The most productive authors in foreign journals are those from biomedicine and health. Six out of 19 authors from that field publish three or more articles per year in foreign journals.

Table 2: Number of scientific papers published in Croatian and foreign journals according to scientific field (Cro=Croatian; for=foreign)

Scientific field	0		1-2		3 or more		No answer	
	Cro	for	Cro	for	Cro	for	Cro	for
Natural sciences	1	5	25	19	2	3	0	1
Technical sciences	0	7	14	11	3	0	1	0
Biomedicine & health	1	3	13	10	4	6	1	0
Biotechnical sciences	1	2	11	11	6	5	0	0
Social sciences	0	19	29	19	12	3	0	0
Humanities	2	26	30	16	13	1	1	3
<b>Total</b>	<b>5</b>	<b>62</b>	<b>122</b>	<b>86</b>	<b>40</b>	<b>18</b>	<b>3</b>	<b>4</b>

### Question 4 - How many of the journals you publish in are OA journals?

The answers to that question should show if the authors are aware of free accessibility of the journals they publish in. We assumed that the majority of authors would know the answer to the question. 20 authors (11.8%) think that none of the journals they publish in is OA journal. 93 authors (54.7%) answered that

one or two journals are OA journals, 37 authors (21.7%) answered that more than two journals are OA journals, 19 authors (11.2%) did not know the answer and one author (0.66%) did not answer the question. Results are shown in Table 3.

Table 3: Publishing in OA journals – frequency

Scientific field	0	1-2	3 or more	Don't know	No answer	Total
Natural sciences	3	16	5	3	1	28
Technical sciences	3	10	4	1	0	18
Biomedicine & health	1	11	6	1	0	19
Biotechnical sciences	0	15	3	0	0	18
Social sciences	7	17	9	8	0	41
Humanities	6	24	10	6	0	46
<b>Total</b>	<b>20</b>	<b>93</b>	<b>37</b>	<b>19</b>	<b>1</b>	<b>170</b>

### Question 5 - What are your reasons for publishing in OA journals?

The purpose of the question was finding out the most common reasons for publishing in OA journals. Type of the question was multiply choice, select many. 160 respondents (94,1%) answered the question. The most common reason for publishing in OA journals for Croatian authors is support of free access to scientific information and the second important reason is higher impact of articles published in OA journals. All the other reasons are shown in the Table 4.

Table 4: Reasons for publishing in OA journals

Reasons for publishing in OA journal	No.	Percentage
Support of free access to scientific information	88	55.0
Higher impact of the article	59	36.9
No reason	55	34.3
Short submission/acceptance process	35	21.9
Reputation of the journal	28	17.5
Higher impact factor of the journal	28	17.5

### Question 6 - If you do not submit papers to OA journals, what are your reasons?

120 respondents (70.6%) answered the question. The majority of respondents do not have reasons for not publishing in OA journals. We can conclude that they either do publish in OA journals or do not know enough about OA journals.

All the other reasons for not submitting papers to OA journals are shown in the Table 5.

Table 5: Reasons for not publishing in OA journals

Reasons for not publishing in OA journals	No	Percentage
No reason	98	81.7
Lower citation impact	14	11.7
Can't find appropriate OA journal	9	7.5
Lower quality of OA articles	5	4.2
Bad reputation of OA journals	4	3.3
Do not support free access to scientific information	3	2.5
Problems with permanent access to OA journals	1	0.8

### Question 7 - Have you ever self-archived your scientific paper?

This question opens the issue of OA repositories. Our presumption was that Croatian scientists do not self-archive their papers. 93 (54.7%) answers to the question were negative and 77 (45.3%) affirmative. It is not clear from those answers whether respondents understand the concept of self-archiving. That problem will be emphasized in the next two questions.

### Question 8 - Where have you self-archived your scientific paper(s)?

Although 77 respondents answered affirmatively to the previous question, there were 83 answers to this question. 57 respondents answered that they self-archived their papers in Croatian scientific bibliography (CROSBI). Here we have to point that CROSBI has the possibility of archiving full-texts, but it primarily stores metadata about Croatian scientists' papers published from 1997 to the present. Today there are more than 190,000 records in the bibliography, 2,000 with full-text available. When answering the eighth question, there is a possibility that some of 57 respondents do not distinguish between archiving metadata and full-text self-archiving. Other respondents have self-archived their papers on their own web sites, on institutional web sites or in a repository (institutional or other), as shown in the Table 6.

Table 6: Location of self-archived articles

Location of self-archiving	No.	Percentage
CROSBI	57	68.7
Institutional web site	21	25.3
Repository other than institutional	13	15.7
Their own web sites	10	12.1
Institutional repository	7	8.4

### Question 9 - If you have self-archived your paper, which version have you archived?

The purpose of this question was to find out if Croatian scientists self-archive preprints, postprints or both. We presumed that the authors mostly self-archive

postprints (peer-reviewed versions accepted for publication), especially when archiving papers published in Croatian journals (because they are non-profit and they do not have financial reasons for not allowing self-archiving). And indeed, 76 out of 82 respondents who answered to the question (92.7%) had self-archived postprints. However, are Croatian scientists aware that publishers are the owners of copyright? We will try to find it out in the next question.

### **Question 10 - Have you asked publishers' permission to self-archive?**

Answers to the question are supposed to show Croatian scientists' awareness of copyright issues. According to the answers to the previous question, we could conclude that they do not think that they have to ask publishers' permission to self-archive. The presumption is correct again – 61 out of 83 respondents (73.5%) have never asked publishers' permission.

### **Conclusion**

Some of Croatian scientists do not know enough about the OA movement and are not aware of all the potential benefits of OA. They are afraid of lower citation impact and lower OA journals quality. While analyzing the answers, there is always a question – do respondents know the meaning of the term Open Access? 24% of them do not know whether the journals they publish in are OA journals, some are not sure what self-archiving is, and if they are, they do not ask publishers' permission for self-archiving postprints.

Regarding the longest tradition of OA acceptance by the world's scientists in the fields of natural sciences and biomedicine, we presumed that Croatian scientist from those fields would also accept the movement more than their colleagues from other fields. That was not proved by the survey. The only field where all the scientists publish at least one article in an OA journal per year is the field of biotechnical sciences, and they are all aware of it.

Less than 50% of respondents have self-archived their papers and, as was mentioned earlier, there is a question: do they know the meaning of the term “self-archiving”? Some of them answer that they self-archive in CROSBİ, and CROSBİ is a bibliography, not a repository (although it offers the possibility of attaching full-texts of articles).

Copyright issues are not important to our respondents. We can find similarity to Swan and Brown's 2006 survey where majority of respondents did not know about publisher permissions policies and where there were a substantial proportion of authors unaware of the possibility of self-archiving.<sup>6</sup>

Croatian scientists know more about OA journals than about OA repositories. The main reason is the Hrčak portal that popularizes OA journals in Croatia. Hrčak is a national portal, supported by the Ministry of science (one condition

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<sup>6</sup> Swan, A.; Brown, S. Open access self-archiving : an author study. Truro : Key Perspectives Limited, 2005. <http://cogprints.org/4385> (1-2-2009)



for financing scientific journal is its presence at the portal). There is no similar project that would popularize and encourage OA repositories in Croatia.

Open access movement is not totally unknown among Croatian scientists, they are maybe not always sure about the exact definition of OA, but they do support free access to scientific information. They want their work to be visible and they surely have nothing against increasing citation impact of the journals they publish in. As we mentioned earlier, the point of this survey was not finding out about Croatian scientists' perceptions of OA to non-Croatian scientific papers. This could be a matter of another survey.

At the end, we can pose the question about the necessity of open access in a peripheral scientific community such as Croatian. Is the country too small? Are Croatian scientists' papers accessible regardless OA because Croatian journals are non-commercial? That could also be the subject to some future surveys and discussions.

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