

Use of open access journals in biomedicine in Greece

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Abstract: The democratization of knowledge has always been “the big deal”. The 21st Century set the landmarks for the implementation of Antonio Panizzi’s vision of an open library, and open access publishing activity, supported by technological advancements. However, the establishment of this “great idea” will require recognition from the scientific community. Consequently, it is very important to evaluate scientists’ attitudes about this new reality because they are not only the receivers of open access information but also its creator. This paper discusses the situation in Greece, among biomedical scientists. It presents preliminary findings from a longitudinal study of attitudes towards open access, and the effects of open access on the scientific visibility of Greek researchers.

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1. Introduction

Although technological advancements, such as the Internet, provide quick and widespread dissemination of information, information access has been still limited. This restricted information availability could be translated as “selective access”. Selective access is created because access to some information is controlled on a pay per view or subscription basis. Journals or books may be provided through Web, as e-journals or e-books, but they have a price, and access is available only to the subscribers or those willing to pay for access to a particular time. So, scientists who cannot afford the access are not informed of new research results or innovations on their sector.

In the last few years the idea of open access has been re-evaluated. In 2002 and 2003 some special efforts set landmarks in the history of open access. In 2002 Budapest Open Access Initiative, early aspirations for open access seemed to be much closer. However, although the dissemination of information in journals through the Internet is much cheaper than paper printing and distribution, there are still costs associated with the production, peer-reviewing, and archival storage of journals, the publication costs and the archival costs. In the traditional model, the authors do not pay to publish, but the readers pay to view. In the open access model, the readers may access for free, but the authors, or their organisations, or a national institution pays towards the costs of publishing journals that contain peer-reviewed articles.

There are implications for biomedical scholarly communication in countries that are not part of the English speaking world. Many, if not most of the most prestigious biomedical journals are in English. The databases that cover the biomedical literature predominantly cover the main English language journals, and there is limited coverage of journals in other languages. An example of this

situation is presented by Germenis, Kokkinides, Stavropoulos-Giokas. These authors proved that language can be an obstacle for non-English journals but it can be overcome. They characteristically mention

“Many medical journals, publishing in national languages, meet serious financial problems and difficulties when they attempt to become indexed in the international indices... Among them, the “Archives of Hellenic Medicine” (AHM)... Attempting to overcome the above mentioned problems and to be involved in the process of discovering the most effective way of scientific skywriting, 2 years ago, the AHM entered full text in the Web and it was decided that up to 50% of its volume should be covered by English-language papers. As a result, the AHM are now included in the main Web lists of medical journals and their home page is linked in many academic pages having approximately 500 hits/month. Furthermore, 45 retrievals of AHM’s English language papers or English abstracts of Greek-language articles were reported by e-mail response from abroad”(Germenis, Kokkinides, Stavropoulos-Giokas, 1997).

Indeed, for a biomedical researcher working in a country such as Greece, open access journals- such as Archives of Hellenic Medicine- may provide easier access to more literature, but it may be more difficult for them to publish if the costs of publishing are greater than they have been.

The aim of this paper is to discuss the approaches used, and to be used, in doctoral research by the first author (Assimina Vlachaki) to examine the impact of open access initiatives on scholarly communication among biomedical researchers in Greece. The research will involve some bibliometric research on the trends in publishing for Greek biomedical scientists, as well as questionnaire surveys on the awareness of open access, and interviews with some expert informants.

2. Open access models

There are different models of open access, each with apparent advantages and the disadvantages. They include the following:

- Author-pays online journals
- Library consortia
- Free access to articles after a period of time
- Self-archiving peer-refereed articles
- Free access articles databases
- Institutions’ consortia– open access in appearance

Within the author-pays journals, are journals where articles can be made open access if the publication cost is covered by authors. The end users can access these papers without charge via Internet. The author’s organisation or another national body may pay the publication fee. However, the value of this system, although very attractive for the reader is disputed as the charge may deter authors from publishing (Wellcome Trust, 2004), and may in fact reduce access by readers if authors cannot afford to publish (Graczynski and Moses, 2004). Steven Harnad, a great supporter of open access publication, suggests a solution of this problem with “...Authors self-archiving their own e-prints accomplish the same outcome, immediately, for everyone, at no expense to authors”

(Harnad, 2002). This is possible but publishers vary in their attitudes towards the posting of pre-prints and post-prints (post-refereeing version of the paper).

Cooperation among libraries, and the formation of consortia such as SPARC to promote high quality, but substantially cheaper journal alternatives to commercial, high prestige journals fulfils the open access philosophy. Commercial publishers may allow free access after a period of time (12 months, often) and that may be sufficient for many readers. Another model is that of BioMed Central, which only produces open access journals, but on a more commercial basis (on the author-pay system). PubMed Central archives, organizes, and distributes peer-reviewed reports from journals, and reports that are screened, but not formally peer-reviewed. It is operated by a division of the U.S. National Library of Medicine, and offers free, unrestricted access to life sciences literature, with links to journal publisher databases, and highlights to indicate freely available material. A search of MEDLINE via PubMed allows easy and clearly signposted access to freely available material in biomedicine.

Authors may self-publish their articles, as pre-prints but to make these accessible to readers they need, ideally to be available via a recognized archive, such as the CERN Document Server. Institutional repositories, often operated by one university or a group of universities or other institutions, provide access to material authored by staff within the institutions concerned. An example of repository is DRIVER (Digital Repository Infrastructure Vision for European Research). Driver is a project which aimed to the establishment of a Pan-European infrastructure of Digital Repositories. According to press release "The vision is to establish the successful interoperation of both data network and knowledge repositories as integral parts of the E-infrastructure for research and education in Europe". Greece is represented by the University of Athens. The extent to which authors can provide access to the near-final, peer-reviewed version of their paper varies according to publisher. Few authors are likely to wish to follow Stevan Harnad's advice on posting the pre-print plus a text indicating all the corrections made for the post-refereed version (Harnad, 2003).

Another type of consortia which appears to give free access to articles is the library consortium that brokers deals with publishers to subscribe to a large number of journals as a group (with some provision for selective choices within the 'big deal'). There is a cost of access, but the readers do not see this cost as access may appear free from the link from the citation to the full text of the article. Greek Universities have introduced such an Institutions' Consortia, the Hellenic Academic Libraries Link (HEALLINK).

3. Biomedical publishing in Greece

In Greece, the first medical journal was published with the title "Asclepius" by the Medical Company of Athens in 1836. Nowadays journals may be divided in four categories: Greek – language journals, English-language journals generally available in Greece, Greek – language journals published simultaneously in English language mostly by Greek scientific companies or universities, and English – language journals published in Greece by international organizations as well. There is a plethora of Greek journals which are not wholly included in a database so they are not easily detected. However some of them are very famous such as Iatriki, Archives of Hellenic Medicine, Galen etc. Finally, Infolibraries.gr provides free access to electronic Greek journals such as

Haema, Pneumon, Acta Orthopaedica et Traumatologica Hellenica. As far as the the content of Greek biomedical journals, it would be useful to categorize the journals according to the type of articles they include in order to estimate the scientific interest of Greek researchers. However, the majority of journals are not specialized in a specific publication type but they provide articles in a great variety of categories. Medical journals typically include research articles, reviews, editorial comment, case reports, letters to the editor, notes of conferences. Consequently, it is difficult just from the title of the journal to judge how much emphasis there is on reporting good quality research.

4. Methods

To assess the representation of my country in international level, I did a bibliographic survey. I tried to detect Greek biomedical journals in five worldwide sources, PUBMED, SCI, BIOMED CENTRAL, DOAJ (Directory of Open Access Journals), GOOGLE. The searches were conducted in the above-mentioned databases during October of 2006 except SCI that the research was continued at the beginning of January in 2007. There were no year limits. The aim was to detect all the information related to the research produced until the moment the survey took place. The research began from PUBMED and the survey took place in two levels, firstly, in JOURNALS engine of PUBMED by typing the keywords Greece, Greek, Hellenic, Hellenika, Athens, Thessaloniki, Thessalonica, for example and other variations and then, searching for the journal titles, retrieved by JOURNALS engine, in PUBMED. So, we can know, not only the Greek journals indexed in PUBMED but also to what extent they participate by identifying the articles chosen for being included in the database. The representation of each journal depends on the number of articles included. A great number of articles chosen by PUBMED may be a prestige factor for the journal.

In Science Citation Index, a different pattern of information retrieval was followed. At the beginning, I searched for "Greece" in address and articles of "Greek" language. Another search was conducted for "Greece" in address and articles of "English" language. Search period was from 1970 to 2007.

Next step was the survey in DOAJ. All the journals concerned health sciences were sought in order to find Greek open access biomedical journals.

The journal titles of BIOMED CENTRAL were searched one by one in order to find evidence of a Greek editorial board. However, this was not possible for a minority of Biomed Central titles.

Finally, the subject keywords Greek medical journals were explored in GOOGLE in order to be found more on the electronic journals. As a result we could know which of them were open access journals.

Another type of research conducted in the two databases PUBMED and BIOMED CENTRAL. It was motivated by the need to detect other works about the Greek biomedical open access journals. The keywords used in both databases were the same with the aim to compare the results. They were OPEN ACCESS PUBLISHING AND GREECE, OPEN ACCESS JOURNALS AND GREECE, FREE ACCESS PUBLISHING AND GREECE, FREE ACCESS

JOURNALS, OPEN ACCESS PUBLISHING, FREE ACCESS PUBLISHING, OPEN ACCESS JOURNALS.

A questionnaire survey of biomedical researchers (n=70, response rate=62/70) was conducted in Athens. The questions were the same as those used in another survey (Hernandes-Borges et al., 2006), with minor adaptations. Future research will be focused on biomedical researchers and publishers of open access journals via interviews. This will be beneficial in two ways. On the one hand, we shall be able to obtain a more complete idea about the feelings of biomedical researchers for author activity, publishing activity and readership of open access journals and on the other hand, interviewing of publishers will help us to highlight the problems they face and the privileges they enjoy by publishing an open access journal.

5. Results

As expected the national biomedical journals discuss local developments but prospectively of broader scientific significance in health sciences. There is less evidence of Greek biomedical research among some of the major world biomedical literature. Nevertheless, there are interesting open access developments which might contribute to the spreading of the Greek biomedical advancements.

Twenty – three Greek journals were found in PubMed. Only nine Greek journals are currently indexed in PubMed and all of them are in English language. Greek – language journals indexed in OLDMEDLINE are included in PubMed as well but they are not indexed any more.

In BioMed Central, the journals Annals of General Psychiatry of Aristotle University of Thessaloniki and Scoliosis of Orthopaedic Department of “Thriasion” General Hospital are included as independent open access journals according to the journal database. Certainly, Greek scientists do also participate in the editorial board of other journals, but it is difficult to assess the extent of this participation without detailed information about the institutional location of the members of the editorial board.

As far as the SCI database is concerned, Greek-language journals cannot be evaluated according to Impact Factor criterion because they are not included in the analogous database. Only English – language journals published in Greece are indexed in SCI, the following titles:

- International Journal of Oncology
- Oncology Reports
- Anticancer Research
- In Vivo

On the other hand, it is worth mentioning that, approximately 101.090 papers indexed in SCI seemed to be written by Greek scientists. The above research result could be considered as an evidence about Greek writing activity. It seems that Greek scientists overcome obstacles in foreign languages in order to transmit their knowledge or exchange ideas. Moreover, writing activity is continually increasing. The first decade, from 1970 to 1979, only 4.584 Greek authors' articles were cited in the database. On the contrary, the last seven years

(from 2000 to 2007) and thirty years later the number of articles is 56.717.

The journals of Greek publishers participate in the Directory of Open Access Journals (DOAJ) are: Hellenic Orthodontic Review, Inquiries in Sport & Physical Education, Journal of Biological Research, Hellenic Journal of Cardiology, the Journal of Musculoskeletal and Neuronal Interactions, Gastric and Breast Cancer.

Additionally, by searching Google search engine I discovered that, there are biomedical journals published by Greek editors which are independent from any international database but they are on the Web, and anyone can have free access to their papers such as Hellenic Medical Journal and the Archives of Hellenic Medicine.

PubMed showed that all keywords concerned with open access publishing combined with the term Greece gave zero results. This fact indicates that no previous work has been done about “Greek biomedical publishing” that is published in the biomedical literature. In contrast with the general searches, meanwhile, searches not combined with the term Greece that presented papers, but none of them was related with Greece. BioMed Central gave the same qualitative results.

The main findings of the questionnaire survey among researchers based in Athens was that knowledge of open access publishing was closely related to the researchers’ experience of using open access for publication. Many (58%) had very little awareness of open access publishing initiatives.

6. Discussion

“Could open access publishing model positively influence the visibility of foreign language literature?” It is a question which requires a long discussion for a good answer.. A survey conducted in Spain showed that respondents would be inhibited to submit their articles in an open access journal because of the lack of funds. Additionally, Hernandez – Borges et al. declare that

“Spanish authors’ articles have even lower degrees of research funding from 5% to 23%” (Hernandez-Borges et al., 2006).

In spite of the financial problems, open access publishing provides a solution of the problem of local isolation, the Greek journal “Archives of Hellenic Medicine” is a representative case. When the global electronic resources can not be available, the free access to the home page of the journal can offer the solution. As far as native language concerned, the translation of Greek language articles in English may help with the transmission of Greek biomedical information.

As the coverage of Greek journals in PubMed has still been limited, Greek scientists try other means to expose their works. Now they appear to be more aware about open access advantages. There are evidences which prove this statement by using again PubMed. The information retrieval of alternative

keywords about open access publishing combined with the term Greece via PubMed in 2006 repeated in March 2009 approximately 2.5 years later, ten articles were retrieved. It may not be a great number of articles but it is an indication of interest and awareness about this new publication model. Additionally, the number of Greek journals in DOAJ is constantly increasing. Certainly, the majority of journals are in English but even in this way, the Greek biomedical knowledge is transmitted.

Finally, Greek biomedical scientists are aiming for English language biomedical journals covered PubMed and SCI. It is obvious if we do a research for the term Greece in Affiliation, we'll find 41934 articles written in Greece without including Greek health scientists working abroad. As far as the participation of Greek scientists in SCI concerned, we have already seen the results of the respective process.

Finally, the results from the open access source BioMed Central are not similar, only 1493 articles are included from Greek organizations. This fact may be justified as BioMed Central is a new product as it was established in 1999 or this may be due to the cost of publication (€ 1095) if author's institution is not a member.

7. Conclusions

The bibliometric analysis of the trends in publishing among Greek journals was helpful in identifying some of the likely changes. The analysis is limited by the difficulty of definite identification of all the biomedical journals published in Greece. Journals can change names, the editors may move to a different country, the journals may change publisher.

The baseline survey of knowledge and attitudes among biomedical researchers indicates the problems of discerning attitudes towards a type of publishing that may not be apparent to the researcher, unless they have actively tried to use open access publishing for themselves. However, it gives a baseline for future work. The interviews should provide the qualitative data that may reveal whether the apparent trends are real, and provide more information about the motivation for publishing, and reasons for choosing particular journals.

A combination of quantitative and qualitative techniques will therefore help to assess whether the impact of open access publishing on Greek biomedical research and scholarly communication in Greece will be positive or negative.

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