Open Access Activities in Turkey and the Atatürk University Open Archive System

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Abstract

Scholarly communication is a process that starts with the establishment of scientific publications and aims to spread them to the end users. In this process, the scientific periodicals are the main communication channels. For the last 20 years, the ever increasing cost of periodicals has caused subscription problems for libraries. Although the majority of the libraries spend higher and higher amounts from their budgets each year, they cannot withstand increasing journal costs and hence they reduce the number of journals subscribed. The technological developments seem to be a solution to the subscription cuts and lead novel methods for scientific publishing. Open Access (OA), which provides free access to scientific publications, is one of the leading models against the traditional publishing industry. The Open Access Initiative is having a tremendous impact upon the scientific communication process, which is largely based on publishing in scientific periodicals. It also interests researchers, university administrators, publishers, users and institutions providing information services.

Institutional repositories (IR) are an essential unit of open access infrastructure. Institutional repositories can provide an immediate and valuable complement to the existing scholarly publishing model, while stimulating innovation in a new disaggregated publishing structure that will evolve and improve over time. "Atatürk University Open Archive System" (AUOAS) was formed as part of the open access project in Turkey and supported by the Scientific Research Funds of Atatürk University with an example of an open access institutional repository. AUOAS has been implemented to retrieve full-texts of articles, proceedings, reports, courseware, theses and dissertations through the Internet.

In this article, firstly the reasons for the emergence of OA notion and its development stages will be explained from a historical perspective and the institutional OA archives will be introduced to reader briefly. Information will be provided about OA activities in Turkey and structure, operation and contents of Atatürk University Open Archive System.

Introduction

Scientific information is the information obtained about entities by means of scientific methods and reasoning out. It has such characteristics as being objective, universal reasonable and open to criticism. The reason why scientific information has these characteristics is that it is research-based information. Outcomes of research are examined, confirmed and then announced to the scientific community by experts. Including phases of carrying out scientific researches and studies, evaluating in point of quality, distributing to the science world and preserving for future use, this process is known as scientific communication (ACRL, 2003).

Scientific communication devices are generally books and refereed periodicals. Periodical has been the mostly used material in scientific communication since the first scientific periodical was published in 1665. According to Ulrich, nearly 60.000 of 200.000 periodicals published throughout the world are academic and scientific periodicals.[1] According to Kingsley (2006), 2,5 million articles are published in 24.000 refereed periodicals in a year.

Scientific communication process based on printed periodicals had operated without any problem until the 1970s. Periodicals, which started to be published by commercial publishers, have been regarded as commercial properties and their prices have been steadily increased. Although they cause important advantages in production and distribution costs, these increases have continued in electronic publishing. Because publishers have considered electronic publishing an opportunity for increasing shares of profit and creating a monopoly (Competition Commission, 2001; Office of Fair Trading, 2002). Printed periodicals have been made packages partially or completely and put up for sale for only one price in electronic publishing, and so shares of profit of publishers have increased (Dilek Kayaoğlu, 2006:31). Increases in price have always been over inflation rates for the last 30 years. The real reason for this is that there is a little rivalry in the sector and the prices are dependent on priority (and capacity) of seller rather than production costs. In spite of low costs of electronic publishing, this situation causes the subscription fees to become more expensive than the printed publications' subscription fees (Björk, 2004; Frazier, 2001).

Many libraries have found solution in curtailing of periodical subscriptions. On the contrary, publishers have compensated for the incomes they lost by increasing the price of periodicals again (Tonta, 2005b).

These negative developments in scientific communication have both caused disturbance in the concerned milieu and also created discussions on revising of scientific communication system. The scientists, who are both producers and controllers of scientific information and also consumers of scientific information, have started to express their thoughts on the idea that this situation, which is in conflict with universal characteristics of scientific information, can be overcome with technological opportunities. Thus, applications of new approaches providing free access to scientific information have begun. Whereas these applications called "Open Access" in literature were individual examples at the beginning, they have been transformed into an alternative publishing model that provides the frame conditions of traditional scientific communication later.

Open Access: Definition and Development

Open access, which is defined as "free access and unlimited usage" (PLOS, 2005) in the simplest way, firstly became a current issue in 2002. In 2002, *Budapest Open Access Initiative* was formed after of a meeting organized in Budapest in 2001 (Budapest…, 2002). Studies of this initiative led to the publication of the *Bethesda Statement on Open Access Publishing* in 2003. In the Statement, open access is defined and its principles are explained (Bethesda…, 2003). Another development is *Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities*, which was published in 2003 (Berlin…, 2003).

According to this, "a complete version of the work and the all supplemental materials, including the copy of the permission, in an appropriate standard electronic format is deposited (and thus published) in at least on online repository using suitable technical standards (such as the open archive definitions) that is supported and maintained by an academic institution, scholarly society, government agency, or other well established organization that seeks to enable OA, unrestricted distribution, inter operability,

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[1] *Ulrich's International Periodicals Directory*. Available online:
http://ulrichsweb.com/ulrichsweb/analysis/help/USAS_FAQ.asp Accessed September 08. 2008.

and long-term archiving" (Berlin, 2003). The three basic features on which the open access publishing is based are: (1) unobstructed access to publications and usage permission, (2) storing of publication in at least one archive which has appropriate standards, (3) long term access to publications and protection guarantee.

According to Johnson (2004:11), how open access publishing is realized and continued are described in these reports. Since the opportunities presented by technology are various, only one application type cannot be expected. Necessities and opportunities are effective in the model the procedure is realized and its scope. It is seen that scientific publications have been presented to the open access in three different models till today:

1. *OA Journals:* This method, which started to be applied in the beginning of 1990s as a result of individualistic efforts, is the model that publishing the articles in an electronic periodical providing all users with reaching the articles on internet as free (Prosser, 2003). There are currently more than 3,600 OA journals published in all subjects (Directory…,2008).

2. *Self-Archiving:* Self-archive is to deposit a digital document in a publicly accessible website, preferably an OA Initiative-Compliant Eprint Archive (Self-Archiving..., 2006).

3. *Institutional Repositories:* They are electronic repositories of submitted material that may include already-published articles (post-prints), pre-published articles (pre-prints), theses, manuals, teaching material or any other material that the authors or their institutes wish to make publicly available without financial or technical barrier. Such archives may be based on an institute's output, or may be discipline-based or regionally-based (Chan and others, 2005:4).

Since the access to scientific publications that are presented to open access with anyone of these methods increases, the effect factor of publications increases, too. According to an analysis of reference effect ratio including 1.307.038 in 10 disciplines between 1992-2003 by Hajjem, Harnad and Gingras (2005:42-43), it is determined that articles with open access have received reference three timed more than others.

In a research by Swan and Brown (2004:34-36), 71% of the writers, whose articles were in open access periodical for once, stated that they would continue application. Recently, some universities decided to mandate researchers to self-archive their published articles. A bill (Federal Research Public Access Act) mandating OA to publicly-funded scientific publications in the United States is likely to become enacted in the near future. The European Commission (EC) recommends OA to EC-funded research reports (European Commission, 2006, p. 87).

Chan and others (2005) explain the advantages of open access as following:

- Access to scientific periodicals will increase with the increase of open accessed publications.
- International access to the researches carried out in developed countries will be provided.
- That publications become more visible will add positive contributions to scientific productivity.
- Cite rates and impact factors of researches will increase.
- It will provide access to researches which have scientific value but have not been published in any periodical and these researches will be utilized.

Open Access Studies in Turkey

Turkey got acquainted with concepts of open access and institutional archive with a declaration presented in a symposium in Ankara University in 2003 (Karasözen, 2003). In April 2003, The Middle East Technical University Library Electronic Theses and Dissertations Archive were established and became the first Turkish member of the Networked Digital Library of Theses and Dissertations. The METU Library ETD Archive has the full-texts of more than 4,800 theses and dissertations accessible

through the Web[2]. In addition to the ETDs, the METU Library Open Archives Harvester has the full-texts of conference papers and other digital objects indexed from 4 archives[3].

In Academic Informatics Conference held in Gaziantep in February 2005, a speech on open access was delivered (Tonta, 2005a). In the same year, the first experimental open access archive was developed in the frame of a doctorate course in Information and Records Management Department of Hacettepe University in 2004/2005 spring period. Firstly, index information of master and doctorate theses of the department was prepared according to Dublin Core standard and the archive was recorded in Open Access Initiative Registry (OAI Registry). Hacettepe University Open Archive has been the first initiative in this field (Tonta and others, 2006:26-32). Unfortunately, the demonstration project was not followed up by other such projects and Hacettepe University missed the opportunity to set up the very first operational IR in Turkey (Tonta, 2008b).

A panel was organized on open access in the 10th Internet in Turkey Conference that was held in İstanbul Bahçeşehir University at the end of 2005, and academic open archive, which was set in Ankara University, was introduced (Atılgan, Arslantekin and Bayram, 2005). It later became the first operational institutional archive set up in Turkey and registered at OpenDOAR.[4] In addition to theses and dissertations, the Archive[5] currently contains over 3,600 items including peer-reviewed journal articles, conference papers, reports, dissertations, lecture notes and some other publications authored by the Ankara University faculty members (Tonta, 2008b)

At the end of the meeting, it was decided that Open Access National Policy should be created for the purpose of carrying out common works in forming institutional archive in Turkey. At the beginning of 2006, open access took place as one of the main themes in Academic Informatics Conference, which was held in Denizli, and a few session were held on the theme. A public opinion announcement which expresses that Turkish universities support open access and institutional archives formed in this concept was published at the end of the conference. In the announcement , presenting the results of researches, which are especially supported by public funds, and the publications to open access, forming universities' institutional archives with this aim and adopting Berlin Declaration in our country were suggested (Akgül, 2006).

At the end of the meeting, a Board of Open Access and Institutional Archives Counselors were formed as a concrete example of the announcement. The Board comprised members from ANKOS, the Turkish Library Association (TKD), University and Research Libraries Association (ÜNAK) and the Turkish Academic Network and Information Center (ULAKBİM). The Board, which was formed for the purpose of helping institutions in founding open archive, also formed a website with this aim[6]. Although some meetings were arranged later, there is not any study nowadays.

Also at the end of the same meeting, ANKOS announced the formation of its Working Group on OA and IRs.[7] Mission of the group was determined as "creating awareness of open access and institutional archives among information professionals in Turkey, providing ANKOS-information professional – researcher cooperation in the concerned applications, working in cooperation with the institutions working on this matter in Turkey and abroad". The Group prepared a brochure with this aim and sent it to the universities and the concerned institutions (Bilimsel…, 2006). Dictionary of open access, guide of institutional archive forming, free open archive software and information about copyrights are

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[2] See http://ww2.lib.metu.edu.tr/en/yan.php?id=208 (08.09.2008).
[3] See http://hitit.lib.metu.edu.tr/oai/ (08.09.2008).
[4] See http://www.opendoar.org (08.09.2008).
[5] See http://acikarsiv.ankara.edu.tr (08.09.2008).
[6] http://www.acikerisim.org.tr (Not active) (08.09.2008).
[7] http://www.ankos.gen.tr/acikerisim/index.html (08.09.2008).

put into service on website of the Group. Moreover, in the presentations made in various meetings, the effort of creating awareness of open access and institutional archives was continued.

These initiatives on open access were supported with declarations, articles published in periodicals and books presented in various meetings (for example, Karasözen, 2003; Atılgan, 2006; Dilek-Kayaoğlu, 2006; Oktar and Akdal, 2006; Polat, 2006; Tonta, 2006; Holt et al., 2006; Holt et al., 2007; Karasözen, 2007; Tonta , Ünal and Al, 2007; Atılgan and Keten, 2008).

These studies in the aim of creating awareness on open access have initiated an activity in founding institutional archives especially in universities. Gazi[8], Sabancı[9], Atatürk[10] and Atılım[11] universities founded institutional archives that meet OAI-PMH standards and Open Access search engines such as Open DOAR[12], OAIster[13] and ROAR[14] visit these archives. Anadolu, Bilkent, Boğaziçi, Çukurova, Dokuz Eylül and Süleyman Demirel universities have electronic theses and dissertation archives accessible over the Web for some time (e,g., Bilkent since 2001, Süleyman Demirel since 2003, and Anadolu and Çukurova since 2005).

In Turkey, full texts of articles published in some periodicals can be reached free although they are not appropriate for the necessary background and do not standards for open access. 12 scientific periodicals published by Turkish Scientific and Technological Research Council (TÜBİTAK) are in this scope[15]. According to a research, 238 (94%) of 253 scientific electronic periodicals, 60% of which is published by the universities, are open access periodicals (Küçük and Olcay, 2006). A part of periodicals, which are indexed in the databases by ULAKBİM, is open access[16].

Atatürk University Open Archive System

AUOAS began to operate as a result of a project which was presented at the end of 2007 under the leadership of academics of information and records management department and supported by Scientific Research Fund of the University. The purpose of the project was determined to be "to make institutional and national contributions to open access initiatives which began worldwide with the aim of unlimited and unhindered access to scientific publications". In this context, it is planned that by using software, which is appropriate for international standards aimed at archiving and sharing of electronic documents, scientific publications (thesis, article, declaration, report, etc.) produced by the academicians of Atatürk University will be opened to all world via internet. In this Project, which will be completed at the end of 2009, open archive system (OAS) has been still operating.

The software used for OAS is a software that was designed for founding institutional archive and storing every kind of documents in electronic environment. This software has the characteristics which

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[8] See http://www.acikarsiv.gazi.edu.tr/ (08.09.2008).
[9] See http://research.sabanciuniv.edu.tr/ (08.09.2008).
[10] See http://acikarsiv.atauni.edu.tr (08.09.2008).
[11] See http://library.atilim.edu.tr/kurumsal/ (08.09.2008).
[12] See http://www.opendoar.org/find.php?
search=&ctID=&ctID=&rtID=&cID=217&IID=&rSoftWareName=&submit=Search&format=summary&step=2
0&sort=r.rName&rID=&ctrl=new&p=1 (08.09.2008).
[13] See http://www.oaister.org/viewcolls.html (08.09.2008).
[14] See http://roar.eprints.org/?action=home&q=&country=tr&version=&type=&order=name&submit=Filter (08.09.2008).
[15] See http://journals.tubitak.gov.tr/ (08.09.2008).
[16] See http://www.ulakbim.gov.tr/cabim/vt/ (08.09.2008).

provide searching, accessing and preserving every kind of digital works of an institution (article, book, declaration, report, lecture notes, images, audio files, etc.) on web. OAS was formed by using Linux operating system and the concerned supporting software and PhP / MySQL. It supports Dublin Core metadata standards and Open Archives Initiative Protocol for Metadata Harvesting – OAI-PMH). It is also compatible with the standard of OpenURL. Therefore, there has not been any problem in integration of institutional archive into international open archive systems.

Besides these general characteristics for at preferring OAS, other special reasons can be explained as follows:

- OAS was prepared by taking into consideration the standards providing mutual cooperation in international level of open archives.
- The software language and all interfaces are Turkish. This situation enables the managers of the system and users to use the system easily.
- There are also English versions of each menu in the manager and user interfaces in OAS. This situation is an important characteristic supporting national and international usage effectiveness of the system.
- Continual maintenance and technical support guarantee can be taken from the software company. Access permission was given for distant intervention to the company and so the breakdowns in the system could be dealt with in the shortest time.
- OAS has been used by "Open Archive of Ankara University ", the first functioning open archive of our country, for nearly three years.
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OAS software is established on a server used for only purposes of open access. Institutional adaptation of the system had been made by system managers before the system, which is put into service on web with IP number 194.27.49.90, was put into service. In this process, information about institution was firstly entered to the system. Necessary adaptations were made in the parts of archive main page, help and communication. All academic units such as faculty/college/institute/research center of each user who will load publication to archive were recorded in the system.

Necessary regulations were made in the part of "System Content" of OAS software. Obligatory and non-obligatory parts and definition information, which need to be filled in for each publication type, were determined. Menus, in which the types, formats, themes of publications, types and titles of the writers of publications that would be put into archive are, were added to the system.

After completing the adaptation process of OAS Atatürk University, data entrances were made with trial aim. All possible combinations were tried in order to determine the problems that could occur in data entrances. For example, data about elements that could vary such as writers, assistants, titles, publication types, publication languages and publication formats were entered into the system in a crosswise position. The most important elements of open archive system were divided and tried as "search options ", "simple search ", and "advanced search". The problems were daily reported to the software company and, necessary regulations and changes were made. IP address, which had been determined before, was put into service on web on the address http://acikarsiv.atauni.edu.tr .

For integration of the archive to the international systems, application was made to OAI, and approval was obtained convenience tests. It was registered in archive search engines such as OAIster, OpenDOAR and ROAR and general search engines such as Yahoo and Google. There have still been

72 registers in the archive. Nearly electronic copies of 600 master and doctorate theses, which are permitted to be presented in open access, will be entered into system after a short time.

After OAS began to function, informing meetings have been started in order to tell the importance of open access and open archives for universities and provide entering publication into its open archive for the university. The first of these meetings were arranged for the academics of the Faculty of Arts and Science. Then, an informing presentation was made for master students in the Institute of Social Sciences. These meetings, which have not been made for a long time due to the end of the academic year, will begin again with the start of the new academic year.

OAS has two similar interfaces. The first of them is the main page, which can be used without any register, and the second is the user page in which the registered users can see their own accounts.

There is a short text in which the characteristics and benefits of open archive besides "*publication inquiry*", "*help*", "communication", "*member entry*" menus in the main page. In this page, there is also a menu for displaying the system in English. One, who wants to search about documents in the archive does not have to use the user entry. The user can carry out search using "*simple*" and "*advanced*" search options, which are under the publication search. On the screen of "simple search" there are publication type, the name of work, the writer and theme/summary/full text options. The user can make search with the one he prefers. In "*advanced search*", the users can make search in any field in the bibliographic register about the definition of publication. Since the fields were prepared as considering every kind of publication, all fields which could be used in publication entry were taken into consideration. Search results or lists are in common appearance in both two search types.

The ones, who will make data entrance to OAS, can both make application in the menu of "*Member Entry*" for the user name and password and also enter with the user name and password which the archive managers send them. When any one of different publication types in the systems is chosen, data entry fields about the chosen type will appear on the screen. The user has to load and save full text file to the system after filling the necessary fields. After control and approval of the information on the publication and full text by system managers, publication will be put in the archive. The member users can see their publications by means of "*my publication*" menu in the system.

There are also various statistik in OAS. These are statistics about general information on usage and content, added publications, publication usage examination, questioning of the procedure and usage.

Conclusion

Studies on open access and open archives in Turkey have been effective in development in recent years. However, as Tonta (2008b) indicated, studies on open access have not reached beyond librarianship community, and in academic community, which is its real addressee, there has not been awareness of this subject. Whereas open access relates to librarians indirectly, it relates to scientists directly. Although millions of dollars are paid for buying scientific publications, open access is not even in the agenda of Higher Education Council (YÖK), TÜBİTAK, The State Planning Organization and most universities. All of the practices applied in the universities have been realized with self-sacrificing working of librarians. Unfortunately, the indifference of academicians in putting publications on open access has been the greatest problem.

A particular understanding has been formed in opening public funded works and publications to everybody's access in many countries. There are studies in making legal regulations, which bring obligation of storing publications in open access archives. In Turkey, there is not something like that in the concerned institution's agenda. Yet, most of the universities in Turkey are public universities. Most of the researches are also made with funds of the public. The state should pay for the periodical which it publishes in order to see the outcomes of research, and then to buy it. Imposing open access

obligation in the researches done with public funds will solve the problem. Moreover, universities' various supports to publications with open access will be useful. Open access to scientific publications is an opportunity presented to science community by technology. The duty of scientists is to support such kind of activities as much as possible and even to join them.

Reaching target of open access applications, which are expressed as an alternative publishing method in scientific communication, is possible with participators' cooperation. International constitutions like Open Access Initiative are result of unity in this matter. These kinds of constitutions have formed standards for providing open access to scientific publications at international level. It is obligatory to conform to these standards for reaching the targets of local applications.

AUOAS is a project started with the aim of supporting locally and nationally open access movement. Development of this institutional open archive, which was formed regarding international standards, has still been continuing. It is possible to evaluate the project realized in the leadership of the academics of the information and record management department as local reflection of sensitivity shown by librarianship on open access. Indifference of the scientists who are frequently mentioned in the literature are in effect in AUOAS. No publication has been added to the archive, which has been active for nearly eight months, except the publications of the project team and a few scientists who are especially interested in the subject. The project team determined its next goal as arranging introduction meetings about open access and open archive. Introduction meetings will be firstly arranged at the levels of faculty, college and institute. If the desired efficiency is not obtained, it is thought that separate introduction will be made for the departments.

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