CHAPTER 1

INTRODUCTION
CHAPTER 1

INTRODUCTION

This chapter has provided the overview of the research. Its details have been given. The chapter is divided into nine sub-topics as follows:

1.1 The Significance of the Study
1.2 A Broad Picture of Open Access Publications in Thailand
1.3 Objectives of the Research
1.4 Scope of Research and Place of the Study
1.5 Definitions of Terms
1.6 Research Organization
1.7 Research Hypotheses
1.8 Chapter Organization
1.9 Review of Literature

1.1 The Significance of the Study

The university scholars and scientists, who create the new knowledge called “research”, are willing to give maximum access to research output. They are encouraged to publish their findings because it is the way to make their research accessible to other scholars and readers. Evidence shows that usage increases when access is more convenient, and maximizing the usage of the scientific record benefits to all the constituents of society. Since the early 1990s, the researchers and their universities are beginning to use online to enhance their research ability. They can be publicly self-archived in the university’s e-print archives, which can be accessed by all users worldwide as presently known in terms of “The Open Access (OA)”

“The Open Access (OA) research literature is composed of free, online copies of peer-reviewed journal articles and conference papers as
well as technical reports, theses, and working papers. In most cases there are no licensing restrictions on their use by readers. They can therefore be used freely for research, teaching and other purposes” (Swan 2006).¹

The Open Access (OA) models are advantageous in many ways. The research is available with no payment for access, for all of readers worldwide. Scholars in economically disadvantaged areas can also access to the newest research. The research published via Open Access venue is access online freely, thus it is easily discoverable by scholars and search engines. The scholars in science and technology, where subject matter maybe especially time sensitive, publication in open access journals is possible more rapid, and not necessarily with any negative impact on quality. The research published in Open Access Journals is available without access restrictions, and research scholar benefits from having a larger and more diverse audience. Furthermore, increasing exposure of research will also lead to more numerous citations.

By the beginning of 2005, there were almost 40 Open Access Archives in the UK, and more universities and research institutes are planning to launch their own. A list of open archives in the UK is maintained by the Eprints.org site at Southampton University.

The rapid growth of Open Access, both in terms of the number of agencies and foundations, have begun to require or encourage free online access to publications based on research and help finance and the number of journals that allow authors to make their papers freely available (Gass & Doyle 2005, p 543)². The U.S. National Institutes of Health (NIH) is requesting that all of the research they fund be submitted to NIH's PubMed Central database within one year (Kaiser 2005, p 773)³. The commercial online database such as ISI's Web of Science has increasingly indexed the Open Access Journals beside their commercial peers (Tenopir 2004, p 33)⁴ and the ISI study has reported that "no discernible difference in terms of citation impact of frequency with which journal is cited between traditional..."
and open access journal" (McVeigh 2004). The famous database such as the National Library of Medicine's MedLine, which has traditionally been fee-based, has since become openly accessible, allowing people worldwide, doctors and patients alike, access to the newest medical research.

There are numerous ways in which Open Access Publishing might impact on scholarly communities such as library, since their users have very convenient access to an increasing amount of literature that previously required trips to the library, delays in inter-library loan, or substantial effort in locating the source. But at the same time, it presents numerous challenges and opportunities, the libraries which play the critical role in the scholar communication process, will find new ways to serve their patrons in the new environment. The libraries will need to design their organization and this can be expected to stretch both monetary and human resources (Schmidt, Sennyey, & Carstens 2005, p 407-415).

This study puts focus on the distribution of Open Access Publications on library and information science community and endeavors to indicate whether it is useful to the community. The scope of this study is limited to Library and Information Science because of their close relationship with Open Access venue and its activities; as they play the role of a distributor, encourage the university scholars in awareness of the Open Access advantages, and also promote their institute to create the institutional repositories or archives. In addition, the researcher has an educational background and has work experiences in the subject as well. However, the impacts discussed in this research might be applied by researchers and scholars to other subjects.

1.2 A Broad Picture of Open Access Publications in Thailand

The universities in Thailand play the important roles as center of progress and the venues of scholarly community in all disciplines. In order to
so, the university has provided the information resource and infrastructure for those. Basically, they provided the information covering the course offered by the universities. One of the vital sources of information is electronic materials such as electronic reference database, electronic journal, and electronic book. The potentiality of Internet, Local Area Network (LAN) and the information technology infrastructure are implemented in the universities to provide their patrons access to the information, without the limitation of time and places.

The university subsidizes a large amount of the yearly budget for subscription to the restricted access publications. Unfortunately, same as the situations of the academic libraries in other regions, university libraries in Thailand have faced "the serials pricing crisis" (this term refers to the rapid growth and steep increase of the subscription costs of scientific, technology and medical journal or STM) (Hunter 2005, p 51-55). Included with the trend of shrinking library budgets for purchasing library materials, some of universities cut the budget of monographs purchase and retained the electronic access, but the problems can not be solved in long run because the cost is increasing in steady rate. Moreover, the publishers mostly offered electronic journals in the form of a bunch of journals which included many titles of low impact factor journals.

Example of library in Thailand, struggling in this crisis such as PULINET (the Provincial University Library Network), the network was established by the collaboration among 12 provincial university libraries in 1986, to solve the similar problems which they were facing such as budget limitation, personnel shortage, increase of student strength and staff numbers and expansion of academic activities and programs leading to demands for new, timely and up-to-date information. In a meeting of the directors of all provincial universities, it was a conclusion that, in order to reduce expenditure, a collaborative library network should be established with an aim to efficiently exchange and share information flexibly. Thus, the
objectives of the Network are sharing the information among members and increasing the use of information and getting more information that the user want.⁸

The same trend has been in effect everywhere, the statistics of monograph and serial costs collected by the Association of Research Libraries (ARL) has shown that in the 16 years between 1986 and 2002, serials unit costs rose by 227% (see figure 1.1). Serial cost is one of complexions to cope with and how difficult for the libraries to solve the budgeting.⁹

**Figure 1.1 Monograph and Serial Cost in ARL Libraries, 1986-2002**

By the beginning of 1990s, during the chaos of STM crisis, Open Access (OA) Publishing is manifested and very well known among scientists
and scholars. The arXiv.org, established in 1991, is the first free scientific online archive to service a preprint for physicists.¹⁰

The movement of Open Access within scholar communities is prominent while their academic institutions and libraries are facing a crucial problem of the Serial Pricing Crisis. It is estimated that only half of this increase is due to the growth of scientific output. The price increases have sharply reduced subscriptions by academic institutions as well as an individual academician. The idea behind this movement is that wide dissemination is an important contribution factor to rewards in the scholarly world—and indeed, distribution of research is the reason behind most scientific careers.

Open Access can be provided by various means. A researcher can place a copy of article in an Open Access Archive or Repository or can publish articles in Open Access Journals. In addition, a researcher may place a copy of each article on a personal or departmental website. The numerous models of Open Access may typically be categorized under one of the two groups (Hamad 2005b)¹¹. The “gold” Open Access model provides materials freely and immediately in universally accessible electronic journal. The “green” Open Access model might be seen as an intermediate phase between current fee-based access models and the gold model, in which authors continue to publish in restricted journals, but deposit copies or pre-prints into an institutional repository or self-archive.

By November 2006, the Directory of Open Access Journals (DOAJ), the largest directory of Open Access Journal, lists more than 1,900 journals. The growing of the numbers has obviously presented that researchers and their universities are beginning to realize that the online era has made it impossible to enhance their research impact dramatically. They can be publicly self-archived in the university’s e-print archives websites that are accessible to all would-be users worldwide.¹²
In Thailand and other developing countries, the capacity to absorb scientific and technical knowledge is often weak, leading to low levels of scientific output and further under-development. Science in the less advanced countries is characterized by weak institutional infrastructures, poor funding, the absence of a critical mass of scientists to form a viable research community, the consequent isolation and insularity of a research community against which ideas can be exchanged, leading to a poor contribution to the world’s knowledge pool. It follows that new knowledge is largely created in the richer countries, where spending on research and development is highest.

In a recent study of comparative performance of the world’s major science producing countries, King (2004, p 311-316) found that researchers in eight countries-led by the United States, the United Kingdom, Germany and Japan-produce almost 85 percent of the world’s most cited publication, while another 163 countries, mostly developing countries, account for less than 2.5 percent. An example of this highly uneven output is that only 10 percent of the global research is undertaken in the developing world (Research, G.F.O.H.) and only 2 percent of the 3,000 journals indexed on Medline are from developing countries (Smith 2002, p 2869-2877). To put this in another way, 80 percent of the world’s population contributes 13 percent the 140,000 titles listed in Ulrich’s Directory of Scientific Serials.

In efforts to contribute scientifically the developing countries need access to essential global research findings. However, researchers in these regions often have little or no access to the published research literature due to the high cost of journal subscriptions and inadequate and expensive distribution mechanism (Arunachalam 2000; 2003, p 133-147). According to a recent survey conducted by the World Health Organization (WHO), of the 75 countries with a GNP per capita per year of less than US$1,000, 56 percent of medical institutions have had no subscriptions to
journals over the last five years; of countries with a GNP between US$1-
3,000, 34 percent have had no subscriptions and a further 34 percent have
an average of 2 subscriptions per year (Aronson 2003). Under these
circumstances it is clear that progress in science and development in low-
income countries can be made only with very great difficulty. As long as this
asymmetry in research output and access to up-to-date information remains,
research scientists in the developing world will remain isolated and their
research will continue to have little impact.

Scientists in developing countries are under pressure to publish in
foreign of ‘international’ journals with a notable ‘impact factor’ (as measured
by ISI’s Science Citation Index) if they wish to be recognized within and
outside their countries (Adomi 2003, p 259-263). However, as few ‘local’
journals are indexed by Science Citation Index scientists in developing
countries often do not publish in journals from their own countries. As
articles published in overseas journals are often inaccessible to other
scientists in developing countries due to high access costs, many
publications by developing country scientists remain invisible to their home
institutions or fellow scientists. The result is that it is difficult for institutions
and granting agencies in developing countries to take stock of their research
output (Arunachalam 2004). Open Access Archives would be especially
valuable to transitional economies such as Brazil, China and India, which
have been investing substantially in scientific research in the last decade.
These countries have seen a significant rise in the number or publications in
recent years. For example, scientific publication from China has arisen from
69,000 to 115,000 articles between the two four-year periods 1993-1997
and 1997-2001. If universities and science academies in these countries set
up archives, they could be immediately populated with a great number of
papers.

Thailand and other developing countries have still few numbers of
Open Access Archives and Journals in their own countries. Though some of
them have free access to full text archives of the medical and agricultural journals through the HINARY (Health InterNetwork Access to Research Initiative; a project collaborated by WHO) and AGORA (Access to Global Online Research in Agriculture; a project collaborated by the Food and Agriculture Organization) projects, Thailand is excluded. These projects are generously offered by more than 75 well-known publishers for 68 of the lowest income countries in the world with a GNP per capita of less than US$ 1,000. An additional 45 countries with GNP per capita between US$ 1,000-3,000, pays a nominal fee of US$ 1,000 per institution for the same privilege. These are not universally Open Access sources; still, researchers in one third of the world’s countries can benefit from Open Access to these huge full-text collections of scholarly publications (Jacso 2006)\textsuperscript{21}.

Finally, an interesting issue that can be a barrier of Open Access movement in Thailand and other developing countries is, there are some hurdles and misunderstanding about Open Access Publications among the scholar communities in developing countries (Hirwade and Rajyalakshmi 2006)\textsuperscript{22}, such as lack of expertise in every organization to promote creation of institutional archives and encourage scientists to place their paper in them, the lack of infrastructural facilities like hardware and connectivity of high bandwidth. Moreover some of them have impression that the editors of renowned journals may not accept the archived papers. The scholars need to be aware about the new opportunities provided by Open Access.

1.3 Objectives of the Research

This study has aimed to explore the impacts of Open Access Publications in Library and Information Science Communities. In order to archive this aim and determine an answer to the research question, the study proposes to undertake as following:
1) To take overview of Open Access Publications in library and information science.

2) To analyze the use of Open Access Publications in library and information science communities of state universities in Bangkok.

3) To measure the impacts of Open Access Publications on library and information science communities of state universities in Bangkok.

1.4 Scope of Research and Place of the Study

The populations of this survey research were faculty staff and students of Department of Library and Information Science, and library staff in the central library of the state universities.

Since the limitation of research period, the places of research are chosen to be the state universities under the Office of the Commission for Higher Education, Ministry of Education which located in Bangkok (the capital of Thailand). There are 24 state universities in Bangkok out of which 8 universities are providing Library and Information Science education as follows:

1. Chulalongkorn University
2. Thammasart University
3. Srinakharinwirot University
4. Suan Dusit Rajabhat University
5. Suan Sunandha Rajabhat University
6. Phranakhon Rajabhat University
7. Chandrakasem Rajabhat University
8. Ban Somdejchaopraya Rajabhat University

The data had been collected from the samples of population during October to December 2007.
The variables of the study were 1) the independent variables; faculty staff, library staff, and students 2) the dependent variables; the use of Open Access Publications and the impact of Open Access Publications.

1.5 Definitions of Terms

1) “Open Access (OA) or Open Access Publications” refers to full-text scholarly articles and conference papers as well as technical reports, theses, and working papers made completely free and unrestricted to all users, to read, copy, download, and distribute over the World Wide Web. There are many statements on definitions of Open Access Publications such as Budapest, Berlin, Bethesda, IFLA and ARL.

Budapest Open Access Initiative, Hungary

The Budapest Open Access Initiative arises from a small meeting convened in Budapest by the Open Society Institute (OSI) on December 1-2, 2001. The purpose of the meeting was to accelerate progress in the international effort to make research articles in all academic fields freely available on the internet. And the Open Access Publications have been described as “The literature that should be freely accessible online is that which scholars give to the world without expectation of payment. Primarily, this category encompasses their peer-reviewed journal articles, but it also includes any un-reviewed preprints that they might wish to put online for comment or to alert colleagues to important research findings. There are many degrees and kinds of wider and easier access to this literature. By "open access" to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and
distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited" (Budapest 2002).

Conference on Open Access to Knowledge in the Sciences and Humanities
(20 - 22 Oct 2003, Berlin)

Establishing Open Access as a worthwhile procedure ideally requires the active commitment of each and every individual producer of scientific knowledge and holder of cultural heritage. Open Access contributions include original scientific research results, raw data and metadata, source materials, digital representations of pictorial and graphical materials and scholarly multimedia material. Open access contributions must satisfy two conditions: (Berlin 2003)

1. The author(s) and right holder(s) of such contributions grant(s) to all users a free, irrevocable, worldwide, right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship (community standards, will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now), as well as the right to make small numbers of printed copies for their personal use.

2. A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in an appropriate standard electronic format is deposited (and thus published) in at least one 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 open access, unrestricted distribution, interoperability, and long-term archiving.

**Bethesda Statement on Open Access Publishing (June 20, 2003)**

An Open Access Publication [1] is one that meets the following two conditions: (Bethesda 2003)\(^{25}\)

1. The author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship[2], as well as the right to make small numbers of printed copies for their personal use.

2. A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in a suitable standard electronic format is deposited immediately upon initial publication in at least one online repository that is supported by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving (for the biomedical sciences, PubMed Central is such a repository).

Notes: [1] Open Access is a property of individual works, not necessarily journals or publishers [2] Community standards, rather than copyright law, will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now.

**IFLA's statement on Open Access**

This statement was adopted by the Governing Board of IFLA at its meeting in The Hague on 5th December 2003. An open access publication is one that
meets the following two conditions: (IFLA Statement on Open Access to Scholarly Literature and Research Documentation 2003)\textsuperscript{26}

1. The author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, world-wide, perpetual (for the lifetime of the applicable copyright) right of access to, and a license to copy, use, distribute, perform and display the work publicly and to make and distribute derivative works in any digital medium for any reasonable purpose, subject to proper attribution of authorship, as well as the right to make small numbers of printed copies for their personal use.

2. A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in a suitable standard electronic format is deposited immediately upon initial publication in at least one online repository that is supported by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving.

[An open access publication is a property of individual works, not necessarily of journals or of publishers. Community standards, rather than copyright law, will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now].

\textit{Association of Research Libraries (ARL)}

Office of Scholarly Communication, ARL has defined the context of Open Access as following: (Association of Research Libraries 2002)\textsuperscript{27}

- Open access is a cost-effective way to disseminate and use information. It is an alternative to the traditional subscription-based publishing model made possible by new digital technologies and
networked communications. As used by ARL, open access refers to works that are created with no expectation of direct monetary return and made available at no cost to the reader on the public Internet for purposes of education and research. The Budapest Open Access Initiative stated that open access would permit users to read, download, copy, distribute, print, search, or link to the full texts of works, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the Internet itself. Open access does not apply to materials for which the authors expect to generate revenue.

- Open access operates within the current legal framework of copyright law. Authors own the original copyright in their works. In the process of publishing, authors can transfer to publishers the right for publishers to post the work freely on the Web, or authors can retain the right to post their own work on institutional or disciplinary servers. Authors, however, retain control over the integrity of their work and have the right to be properly acknowledged and cited.

- Open access is intended to be free for readers, not free for producers. The costs of producing digital open-access literature are believed much lower than the costs of producing print literature, but financial and human resources are required. Author or institutional fees for dissemination have been proposed as possible alternatives to the traditional library subscription model for funding the costs of open access.

- Open access focuses on academic research. Open access is concerned with scientific and research texts that scholars give to the community without expectation of direct monetary return, including peer-reviewed journal articles, preprints, preliminary findings, and data sets.
- Open Access does not mean that peer review is bypassed. Peer review is medium-independent, as necessary for online journals as for print journals, and no more difficult.

From the basis of the statements and initiatives, there are three main essentials: free accessibility, further distribution, and proper archiving. Ones will meet open access definition if: 1)The article is universally and freely accessible, at no cost to the readers, via the Internet 2) the author or copyright owner irrevocably grants to any third party, in advance and in perpetuity, the right to use, copy, or disseminate the article, provide that correct citation details are given; and 3) the article is deposited, immediately, in full-text and electronic form, in at least one widely and internationally recognized open access repository committed to open access and long-term preservation for posterity.

2) “Open Access in library and information science” refer to Open Access or Open Access Publications in the area of library and information science which are provided in the Open Access Archives or Repositories such as E-LIS, DLIS etc., and including Open Access Journals which publish in English language only.

3) “Library and information science community” refers to a group of people who have their work related to library and information science in the universities in Bangkok (Thailand). Those are library staff of the university central library, faculty staff and students of the Department of Library and Information Science.

4) “Library administrators” refers to librarians who responsible for library administration such as policy making, library management.

5) “Library service staff” refers to librarians or other staff who responsible for library user service.
6) "Library technical staff" refers to librarians or other staff who are responsible for library technical service such as collection development, cataloging.

7) "Faculty Staff" refers to teachers of Department of Library and Information Science.

8) "Students" refers to students of Department of Library and Information Science.

9) "Impact" refers to the powerful effect that the Open Access Publication has on the library and information science community. According to a Supplement to the Oxford English Dictionary, "impact" means "Now commonly the effective action of one thing or person upon another; the effect of such action; influence, impression. To come forcibly into contact with a larger body or surface" (Burchfield 1976).

10) "State Universities" refers to states universities in Bangkok (Thailand).

1.6 Research Organization

This study had been conducted by the survey research method. The samples of population, which consist of faculty staff, library staff, and students of the library and information science communities, were selected by random sampling.

A set of three questionnaires was designed as the tool for collecting data from each group of samples. The questionnaires were designed with base on documentary review, personal interview with faculty staff, library staff and students through e-mail. The drafted questionnaires had been revised and approved by research supervisor before those were distributed to the samples. Since, the sample of the research were Thai, the approved questionnaires were translated into Thai language. Then, the questionnaires were reviewed by the subject specialists to measure its content validity.
before pilot study. The questionnaires were distributed for pilot test with 35 samples at Buriram Rajabhat University. The pilot samples, however would not participate in the final survey since their pre-conception would cause error to the result. These respondents which consist of faculty staff, library staff and students, were kindly provided the answers to the preliminary questionnaire in order to identify ambiguous terms and statements. It was experienced that no difficulties with vocabulary or terminology were reported.

The finalized questionnaires were used for collecting data from the research samples at the eight state universities in Bangkok, during October - December 2007. The data obtained by the returned questionnaires were checked and analyzed by the SPSS (Statistical Package for Social Science) computer program. Then, the research findings were interpreted, discussed and concluded.

Finally, the research report was published in order to submit to the Department of Library and Information Science, University of Pune, India. (see the details of research methods in Chapter 3)

1.7 Research Hypotheses

1) Open Access Publications in library and information science are useful to the library and information science community.

2) Open Access Publications in library and information science has positive impact on faculty staff, library service staff, library technical staff, students, researchers and authors.

3) Open Access Publications in library and information science has negative impact on library administrators.
1.8 Chapter Organization

The research report has been divided into five chapters, as follow:

Chapter 1: Introduction

The introduction included the objectives of the study, research methodology, scope of the study, definitions of terms, review of the literature, and history of the terms.

Chapter 2: Profile of universities/Open Access Publications

This chapter focused on the historical background of state universities in Bangkok (capital of Thailand), the activities in their library and information science communities, and the information about Open Access Publications were included.

Chapter 3: Research methods

This chapter focused on the details of research design and its tool (questionnaire), procedure of data collection, and the statistics used for analysis of data.

Chapter 4: Impact of Open Access Publication on users

This chapter handled the results of the surveyed. The data obtained by the questionnaires were explained in descriptive statistics, and presented in form of tables and graphs.

Chapter 5: Summary, Discussions, Suggestions, and Recommendations

This chapter attempted to demonstrate the interpretation of findings, summary including recommendations and suggestions are obtained by the study.

At the end of the research report, the bibliographies and appendices are included.
1.9 Review of Literature

1.9.1 Review of Literature in Foreign Countries

1) Research

Björk and Turk (2006)\textsuperscript{28} studied about "The Electronic Journal of Information Technology in Construction (ITcon): an Open Access Journal using an un-paid, volunteer-based organization." This case study was based on the experiences with the journal, founded in 1995. This journal was an example of a particular category of Open Access Journals, which use neither author charges nor subscriptions to finance their operation, but rely on unpaid voluntary work in the spirit of the open source movement. The journal survived its first decade and was established as one of half-a-dozen peer reviewed journals in its field. The journal publishes articles as they become ready, but creates virtual issues through alerting messages to subscribers. It has also started to publish special issues, since this helps in attracting submissions, and also helps in sharing the work-load of review management. From the start the journal adopted a rather traditional layout of the articles. After the first few years the HTML version was dropped and papers are only published in PDF format. The journal had been benchmarked against the competing journals in its field. Its acceptance rate 53\% was slightly higher and its average turnaround time of seven months almost a year faster compared to those journals in the sample for which data could be obtained. The server log files for the past three years had also been studied. The overall experience demonstrates that it was impossible to publish this type of Open Access Journal, with a yearly publishing volume equal to quarterly journal and involving the processing of fifty submissions a year, using a networked volunteer-based organization.

Creaser(2006)\textsuperscript{30} studies about "Evaluation of Open Access Journal; experiment stage 2 report". This stage of analysis confirms the initial
indicators that, OA articles generally attract higher levels of article download than do subscription only articles. Usage generally was increasing for JXB and Nucleic Acids Research (NAR) prior to OA experiment, but usage of Bioinformatics was falling. For JXB, levels of use of articles in older volumes of the journal began to increase following the start of the OA experiment. For Bioinformatics, the falling trend of usage before the OA experiment appears to have reversed, with increased use for subscription based articles in the most recent volumes. NAR (all article are Open Access) show no increase in use since becoming Open Access over and above the trend which was apparent prior to the start of the experiment. Both Bioinformatics and JXB report higher levels of use for OA articles than for subscribed articles in the same edition. There was still relatively little citation data available for OA articles, due to the time delay inherent in articles receiving citations as well as the delay in obtaining data.

Eysenbach (2006) did an analysis on “Citation advantage of Open Access articles”. This was a longitudinal bibliometric analysis of a cohort of Open Access and Non-Open Access articles published between June 8, 2004 and December 20, 2004, in the same journal (PNAS: Proceedings of the National Academy of Sciences). The average number of citation of Open Access articles was higher compared to Non-Open Access articles. In a logistic regression model, controlling for potential confounders, Open Access articles compared to Non-Open Access articles remained twice as likely to be cited in the first 4-10 months after publication, with the odd ratio increasing to 2.9 in 10-16 months after publication. Articles published as an immediate Open Access article on the journal site had higher impact than self-archived or otherwise openly accessible Open Access articles. He found strong evidence that, even in a journal that was widely available in research libraries, Open Access articles were more immediately recognized and cited by peers than Non-Open Access articles published in the same
journal. Open Access is likely to benefit science by accelerating dissemination and uptake of research findings.

Hoorn and Graaf (2006) did a survey on "Copyright issues in Open Access research journals". This was a result of survey undertaken as part of a series of work packages under a joint initiative, of by JISC and SURF to explore the attitudes of authors in the UK and Netherlands toward Open Access. The results showed that a model in which the author keeps the copyright: this was preferred by nearly half of the respondents. Two models in which the author shares the copyright (with Creative Common licences): these were preferred by nearly a third of the respondents. And a model in which the author transfers only the exploitation rights to the journal publisher: this was preferred by a small minority. These and other results seem to reflect desire on the part of academics to change the balance of rights within copyright between authors and publishers in scholarly communication journals. Libraries and academic institutes were taken part in the scholarly communication copyright debate and could use these results to align their position with the academics' views.

Nicholas, Huntington and Jamali (2006) studied about "Determining the impact of Open Access Publishing on use and users: a deep log analysis of Nucleic Acids Research". CIBER, UCL Center for Publishing. Nucleic Acids Research (NAR) first published articles under the Open Access model in 2004 and since January 2005 publish all of its material under this model. The key finding was that the rise in use of NAR over the 30 month survey period (above 140%) could largely be attributed to the opening up of the site to search engines and that the move to OA had only a small influence on driving usage up further (about 7/8%). Usage was very seasonal with rises and falls mirroring the rhythms of the academic year. It rises most strongly in the winter, with the notable exception of the Xmas period, when it dives temporarily. There was also a shift to the usage of
current and full text articles and a considerable increase in new users, and many of these came from the East Europe bloc countries. In conclusion, NAR was shown to be a very successful journal-and a testament to what a scholarly journal can achieve in cyberspace. OA was simply a small element in its success story.

Peng, Loh and Mondry (2006) studied about “Publication lag in biomedical journals varies due to the periodical’s publishing model”. It is aimed to compare the three business models of publishing (Professional publishing house publish in print, online in reader-pays model and the Open Access model of author-pays), with regards to publication speed. 28 topically similar biomedical journals were compared. The study showed that ‘Open Access publishing (OAP)’ journals and ‘traditional’ journals had a competitive publication speed, while it take much longer for manuscripts submitted to association journals to be published. Traditional publishers tended to co-publish electronic versions of the print publication, but restrict the access to subscribed users only. In contrast, the OAP model had the potential to reach a broader readership by offering free accessibility to readers. Due to the relative novelty of OAP, the scientific impact of OAP had not been established. Authors should consider a compromise between fast publication speed, efficient spread to the appropriate target audience, and availability of article when choosing which journal to submit to.

Saxby (2006) conducted a survey on “NAR author and reader survey: Preliminary report”. In January 2005, NAR (Nucleic Acids Research) became one of the first established journals to move to a full Open Access model, partially funded by author charges. The survey was sent to the NAR online submission and peer review database-respondents may therefore be a published or rejected author, reviewer, editorial board member, editor, or a combination thereof. When asked whether they would have published their paper in NAR if it had not offered Open Access, most of respondents said “Yes”. And more than half of them stated they had paid the Open Access
charge using research grant funding. In 2006, the NAR Open Access charges were $950 per article for authors based at institute with membership of NAR; and $1,900 per article for authors based at non-member institutions. After considering these charges, 49% of respondents stated that they would publish an appropriate paper in NAR 2006 and would be able to pay the regular charge; 32% stated that they would publish a paper in NAR 2006 if their institution has membership; 11% stated that they would publish a paper in NAR but only if the Open Access charge could be waived.

According the use of NAR, the majority of respondents preferred PDF version. The full-text of Open Access NAR is also independently hosted by and freely available via the repository PubMed Central. The respondents who used NAR via the PubMed Central route may do so because, for example, the site is felt to be easy and quick to use, it is guaranteed that all PubMed Central content will be accessible to them, or they randomly choose the PubMed Central full-text link when finding and NAR article during a PubMed or Google.

Schroter and Tite (2006) surveyed on "Open Access publishing and author-pays business models: a survey of authors' knowledge and perceptions". The electronic survey aimed to assess journal authors' current knowledge and perceptions of Open Access and author-pays publishing. It was conducted on authors of research papers submitted to BMJ, Archives of Disease in Childhood, and Journal of Medical Genetics in 2004. The survey yielded useful information about respondents' knowledge and perceptions of these publishing models. Authors had limited familiarity with the Open Access publishing and surround issues. And Open Access policies had little impact on authors' decision of where to submit papers.

In 2005, Swan and Brown (2005) carried out to determine "Open Access Self-Archiving: an author study". Almost half of the respondent population had self-archived at least one article during the last three years in
at least one of the three possible ways—by placing a copy of an article in an institutional (or departmental) repository, in a subject-based repository, or on a personal or institutional website—than had used institutional or subject-based repositories, though the main growth in self-archiving activity over the last year had been in these latter two more structured, systematic methods for or providing Open Access. Use of institutional repositories for this purpose had doubled and usage had increased by almost 60% for subject-based repositories. Post-prints (peer-reviewed articles) were deposited more frequently than preprints (articles prior to peer review) except in the longstanding self-archiving communities of physics and computer science. There were some differences between subject disciplines with respect to the level of self-archiving activity and the location of deposit (website, institutional or subject-based repositories). Self-archiving activity was greatest among the most prolific authors, those who published the largest number of papers.

There were still a substantial proportion of authors unaware of the possibility of providing Open Access to their work by self-archiving. Authors had frequently expressed reluctance to self-archive because of the perceived time required and possible technical difficulties in carrying out this activity, or the danger of infringing agreed copyright agreements with publishers. Only 10% of authors knew of the SHERPA/RoMEO list of publisher permissions policies with respect to self-archiving, where clear guidance as to what a publisher permits is provided. Most authors published to have an impact on their field but more than half did not know what the citation rate is for their most recent articles. Almost all authors used some form of bibliographic service to locate articles of interest in closed archives such as publisher website, but only a small people were using the specialized OAI search engine to navigate the Open Access repositories. At
the time of this survey, 72% of authors were using Google to search web for scholarly articles: the subsequent arrival of Google Scholar.

Hajjem and others (2005) studied about “Open Access to Research Increases Citation Impact, to analyze the effect of proving OA to research on their ‘citation impact’ (how often they were cited). Using a subset of the ISI CD-ROM database from 1992-2003, it was compared within each journal and year, articles to which their authors had (OA) or had not (NOA) provided Open Access by self-archiving them on the web. The number of OA and NOA articles and their respective citation counts were calculated within biology, business, psychology, and sociology journals. The percentage of OA articles varied from 5-20%. The citation counts showed a consistent OA advantage for all four fields and 28 subspecialties tested, varying from 25% to over 250%. An OA impact advantage has already been reported in the physical sciences and engineering, but there was uncertainty about whether the same thing happens in other disciplines. Our data now shows that both the biological and the social sciences show the OA advantage, and are hence likewise losing substantial amounts of potential impact for the 80-95% of their articles that are not yet self-archived. These results confirm that a mandatory self-archiving policy on the part of research institutions and funders would greatly enhance the impact of research results in all disciplines.

Rowland (2005) did a survey on “Scholarly Journal publishing in New Zealand”. Learned societies and other non-profit organizations in New Zealand publish scholarly journals in a number of disciplines, many of them subjects in which New Zealand has a particular economic interest. Although most of the journals are small, a surprising number of them have paid, rather than voluntary academic, editors. Some have launched electronic version, but only one has experimented with Open Access. In a number of cases this lack of interest in Open Access was because the society could not see a business model that would render the society as a whole
economically viable. Some of the smallest journals, published only annually, may have the most assured future because their operation is entirely voluntary.

Byrd, Bader and Mazzaschi (2005) studied about “The status of Open Access Publishing by academic societies”. The primary goal of this study was to help these societies understand the problems and opportunities faced by the Council of Academic Societies (CAS) journals as they shift from paper to electronic publishing. More than half sponsor or pushing at least 1 journal and, altogether, these societies publish just over 100 titles. The following data summarize the status of these journals' transitions to electronic publishing. Over half provide free access to at least some journal content from a website, and nearly half have an electronic repository policy for back volume. A very large majority has policies and procedures for licensing online access to libraries or consortia. A significant percentage maintains online version of journal that are not the same as the print version. For the Open Archive Journals (High wire Press and CAS), the majority expected negative impacts (loss of revenue, authors unable to pay, government mandated change), but many expected no impact. For Open Access Archive (DOAJ: Directory of Open Access Journal). Most were very positive about the potential to increase access to knowledge, improve journal quality, and compete effectively with publishing conglomerates.

The conclusion about the current status of scholarly publishing from the perspective of these Open Access (DOAJ), Open Archive (High Wire Press), and CAS publishers were: these publishers are experimenting with a wide variety of business models; scholarly journal publishers of every type and size are experimenting with OA; these publishers most often attribute the pressure to change on the overall evolution of online publishing rather than the OA movement; most describe significant cost-cutting measure underway, especially in copyediting; the management of copyright and reuse policies for these journals is independent of their OA policies; the feel
that 'library periodical crisis' is also due to library budget not keeping pace with the growth in research budgets and in the number of research articles being submitted for publication.

Jonathan D. Wren (2005)\textsuperscript{41} studied about “Open Access and openly accessible”. The study to determine how often reprints of scientific publications are shared online, whether journal readership level is a predictor, how the amount of file sharing changes with the age of the article, and to what degree Open Access Publications are shared on non-journal websites. The findings are that the probability that an article could be found online at a non-journal website correlated with the journal impact factor and the time since initial publication. Papers from higher impact journals and more recent articles were more likely to be located. On average, for the high impact journal articles published in 2003, over a third could be located at non-journal websites. Similar trends were observed for the delayed or full Open Access Publications.

Kaufman-Will Group, LLC (2005)\textsuperscript{42} conducted a survey on “The facts about access: a study of the financial and non-financial effects of alternative business models for scholarly journals”. The findings were shown that: it is too early to tell whether full Open Access is a viable business model. Although there are more than 1,000 full Open Access Journals freely available but they are not always available in library databases and thus are invisible to readers. Full Open Access Journals rely heavily on revenue streams such as grants, author-side fees, and institutional memberships along with a substantial amount of personal or departmental funding and volunteer labor. These sources of support are less tried and true than subscription and advertising revenues and might be insufficient supply in the future; Scholarly journal publishing is in an unprecedented state of flux. Most of Open Access Journals and subscription access journals are planning to adopt a different business model in the next three year. It was also revealed that Peer review and copy-editing may be less rigorous with full Open
Access Journals.

Plutchak (2005)\(^3\) did a survey on “The impact of Open Access”. Members of JMLA who subscribed to MEDLIB-L and Association of Academic of Academic Health Science Libraries (AAHSL) discussion list were conducted, and 252 members responded. They were asked about the degree of impact the JMLA’s free availability had on their decision not to renew the membership. For seventeen of former members, most of them indicated little to no impact. For current members, most of them indicated that it would have no bearing, and minority indicated that it would make them to much more likely to renew. Other questions indicated that the free availability would make people much more likely to read articles from the older issues and would make potential authors more likely to submit manuscripts. He also did one more investigation in JMLA Board of Directors ‘that we do find ourselves unable to continue to fund the publication of the JMLA in the present manner? How likely do you think you would be to vote in favor of the following options? The option ‘suspend publication altogether’, most of them very likely to, a resounding vote in favor of finding a way to continue publishing it. Imposing an embargo or tacking on an additional members’ fee likewise had little support. The board showed some support for the notion of the print version.

In 2004, Swan and Brown did a survey research on “JISC/OSI: Journal authors survey report” \(^44\). The survey aimed to investigate the authors’ awareness of new Open Access possibilities in many aspects. The results showed that almost two-thirds of respondents were familiar with the Open Access concept, but only around a quarter of authors in this group had been made aware of Open Access initiatives by their institute. The proportion of Open Access author respondents whose institute had drawn their attention to such outlets was higher, at 42% the same pattern was seen when authors were asked whether they were aware of any initiatives in their own country to promote Open Access.
The reason for choosing an Open Access outlet in which to publish was belief in the principle of free access to research information, and these authors also perceive Open Access Journals as being faster than traditional journals, having a larger readership and thus resulting in higher numbers of citations to their work. For those who were not publishing in Open Access journals, most importantly reason was they felt not familiar enough with the Open Access Journals in their field to submit work to them. More than half of authors who had published their work in Open Access Journal had not paid a fee. This was almost certainly because a large proportion of this cohort were BioMed Central(BMC) authors and were likely to come from institutions that have taken out membership of BMC. Authors feel that any publication fees required should come from research grants first and foremost and, failing that, from their institution or its library. Almost all the authors in both groups said that if publishing their work in an Open Access outlet were a condition of a grant-awarding body they would comply. Respondents from both groups were poorly informed about E-print Archive and only small minorities had ever self-archived their articles in an institutional or subject-specific repository. The highest level of activity of this type was posting a copy of published articles on their own website.

Another study of Swan and Brown (2004b) was on “Authors and Open Access Publishing”. Its object was to show that the awareness of Open Access Journals among authors who had not published in them was quite high; awareness of self-archiving was less. For Open Access Journal Authors the most important reason for publishing in that way was the principle of free access; their main concerns were grants and impact. Authors who had not published in an Open Access journal attributed that to unfamiliarity with such journal. Forty percent of authors had self-archived their traditional articles and almost twice as many say they would do so if required to.

McVeigh (2004) studied about “Open Access Journals in the ISI
citation databases: analysis of impact factors and citation patterns a citation study from Thomson Scientific”. The study found that the currently available OA journals were more often among the lower-ranking journals in the field by Journal Impact Factor, and Immediacy Index, although three of four subject groups studied had one or more OA journals among the top 9% of the category. The distributions by rank differs greatly by field, with high-ranking OA journals being most frequent in physics, engineering & mathematics subjects. The 239 OA journals were international, but their relative frequency within some regions varies greatly. OA journal comprised over 40% of the indexed journals from Central and South America, but only 1-2% of those covered from North America or Western Europe. At the time of study, publishers located in the Asia Pacific were producing the largest number of OA journals selected for coverage by Thomson ISI. Rather than being a uniform movement to create new journals, OA was also evolving as a means by which existing journals were offering their content to a wider audience. The age of content that was available in OA journal varies greatly across the population of journal it studied. Although some journals were launched as OA, many of the OA journals currently available were established titles that offer some or all of their prior content through OA. Thus, a journal was designated ‘Open Access’ based on the most recent content’s accessibility, but the citation life-span of its articles can exceed the age of the OA content. Even in rapidly-moving subjects in biomedicine, more than half the articles cited in 2003 had been published prior to 1998. As the OA publishing environment continues to evolve over the next several years, it is likely that there would be significant variability in the depth of freely available content for any given OA journal. Finally, it was estimated the volume of content that could become freely available through author or institutional self-archiving. The vast majority of publishers who had journal indexed by Thomson Scientific do not have a well-known or formal policy on whether they permit authors to deposit some version of their articles in a
freely available repository, nevertheless more than half of them allowed some form of author-archiving.

Publishers Communication Group, Inc (2004) conducted a survey on “Global Electronic Collection Trends in Academic Libraries”. The web-based survey was administered to 155 librarians from academic libraries throughout the world, to examine a clear picture of the factors that influence the collection of electronic resources and the impact of Open Access Publications on library collections.

Some key findings of the survey include; the leading factor influenced the collection of electronic resources was stated library policy, followed closely by the preference of faculty members and of students. Most of the respondents reported that their institution had cancelled print subscriptions when the content was available electronically and their institution catalogs or indexes peer-reviewed Open Access Journals. The quantity of electronic resources in their collection had increased during the past three years, and the electronic resource collection decisions were influenced by library policy, faculty suggestions/ preferences and student suggestions/ preferences respectively. There was not a standard method of collecting electronic journals and content at libraries surveyed with a slight majority of those surveyed indicating that their institution prefers to obtain electronic resources exclusively through contracts orchestrated by subscription agencies. Mostly indicated that their institution catalogues or indexes peer-reviewed Open Access Journals on a regular basis, others explained that they add peer-reviewed Open Access titles to their A-Z list of journals available electronically. Surprisingly, only a quarter of those responding to this question indicated that their library did not actively catalogue or index Open Access Publications for patron use.

Although the majority of those responding to questions about Open Access Journals reported that they did not have a significant impact on the collection habits of the library, many also indicated that some changes had
been made to recognize their availability. Specifically, 9% explained that they replaced subscriptions to journals with a peer-reviewed Open Access Journal of equal quality when available. The majority of respondents preferred instead to supplement their collection with links to peer-reviewed Open Access Journals. Some of them explained that their institution had made no changes in light of the availability of Open Access Publications while few of them indicated that they had made other changes in response to the availability of Open Access Journals.

Brody and others (2004a)\textsuperscript{48} studied about “The effect of Open Access citation impact”. The preliminary data was derived from the ISI CD ROM citation database (a database of the tables of content and references from 7000 leading journals from 1991-2001) and arXiv.org (a repository of author self-archived e-prints in physics, mathematics, and computer sciences started in 1991). This physics analysis completed up to 2001, was revealed larger effects than those reported by Lawrence (2001), with OA/non-OA citation ratio of 2.5-2.8. There was a discernible difference in terms of the frequency with the articles are cited, and that the difference was between 250% and 550% in favor of the articles that authors have made OA. His remarkable correlator/predictor gave the size of the download/citation correlation by field, which could be used to predict citation 6-24 months later from download today (with an adjustable time-window).

Another study of Brody (2004b)\textsuperscript{49} was on “Citation impact of Open Access articles vs. articles available only through subscription “Toll-Access”. The method was to take all the physics and mathematics articles indexed by ISI from 1992-2003 and first calculated how much each article was cited. Then all these articles were divided into those that were and were not in arXiv, hence were or were not OA. The OA advantage was then calculated from a comparison of the citation counts for the OA versus the non-OA articles: 100 (OA/non)-100% (OA divided by non-OA citation counts, minus
This gave the percentage by which citation impact was altered, positively or negatively, by making the article OA (by self-archiving it in arXiv). Virtually all of the OA impact effect was positive: OA enhances citation impact substantially, sometime by several hundred percent. This was to be expected, because increasing accessibility increase rather than decreases potential usage. Another measure of interest in the percentage of the yearly articles in a field that were self-archived and thereby made OA relative to the total number of articles in the field. This percentage was slowly increasing across the years and was already especially high in nuclear and high-energy physics, the fields in which arXiv began.

Herring (2003)\textsuperscript{50} did a citation analysis of “Use of electronic resources in scholarly electronic journals”. One hundred seventy-five peer-reviewed research articles published between summer 1999 and spring 2000 in twelve free web-based e-journals from a variety of disciplines, serve as the source for this exploratory citation study. The researcher found that 16% of 4,289 unique references were to e-resources shows that 24.7 percent were self-citations to the same journal, 17.8% of the e-journals (thus 45.2% were to e-journals), 20.1% reports, and 15.3% web homepages. Other ‘non-traditional resources’, such as release, seminar papers and speeches, were cited. Moreover, 27 percent of the e-citation was interdisciplinary. A comparative breakdown of the cited print items revealed 45.2% were books and 43.4% articles. Interestingly, 18% of the cited web resources were inaccessible. Researcher speculated that the e-format promoted interdisciplinary and used of nontraditional resources and concluded that online resources were ‘increasingly important’ to scholars.

In 2003, Pelizzari did a survey on “Academic staff use, perception and expectations about Open-Access Archives, a survey of social science sector at Brescia University, Italy”\textsuperscript{51}. The survey aimed to determine knowledge and user of Open-Access Archives in the different disciplines, and to verify
the conditions stated by the authors to participate in an institutional Open Access initiative. Other related issues, such as authors, attitudes towards publishers, copyright policies and role of the library, were investigated. Results showed that 44% of authors knew about the existence of Open-Access initiatives and archives. Among the people who answered that they were aware of the existence of Open-Access Archives, only 4% affirmed they had already used them to deposit papers, while 33%, among those who declared to use materials free available on the web, they used an Open Access disciplinary archive. Most of respondents answered they were prepared to personally archive their own scientific or educational material on an institutional repository, once the conditions that they request have been fulfilled. There was no statistically significant association between faculties of origin, professional status and knowledge about Open Access initiative or personal availability to self-archiving. Statistically significant association between years of work in academia and personal availability to self-arching was not present.

In 2001, “the impact of free online availability by analyzing citation rate” was conducted by Lawrence. The 119,924 conference articles in computer science and related disciplines were analyzed. The finding showed the probability that an article freely available online as a function of number of citations to the article, and the year of publication of the article. The results were dramatic. There was a clear correlation between the number of times an article was cited, and the probability that the article was online. More highly cited articles, and more recent articles, were significantly more likely to be online. Averaging the percentage increase across 1,494 venue containing at least five offline and five online articles results in an average of 336% more citations to online articles compared to offline articles published in the same venue (the first, second (median), and third quartiles of the distribution were 58%, 158%, and 361%).
Fosmire and Song Yu (2000) studied about the free scholarly electronic journals. They reported their citation study of 82 free, scholarly e-journals in the science, technology, and medicine fields. The journals 1999 impact factor and immediacy index were calculated from data available in the Web of science and the number of articles published obtained from the journal’s web sites. They found forty-seven of the 82 titles were cited at least once. To provide an evaluative context and because most e-journals were not covered in the JCR, the data for these 47 were compared to the 1998 JCR data for journals (mostly print) in their fields.

Zhang Yin (1998) studied a citation analysis of the impact of internet-based electronic resources on formal scholarly communication in the area of library and information science. The author analyzed citations to e-resources in 14 scholarly peer-reviewed LIS journals (10 printed and 4 electronic) during 1994-1996. He discovered that 7.49% of the articles had at least one reference to an e-resource and 8.94% had one or more resource ‘pointers’, defined as a footnote or mentioning in the text. Altogether, only 1.13% of 29,397 citations were to electronic resources. As one might expect, electronic journals, beginning in 1995, cited a higher proportion of e-resources than did print journal. Further analysis found a slight yearly increase in the proportion of total citations from all fourteen journals to electronic resources, but it was not statistically significant. The researcher decided that the impact of e-resources on LIS research, as measured by citation, ‘was small’. This entry represents rigorous, well-done research.

2) Ph.D. Thesis

Halbert (2006) studied on “New models for research libraries in the digital age”. A dissertation presented on new models for digital service by research libraries. This work describes a series of case studies exploring
some of the most promising new models for library services in the 21st Century, especially those utilizing a technique termed metadata harvesting. The findings of the case studies concern the effectiveness of metadata harvesting as a strategy for creating new services, the utility for scholars of portals built on databases created by means of metadata harvesting, the benefits of Open Source software tool development for libraries, a model I term metadata gardening, sustainability options, opportunities for metadata enhancement, and the importance of collaboration between scholars and librarians in Open Access Digital Publishing.

Lee (2005)\textsuperscript{56} did a research on "Defining digital preservation work: A case study of the development of the reference model for an Open Archival Information System". This is a report on a multi-method case study of the development of the Reference Model for an Open Archival Information System (OAIS), a standard which describes components and services required to develop and maintain archives in order to support long-term access and understanding of the information in those archives. Development of the OAIS took place within the Consultative Committee for Space Data Systems (CCSDS), a standards development organization which formal represents space agencies, but the effort reached far beyond the traditional CCSDS interests and stakeholders, becoming a fundamental component of digital archive research and development in various disciplines and sectors. A major factor in the success of the OAIS was the timing of its development. Actors within several streams of activity related to digital preservation perceived the need for a high-level model but had not themselves developed one. Several actors also felt they had knowledge from their own recent digital archiving efforts, which could inform development of the OAIS.

Abouserie (2003)\textsuperscript{57} did a survey on "Information seeking and communicating behavior of social science faculty in an academic environment with special reference to the use of electronic journals: A field
The basic tasks of Social Science faculty were matched with different information sources to determine what sources were used for different tasks, and to what degree faculty depend on each source. The basic non-administrative tasks of the faculty were summarized in the following points: Teaching, Research and research. Two types of sources were covered, basic information sources or traditional sources, and electronic sources. The research findings that: There would be a difference in the sources used to perform the basic tasks or activities, teaching, research, and service, according to the school, faculty rank, years spent in the university, and gender. Teaching depended more on electronic sources than service. It was also found that research depended more on traditional materials than teaching and service. And teaching depended more on traditional library materials than service. And E-journals would be accessed from offices more than any other location such as departmental libraries, central libraries and home.

Zhang Yin (1999) did a study on “Scholarly use of Internet-based electronic resources”. This research examined the use of Internet-based electronic resources (e-sources) by scholars and identified factors affecting the use. It focused particularly on how scholars use, cite, and evaluate e-sources during the research process. This dissertation also explored the problems scholars encounter and concerns they had when using e-sources for research. The following approaches were used to collect data for the investigation: (a) a longitudinal analysis of e-source citations in eight LIS journals from 1991 (when e-source citations began to appear in these journals) to 1998 (when the most recent annual citation data were available for this study), (b) a survey of 201 authors with papers to be published in the eight journals, and (c) a survey of editors of the eight journals. The longitudinal analysis of e-source citations shows that there had been a notable increase in the number and proportion of authors who cite e-sources in their research papers over the past eight years, although at the time of

38
this study, e-sources were still cited much less frequently than print sources. This result provided empirical evidence that e-sources were increasingly used among scholars. The e-sources were becoming an important component in scholars' research, and were serving a wide range of purposes and functions. The number of access points and self-perceived overall ability to use the Internet were identified as the two significant variables affecting frequency of e-source use.

Reneker (1992)\textsuperscript{59} studied about "Information-seeking among members of an academic community". The research results showed that using a naturalistic approach, the information-seeking activities of 31 members of the Stanford University academic community were examined over a two-week period during the 1990-1991 academic year. Informants' perception of their information environment was expressed in positive terms, and there was a close relationship between knowledge of the information environment and the sources used. Information seeking was embedded in the day-to-day activities and relationships of the participants and was triggered both by the articulation of need and availability of information. A large number of needs were satisfied by sources the informants created or organized themselves and by interpersonal information sources.

Smith (1991)\textsuperscript{60} examined "The impact of technology on collection development in selected academic and research libraries in the Southeastern United States". The purpose of the study was to assess the impact of technology on collection development and the collection, and the probable impact of future technologies on collection development and the collection in selected academic and research libraries in the Southeast. The results of the study indicated that the librarians included in the study were operating within sophisticated technological environments and were knowledgeable about computer related technologies. They perceived that technology has had an impact on collection development in the following
areas: management information; budget; access to the collection; usage of the collection; user demand for materials; and, to a lesser degree, cooperative collection development. They believed that the impact of future technologies on collection development would include: a trend toward "access vs. ownership"; greater attention to cooperative collection development agreements; continued expansion of electronic formats, specifically electronic journals; continued pressure on budgets; and, the development of 'workstation'. The primary influences leading to the adoption of new technologies mentioned by the participants were: improved service levels; user demand; economics; administrative support; and, the desire to be on the "leading edge".

3) M.A. Thesis

"The case for Open Access Publishing, with special reference to Open Access Journals and their prospects in South Africa" was a thesis conducted by Möller (2006). The main research question was on the feasibility of Open Access Journals becoming widespread within the South African research system. The study presented the findings of an investigation undertaken to assess the current awareness, concerns and depth of support for Open Access amongst South African stakeholders. Separate questionnaires were distributed to government departments, research councils, research funders, research managers within universities and a sample of published authors from biomedical fields. It recommended proactive engagement by faculty librarians and organized advocacy on the part of LIASA (Library and Information Society of South Africa) to promote the cause of Open Access within South Africa. It further called for government to mandate Open Access to publicly funded research as a more democratic, cost-effective and strategic intervention to promote South African Science.
Hesemeier (2003) studied about "Academic publishing in a digital world and the future of the university press". The scholarly publishing environment had changed dramatically with the introduction of the Internet and digital publishing and dissemination methods, though the university press had not been as active as the library or academic department in researching electronic publishing endeavors. The credibility of academic electronic publishing will depend quite strongly on the incorporation of the university press into electronic publishing endeavors being conducted through the library and academic departments. As an important entity in the dissemination of academic knowledge, the university press plays an important role in scholarly publishing, but must first study the current state of electronic publication credibility, the technical tools that are available or in development, and long-term issues such as Open Access and copyright that will affect how academic electronic publications are produced in the digital future.

1.9.2 Review of Literature in Thailand

1) Research

Noppadol (2003) did an analysis on “A critical analysis of adoption and utilization of the Internet in Thailand for educational purposes”. In this research it was found that the Thai government has recognized that the country needs more educated people to stimulate its development. In this regard, the Internet could play a pivotal role in providing mass education, cheaply and conveniently. Thailand had adopted the Internet to improve educational systems because the Internet had the potential to improve the quality of education. Thus, the Thai government utilized the Internet in an optimal manner to link schools and universities throughout the country in order to achieve basic universal literacy. The implementation of Internet in Thailand, the policy makers and educators need to consider the economic
and cultural aspects of the country carefully, including attitudes and opinions of the citizens, about the Internet. Adopting the Internet technology from more advanced countries was a crucial factor for Thailand because it was still a developing country, with lack of human resources, fund, and technology.

S. Joy (1999) did a survey on “Internet Use Study: The Implication of culture, language, and policy: a study at Thai university”, identified ways to achieve success in the use of global computer-mediated communication (CMC) – symbolized by the Internet and the Web – in developing countries whose understanding of and accessibility to the technology were far less than those of developed countries. The primary focus of the research was on the impact of culture and language on the use of Internet – its services and influencing factors – among various disciplines of faculty members. New dimension of culture and language added to previous Internet-use studies, consequently added new perspectives and initiate research in CMC, specifically in developing countries whose characteristics differ from industrial countries. The results may help Internet users, professionals, organizations, administrators and policy maker to understand the “imported” technology better and fine-tune their actions and policies in achieving success in this CMC adoption.

2) Ph.D. Thesis

Lampang (2002) examined “The impact of the Internet on School of Library and Information Science in Thailand.” The results of the study showed that the library and information science schools in Thailand are keeping up with the changes in information and communication technology. The Internet had been integrated into the schools as an important part of their curricula and the teaching and learning process, especially the courses in information services, information resources and access, and information storage and retrieval areas. Its use had impacted on academic staff
knowledge and skill, their teaching methods and activities and their communication patterns and research behavior. The use and impact of the Internet showed a correlation with the age of academic staff, their knowledge, skills and experience in using the computer and the Internet and information technology infrastructure and support in the school.

Jiracha (1999) studied about “Factors affecting personal Internet demand of public universities in Bangkok.” The research results showed that sex, age, salary, field of study, accessibility to the network, number of computers serviced and web sites regularly used were not relevant factors to determine the Internet demand. Whereas the following factors such as occupation, education level, possession of the computer, places from where the Internet was accessed, efficiency of the main server, habitual use of the Internet, ability to use English and operate computer, regular time of using the Internet and commonly used search services indicated that they were related to Internet user demand.

Pojanart (1996) conducted a research on “States, needs and problems concerning the Internet utilization in instruction in Higher Education Institutions under the Jurisdiction of the Ministry of University Affairs.” The purpose of the research was to study states, needs and problems related to the Internet, 333 students in higher educational institutions were chosen for this purpose. It was shown that most students used electronic mail to communicate with friends and teachers. For their educational purpose, most students used WWW search from the services of the Internet network system, electronic mail, file transfer, and remote login respectively. The main problem for the students applying the Internet services into their instruction was that they did not have their own computers and such application could not reach the maximum implementation. Moreover, the support from institution was inadequate on the management of areas, equipment and personnel to provide advice.
Ravadi (1995) studied about "The use of the Internet among university students in Bangkok." The purpose of the study was to analyze the status of information technology utility, particularly the Internet. It was found that there was a correlation between possessing a personal computer and the use of the Internet system. Specifically, possessing a personal computer was compatible with the frequency of the use of Internet for educational purposes, with extra research on academic matter, with the number of access to the system. Most students used e-mail for contacting their friends and they used it to exchange knowledge with the students of one institution with the students of other institutions and/or with foreign friends. It was also found that they used the Internet for their homework or assignment because they did not have much time to surf the Internet for other purposes as they had a lot of subjects to study. The barrier in using the Internet, were the internal system itself and the communication lines. Because of lengthy download timing and insufficient on-line availability, most students felt frustrated while using the university Internet system and logging on to the system from their home.

(3) M.A. Thesis

Nawarat (2003) did a survey research on "A study on electronic journals published in Thailand". The study found that most of the electronic journals had a specific concept, acquisition of manuscript was done by the editor staff and most of editors selected manuscripts, and there was no compensation for the writer. Most of the editing work was done by editors. The publishing process was an in-house publishing by computer staff. Most of the publishing process took 1-2 months and circulated on time. Most electronic journals had a printed version. The problem in publishing electronic journals were the late submission of the articles by writers, lack of specialists or reviewers, time consuming in improving the articles, lack of...
publishing personnel and the editors had other permanent jobs that they did not have time for editing the manuscripts.

The analyzing of 123 titles electronic journals was found that most of them were published by the government and in the field of science. The main objective of publishing was to distribute knowledge, new theory or new technology, the research result, thesis or abstracts, and announcement. Most of the readers were researcher, academics and students. Most of the electronic journals presented in an article format, monthly published in Thai language, and had back issue archives.

Sutthiluck (2001) did a research on “The opinions of special librarians toward the impact of information technology on librarian’s competencies”. The findings were 1) Concerning situations of information technology use in special libraries, it was found that the most use of information technology was in information service, management, circulation, classification and cataloging, while the least use of information technology was in collective development. As for types of information technology use in library works, computer and computer network were found the most use, followed by the Internet and word processing respectively. 2) In the change arising from the introduction of information technology in the library it was found the information technology helped correct, fast and beautiful typing of documents, which was easy to make changes and shorten steps of work as well as to reduce repetitive workload. Besides, information technology helped librarians to speed up their services to library users. 3) About librarian’s opinions toward the impact of information technology use, the impact was found overall at a moderate level on librarian’s competencies. According to the results of hypothetical test, librarian’s opinions were found with no difference in age, academic qualifications, former major study, work experiences, experiences in information technology use and type of library at the significant of 0.005, not compatible with the set of hypothesis.
Songwut (2000) did a study on "use of electronic journals by faculty of Science and Technology Department, Chulalongkorn University". The researcher found that faculty used 75.5% of electronic journals, faculty in natural science used electronic journals more than other groups. Most of faculties were introduced by their peer groups. They accessed the service from outside the Chulalongkorn University service site. Most of them used the service 1-3 times per week for research purposes and accessed printed journals, and read full text in PDF format from electronic journals. Motivation for use of electronic journals was easy as they could be accessed and read any time. The disadvantages of using electronic journals were fatigue, eye strain and incomplete volumes, too many users and long waiting list.

Kwanchadil (1992) studied about "information uses and needs of researchers in Thai studies in Bangkok Metropolis". Research findings revealed that the Thai society was the most sought after subject. The printed materials, books and textbooks were the most used, along with slides in non-printed format. The highest level of information use was the researchers' own experiences. Problems confronted by researchers were illiteracy of computerized information system, inconvenience in searching libraries and information centers outside campus, and in accessing unpublicized information.
REFERENCES


57. Abouserie, Hossam Eldin Mohamed Refaat. (2003). Seeking and Communicating Behavior of Social Science Faculty in an Academic Environment with Special Reference to the Use of


