

## **Awareness and use of electronic information resources by education graduate students: Preliminary results from the Aristotle University of Thessaloniki**

**Aspasia Togia<sup>1</sup> and Nikolaos Tsigilis<sup>2</sup>**

<sup>1</sup> Department of Library Science and Information Systems, Technological Educational Institute of Thessaloniki, Greece

<sup>2</sup> Department of Physical Education and Sport Sciences, University of Thessaly, Greece

**Abstract:** The purpose of the present study was to examine the use of electronic information resources by graduate students at the Aristotle University of Thessaloniki. Fifty-nine graduate students affiliated with four Departments of Education voluntarily participated in the study. A specifically designed questionnaire was administered to gather information about the awareness of resources, the frequency of use, the kind of information sources preferred by students, the main reasons for using the resources, the perceived effectiveness of the searches, the factors encouraging their use and the major obstacles in terms of using them effectively. In addition, the authors sought information on the ways students identify the sources they use, the level of training they have received in using the services and their training needs. Results showed that the vast majority of the participants used Internet search engines rather than specialized databases and full-text resources. It is quite interesting, that nearly half of the respondents (49.1%) had never used ERIC, the fundamental resource of education literature. Only 6.8% became familiar with electronic resources by attending the library training programs. The main problem associated with the non-use of resources was lack of adequate searching skills. The above findings suggest limited use of electronic resources by graduate students, mainly due to absence of basic skills. In order to exploit the full potential of electronic information, university library should undertake a more active role in informing, promoting, and educating the members of the academic community.

**Keywords:** information services, electronic media, postgraduates, academic libraries, Greece

### **1. Introduction**

Electronic resources are valuable tools for study, learning and research. Electronic resources can provide many advantages over traditional print-based resources: they contain current information because they updated frequently, they offer advanced search capabilities, they offer flexibility in the storage of the results, and they enable access to information without the restrictions of time and location.

The access to electronic resources in Higher Education Institutions is rapidly increasing. The growth of information in electronic format forces students to learn how to find, select and use a wide variety of resources. Higher education must develop these skills, in order to produce qualified individuals, engaged in the lifelong pursuit of knowledge for personal and professional growth. For education students in particular, the ability to effectively utilize electronic information resources is a key issue, since it may help them to enhance the quality of their teaching when they become professionals. In addition, it is expected that an educator comfortable in using electronic resources may encourage his/her students to do the same, and thus contribute to

their computer and information literacy.

## **2. Literature review**

Several studies have been conducted to assess the acceptance and use of electronic resources by library users. These studies employ various methods for data collection, such as observation, experiments, surveys, interviews and transaction log analysis. Questionnaire surveys are the most widely used research method and members of higher education are the most investigated population (Tenopir, 2003).

The project JISC User Surveys: Trends in Electronic Information Services (JUSTEIS) was a three-year research project funded by the Joint Information Systems Committee (JISC) “on the provision and use of electronic information systems (EIS) within higher education in the UK” (Armstrong et al., 2001). The aim of the project was to gather information on information seeking behavior and use of electronic information systems of students and faculty in a number of UK universities. The findings suggested increased use of search-engines, e-mail and OPACs by both under- and postgraduates, and lower use of databases and e-journals (Armstrong, et al., 2001).

Tenopir (2003) identified eight other major research studies carried out between 1995 and 2003 at the UK and the United States on the use of electronic resources. Among other things, these projects indicated that subject area and status of the individuals are significant factors affecting the use of digital resources.

Aside from the large projects engaged to the investigation of large populations in different disciplines and institutions, a number of small-scale studies have been conducted to assess the level of use in specific settings. Back in the 1990’s, Adams and Bonk (1995) conducted a survey of faculty use of electronic information technologies and resources at the four University Centers of the State University of New York. The campus library online catalog and the abstract/index databases loaded on it found to be the most widely used resources. All other resources, including electronic journals were used rather infrequently. Respondents perceived lack of information about available resources and lack of training as the main barriers to the use of electronic technologies.

A study at Cornell University (Payette & Rieger, 1998) found that 65% of the faculty and 88% of the students surveyed were ignorant of the wide array of electronic resources available to them. Faculty relied only to one or two databases they were familiar with and overlooked the variety of tools offered by the library through the Web-based gateway. Undergraduate students, on the other hand, “cited Internet search engines as effective tools in identifying information resources for their papers and speeches” (Payette & Rieger, 1998, p. 125). This is in accordance with findings of other studies that indicated student over-reliance on the Web. Crawford and Daye (2000) found that most of the students were using search engines and relatively fewer of them were making use of online databases such as Medline or PsycLit. Majid and Tan (2002) reported that most of the computer engineering undergraduate students they investigated were considering print sources more useful for their study-related needs than electronic ones. Internet was ranked as the most important and bibliographic databases as the least important source. When asked to indicate how often they had used different electronic resources during the previous six months, nearly half of the respondents responded that they were using the library catalog quite frequently. On the contrary, “the use of databases, electronic journals and other electronic information sources was

surprisingly low.” (Majid & Tan, 2002, p. 324).

Dadzie (2005) found that the vast majority of students and faculty she surveyed preferred for their searches search engines like Google and Yahoo, while very few of them were making use of the OPAC and of the scholarly databases the library subscribed to. The under-utilization of electronic resources has been highlighted by Rehman and Ramzy (2004), who studied the health care professionals at Health Science Center of Kuwait University. They found that Medline was the most heavily used source, followed by electronic journals. The expensive, specialized databases offered by the library received minimal use. The most frequently mentioned reasons for non use were lack of time and lack of the skills necessary to perform successful searches. In addition, some of the respondents felt that print resources met their needs better than electronic ones. Mawindo and Hoskins (2008) also noted that “only a few electronic resources were actually used by the students”, who “preferred websites over the scholarly academic databases and e-journals” (p. 100). Of the electronic resources consulted, online journals seemed to be the most common. According to Shuling (2006), postgraduate students, who were the most enthusiast users of electronic resources, were frequently using the full-text databases purchased by the library, but they also preferred resources offered online free of charge. Electronic journals reported as the most widely used resource by Kanniyappan, Nithyanandam and Ravichandran (2008), who concluded that most of the respondents faced problems in fully exploiting digital resources mainly because they did not get enough training to use them.

Despite the steady growth in electronic resources offered to the academic community in Greece, Greek libraries have not been engaged to survey research to the same extent as other countries. The aim of this study is to provide preliminary evidence regarding the trends in the use of electronic information resources and services offered by the Aristotle University of Thessaloniki. Postgraduates’ use patterns discussed in this study present issues that librarians need to consider in their effort to serve users effectively.

### **3. Electronic resources at the Aristotle University of Thessaloniki**

Aristotle University of Thessaloniki is the largest university in Greece, with a population of 35,000 active students, approximately 3,000 faculty members and 9,000 postgraduate students. At the time of the study, the university library offered access to a wide range of electronic resources, including over 19,000 electronic journals of nearly all major publishers, approximately 400 electronic books and over 80 bibliographic databases. The vast majority of e-journals and a significant number of databases and e-books are available through the Hellenic Academic Libraries Consortium (Heal-Link), while the rest are university’s subscriptions.

Usage statistics via the information providers are the library’s main source regarding the extent of use of digital resources. Usage statistics however, are unable to provide insights into the levels of use among different groups and to issues like perceived effectiveness of electronic resources or problems associated with their use.

### **4. Method**

Fifty-nine graduate students from four education departments of the Aristotle University of Thessaloniki participated voluntarily in the study. The respondents were affiliated with the Department of Physical Education, Department of Early Childhood Education, Department of Philosophy and Pedagogy, and Department of Primary Education.

A specifically designed questionnaire consisted of 27 items was developed to gather information about the awareness of resources, the frequency of use, the kind of information sources preferred by students, the main reasons for using the resources, the perceived effectiveness of the searches, the factors encouraging their use and the major obstacles in terms of using them effectively. In addition, the authors sought information on the ways students identify the sources they use, the level of training they have received in using the services and their training needs.

### 5. Results

The vast majority of the respondents were women (89.7%) and their age ranged from 23-46 years old. With regard to their use of computers, nearly half of them (48.3%) claimed to use a computer 2 or 3 times per week. In response to a question about their computer skills, 67.2% of the respondents perceived themselves as novice or intermediate users. Respondents were also asked about their ability to use different electronic resources. The answers demonstrated that most of graduate students were rather incompetent users of library OPAC, electronic journals and abstract/index databases, but very skilled at using the web search engines.

Multiple response analysis was implemented to examine the frequency tables for multiple response sets. Results showed that the vast majority of participants (86%) had used search engines (e.g. Google) more than 6 times during the last three months, followed by full-text electronic journals (33.9%) and the Library OPAC (29.3%) (Table 1). Half of the respondents were making use of the electronic resources from their home, whereas only one out of four (24.5%) were accessing them from the University Library. Most of the respondents (43.6%) who used any one of the listed resources reported that they became aware of its existence through friends and colleagues who had already used it, and only 18.8% through the library.

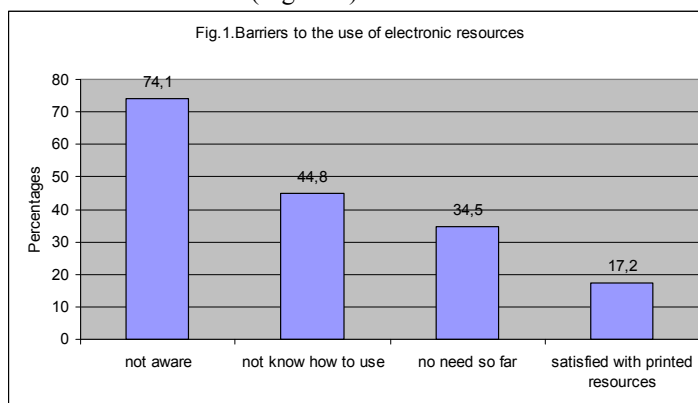
Kendall's tau-b was used to examine the association between frequency of computer use and levels of the use of selected electronic resources. Results showed that access to and use of computers correlates positively with the use of OPAC (Kendall's tau-b = .33), electronic journals (Kendall's tau-b = .36), Web of Science (Kendall's tau-b = .44), ERIC (Kendall's tau-b = .43) and internet search engines (Kendall's tau-b = .27).

Table 1. Usage of selected electronic information sources during the last three months

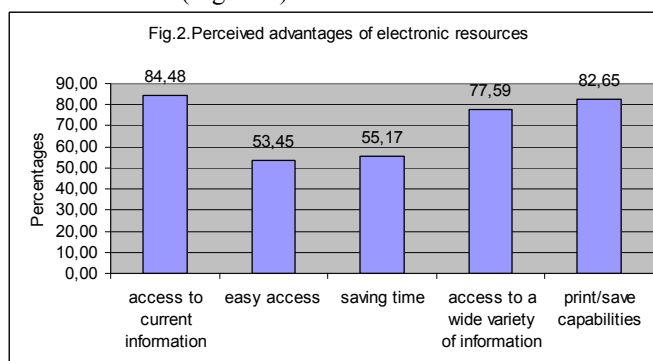
	> 6 times	2-5 times	Once	Never	Not aware of the resource
OPAC	29.3	13.8	8.6	25.9	22.4
E-Journals	33.9	23.2	19.6	10.7	12.5
E-Books	-	18.5	22.2	42.6	16.7
Web of Science	5.8	15.4	7.7	34.6	36.5
ERIC	5.7	5.7	1.9	43.4	43.4
PsycInfo	3.8	1.9	13.5	38.5	42.3
SportDiscus	7.8	9.8	13.7	25.5	43.1
Search Engines	86.0	5.3	3.5	5.3	-

Academic assignments were mentioned by all respondents as the main reason for using electronic resources. Background reading and checking or updating a bibliography were next in the list, whereas 45.8% of the students were using digital services in order to find information for their thesis or dissertation. When the respondents were asked to indicate factors that discouraged them from using the electronic resources, most of them mentioned

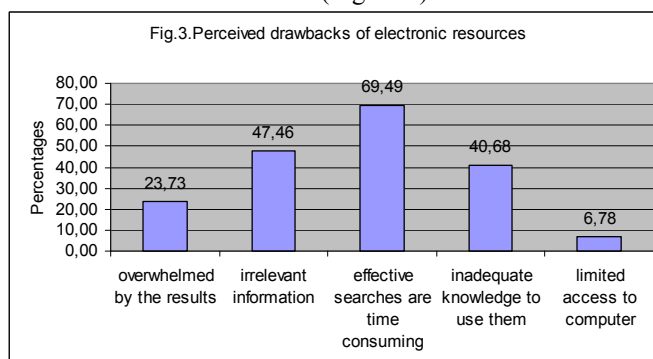
lack of awareness as the main obstacle, and nearly half of them replied they did not know how to use them (Figure 1).



Respondents were also asked to indicate the advantages of electronic resources and the problems associated with their use. Access to current material, the ability to download and print search results and access to wide variety of information were listed as the top three significant features of electronic resources (Figure 2)



On the other hand, time required to conduct effective searches, and retrieval of too much information – both related to lack of searching skills – were perceived as the main drawbacks (Figure 3).



The last section of the questionnaire contained questions about the kind of training participants have had and their training needs. Seminars offered by the Library Instruction Service appeared the most popular method of training. Guidelines given to students by their instructors and course-integrated instruction were the second most common methods. Respondents felt that

hands-on sessions would be by far the most useful form of training. Also high on their list was the option of seminars focused on their specific interests and area of study. A high majority of the participants expressed a training need in the selection of the appropriate resource as most urgent, followed by those respondents for whom training was required in the selection of key-words and the development of search strategies.

Mann-Whitney non-parametric test was applied to examine the influence of training on the frequency of use of selected resources. Results demonstrated that participants who had received some kind of training ( $n = 30$ ) were more regular users of the library OPAC (Mann-Witney  $U = 188$ ,  $p < .001$ ), full-text journals (Mann-Witney  $U = 175.5$ ,  $p = .034$ ), ERIC database (Mann-Witney  $U = 99$ ,  $p = .034$ ) and e-book collections (Mann-Witney  $U = 204$ ,  $p = .009$ ). In comparison to those who were completely untrained ( $n = 29$ ).

## 6. Discussion

There is strong evidence in the literature (Armstrong et al., 2001; Crawford & Daye, 2000; Dadzie, 2005; Majid & Tan, 2002; Payette & Rieger, 1998) that the Internet has an enormous effect on information seeking by students. Our study confirms this finding. The individuals we surveyed, although they were expected, as graduates, to make use of more sophisticated and authenticated resources, overwhelmingly used the Web as the first resource for academic research. While there is plenty of high quality information on the web, several authors (Farber, 1995; Thomson, 2003) are concerned about the way students use web resources. It has been argued (McBride & Dickstein, 1998; Rothenberg, 1998) that students tend to accept web-based information uncritically, without considering the currency, authority and quality of its content.

Currency of material, possibility of downloading or printing the results or desired parts of them, and access to a wider range of information were the most important issues considered by the users in using electronic resources. However, the results of the study indicate that despite the perceived advantages and the big variety of electronic resources and services provided by the library, most resources, and in particular online databases received extremely low use. This is in line with the results of the most studies mentioned in the literature review. Lack of awareness of the availability and the potential of certain resources seems to be a serious problem associated with underutilization. It is interesting that 43.4% of the respondents were not aware of ERIC, the largest digital source of literature in Education. On the other hand, more than one third of the respondents used electronic journals rather frequently. This percentage certainly falls below library's expectations, but it's also encouraging, because it reveals a growing appreciation of the benefits of e-journals and a move towards their use.

Training and promotion emerged as key factors in the use of electronic resources and services. Lack of training and lack of adequate information of what is available have been highlighted by many studies (Adams & Bonk, 1995; Dadzie, 2005; Kanniyappan, Nithyanandam & Ravichandran, 2008; Mawindo & Hoskins, 2008; Romanov & Aarnio, 2006) as the top impediments to the utilization of information tools. Renwick (2005) proposed that, although the faculty members she investigated were regular users of electronic resources, there was still a need for marketing and user instruction.

Our data suggest that possession of advanced searching skills contributes to better exploitation of electronic tools. Respondents felt insecure about their ability to build a successful search strategy and to select relevant resources, a

finding that supports the assumption that limited use may be attributed, among other things, to the ignorance of the scopus and the potential of each electronic source. Library staff can play an important role by educating not only students, but academics as well, who will in turn pass the information to their students and encourage them to consult digital resources for study and course-related assignments. Tenopir (2003) maintains that “the most effective way for students to learn about important resources in academic libraries seems to be for librarians to work directly with faculty to bring relevant electronic resources into the classroom.” Of equal importance is the promotion of services. There is a need for aggressive marketing of the available information sources, in order to enhance users’ awareness and maximize use.

## 7. Conclusion

When interpreting the results presenting above, one needs to have in mind that the present study portrays only a glimpse rather than a total picture of the use of electronic resources in the Aristotle University. The small sample and the association of respondents with a specific subject area are the main limitations of the study. Additional research, focused on other groups of the academic community is needed, in order to get a thorough insight into the use of electronic resources at the Aristotle University. Besides, comparative studies of postgraduate students at other institutions will help determine whether the results presented here can be generalized across many universities.

## References

- Adams, J.A. and Bonk, S.C. (1995). Electronic information technologies and resources: use by university faculty and faculty preferences for related library services, *College and Research Libraries*, Vol.56, No. 2, 119-131.
- Armstrong, C., Fenton, R., Lonsdale, R., Stoker, D., Thomas, R. and Urquhart, C. (2001). A study of the use of electronic information systems by higher education students in the UK, *Program*, Vol.35, No. 3, 241-262.
- Crawford, J. (2004). The use of electronic information services by students at Glasgow Caledonian University, *Vine*, Vol.34, No. 3, 113-118.
- Dadzie, P. S. (2005). Electronic resources: access and usage at Ashesi University College, *Campus-Wide Information Systems*, Vol.22, No.5, 290-297.
- Farber, E.I. (1995). Plus Ca Change, *Library Trends*, Vol.44, 430-438.
- Kanniyappan, E., Nithyanandam, K. and Ravichandran, P. (2008). Use and impact of e-resources in an academic and research environment: a case study, *Information Studies*, Vol.14, No. 3, 151-162.
- Majid, S. and T., A.T. (2002). Usage of information resources by computer engineering students: a case study of Nanyang Technological University, Singapore, *Online Information Review*, Vol.26, No. 5, 318-325.
- Mawindo, D. and Hoskins, R. (2008). Use of print and electronic resources by students at the University of Malawi College of Medicine, *Mousaion*, Vol.25, No. 1, 86-110.
- McBride, K.B. and Ruth Dickstein (1998). The Web demands critical thinking by students, *Chronicle of Higher Education*, March 20, B6.
- Payette, S. D. and Rieger, O.Y. (1998). Supporting scholarly inquiry: incorporating users in the design of the digital library, *Journal of Academic Librarianship*, March, 121-129.
- Rehman, S. U. and Ramzy, V. (2004). Awareness and use of electronic information resources at the health sciences center of Kuwait University, *Library Review*, Vol.53, No. 3, 150-156.
- Renwick, S. (2005). Knowledge and use of electronic information resources by medical sciences faculty at The University of the West Indies, *Journal of the Medical Library Association*, Vol.93, No. 1, 21-31.
- Romanov, K. and Aarnio, M. (2006). A survey of the use of electronic scientific information resources among medical and dental students, *BMC Medical Education*,

Vol. 6, 28-35.

Rothenberg, D. (1998). How the Web destroys student research papers, *Education Digest*, Vol.63, February, 59-61.

Shuling, W. (2006). Investigation and analysis of current use of electronic resources in university libraries, *Library Management*, Vol.28, No. 1/2, 72-88.

Tenopir, C. (2003). *Use and users of electronic library resources: an overview and analysis of recent studies*. Council on Library and Information Resources, Washington, DC. Available at:

<http://www.clir.org/pubs/reports/pub120/contents.html>

Thomson, C. (2003). Information illiterate or lazy: how college students use the Web for research, *portal: Libraries and the Academy*, Vol.3, No. 2, 259-268.