

***Initiation of the students from the life sciences faculties into the informatics reference search methodology.  
Applied librarianship***

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**Abstract**

This study presents a few useful modalities of reference searching for students taking into account their scientific maturity and with illustrative examples for the students involved in life sciences realms. Using a statistical analysis of the answers obtained for a questioner applied to 268 undergraduate, master degree and PhD students from our faculty, the necessity to create and maintain a strong connection between the university and the library is argued. It is benefic for both library, to develop a marketing oriented to the users, and students, to enlarge their scientific and cultural horizon.

**Keywords:** Reference Search Methodology, Scientific Databases, Students

**1. Introduction**

Within our days, information search is a current activity. We may search an address, a contact, whether or cinema world information or

scientific information respectively. Independently on the type of information that we search, we need a bibliographic tool (1): web pages, golden pages, an encyclopedia, an electronic database and so on. In order to make this search efficient, we need to do it quickly. From this point of view, an increased efficiency is offered by an informatics search. The World Wide Web component allows an impressive traffic of information, but, from the other point of view, this period is characterized by an inflation of information and it makes very difficult the process of useful information selection. Here is the point where the informatics bibliographic search is important. Its success strongly depends both on the huge work of those that classify the bibliographic information and create specialized databases and on the creation and access to adaptive informatics bibliographic searching tools (2).

## **2. Methodology**

During my teaching experience I have concluded that the great majority of students did not know to search scientific information when they need it. Also, upon my knowledge and following the study programs available on the web pages of the Romanian universities, for the faculties of life sciences (mathematics, physics, chemistry, biology) there is any topic for the undergraduate level concerning the reference searching methodology. In order that students totally benefit of the university libraries services and with the aim of the development of their scientific and communications skills, in my opinion, it is necessary to teach them the methodology of reference searching starting from the first year students.

In order to argue this necessity, I have applied a questioner to 268 students from our faculty: 234 undergraduate students, 26 master students and 8 PhD students. The questioner was anonymous and it has contained the following questions.

1. Do you have a library license?

A) Yes    B) No.

2. How often do you go to the library and/or consult its electronic catalog?

A). Weekly.    B). Monthly.    C) Every semester.

D). Occasionally.    E) Never.

3. How often do you use the electronic information sources offered by the library?

A). Weekly. B). Monthly. C) Every semester. D). Occasionally.  
E) Never.

4. Which is the aim you use the library services?

- A) To consult and/or copy the available handbooks in printed form.
- B) To consult the references indicated by teachers.
- C) To obtain scientific information in my field of interest.
- D) To read literary books.

5. Which are the electronic resources offered by the library and you use?

- A) Science Direct B) ProQuest Ebsco C) SpringerLink
- D) Emerald E) Oxford Journals F) HSS G) PAO H) Literature Online
- I) MLA International bibliography J) SCOPUS K) EMBASE
- L) Current Contents Connect M) MathSciNet N) SAFARI O) ISSN
- P) Questia

6. How many scientific papers did you downloaded in the last semester using the electronic databases offered by the library?

- A) More than 10. B) Fewer than 10. C) None. D) I did not know about this possibility.

7. How do you obtain the scientific information needed to elaborate the essays and/or home-works?

- A) Using the handbook.
- B) Using the web pages, others than those offered by the library.
- C) Using the printed materials from the library.
- D) Using the electronic resources offered by the library.

8. Upon your knowledge, which are the services offered by the Central University Library “Eugen Todoran” Timișoara (B.C.U.T.)?

The results obtained upon the analysis of the answers offered by students confirm that we may distinct three types of bibliographic research, as it is considered in specific literature (1):

- i) *Punctual bibliographic research*, which refers to obtaining immediate information concerning an author, a book, a scientific paper. This type of research is used by the great majority of students, especially by the fresh students to obtain the references indicated by the teachers and to solve homework.

- ii) *Bibliographic research for an essay or for a presentation*, corresponding to the case in which the students must choose a topic and/or develop its essence and to indicate the references. For the students from the life sciences faculties, in such a case, it is better to search a review paper. Such a paper offers the advantage that it presents clearly and concisely the topic with illustrative examples and it contains a big number of references that students may also consult to improve their knowledge.
- iii) *Specialized bibliographic research*, which supposes that at the beginning of a study to obtain a list of references. This list must be continuously actualized during the study. This type of bibliographic research is common for master degree and PhD students.

### **3. Result and discussions**

The results obtained by statistically analysis of answers given by students are presented in the figures 1 to 4. From the 268 students that have answered to the questions, only 38% have a library license and the reasons they use the services offered by the library are (see figure 1): consulting the references indicated by teachers (61%), obtaining the scientific information in their fields of interest (26%), consulting and/or copying the printed handbooks (12%) and for reading literary books (1%) respectively. It is important to mention that the electronic databases offered by the library are free accessible starting from every computer in the university network, and it is possible to consult the electronic resources of the library without a library license. Like this, the total number of users is higher that the number of users having a library license. This result reveals that the great majority of students use a punctual bibliographic research, only 26% of them developing a specialized bibliographic research. The last category is usually represented by master and PhD students and it could be a consequence of a course of management of scientific documentation thought in our faculty at master level, the aim of this course being to develop to the students the abilities of reference searching, scientific paper writing and research projects management.

Regarding the frequency of using the services offered by the library, 15% of students use the weekly, 26% use them monthly, 38% use them a few times in a semester and 19% use them only occasionally, as it is presented in the figure 2. These percents are almost similar for those using only the electronic resources of the library.

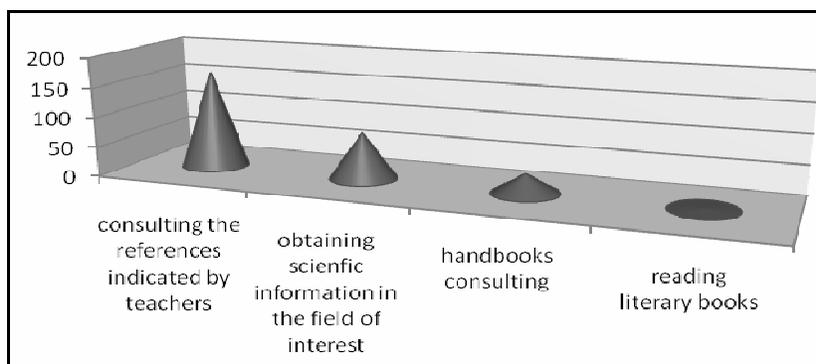


Figure 1. Illustration of the reasons of using the services offered by B.C.U.T.

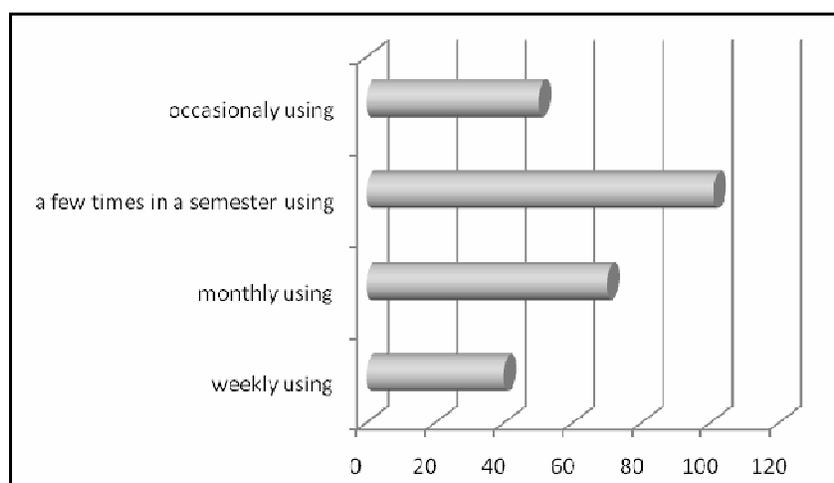


Figure 2. Illustration of the frequency of using the services offered by B.C.U.T.

If we refer to the number of scientific papers downloaded in the last semester from the free databases offered by the library, than 25% of the questioned students did not use this service, 29% have downloaded fewer than 10 articles, 24% have downloaded more than 10 articles and 22% of students did not know about this possibility (figure 3). The most used databases were: ScienceDirect (37%), SpringerLink (32%), EBSCO (13%), the others being each represented with less than 5% (figure 4). The services offered by the library are not known, the great majority of students has indicated that these services are limited to books barrowing and the lecture rooms.

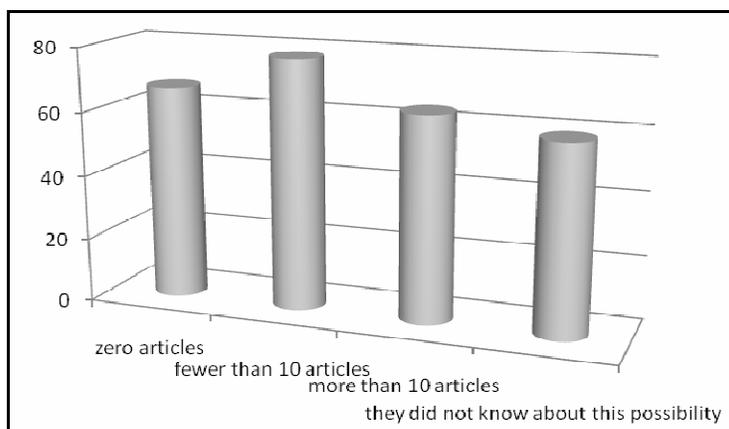


Figure 3. Illustration of the number of scientific papers downloaded in the last semester by the questioned students using the free accessible databases offered by B.C.U.T.

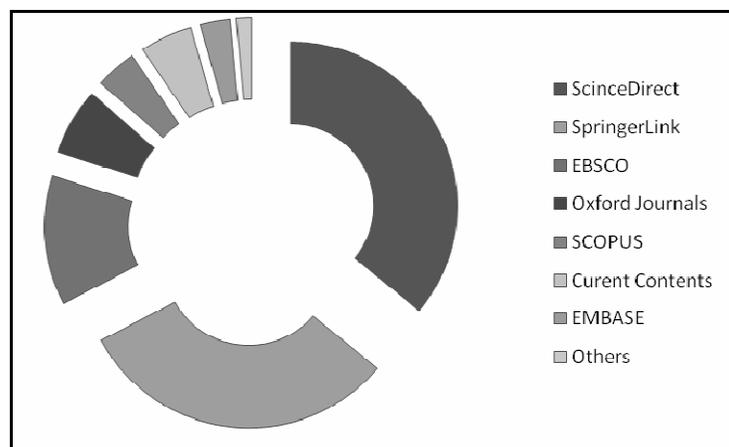


Figure 4. Illustration of the accessment of electronic databases offered by the library and used by the students to download scientific papers

B.C.U.T. has made a lot of effort to promote its services: it has posted the novelties on the web page, it distributed posters and cards, announcements have been sent by e-mail to the academic staff, it has organized presentations for the available electronic resources and some free courses to initiate both students and academic staff to use the electronic resources. It is a pity, but all these efforts did not reach the attempted result, as it is also reflected by this study.

It is worrying that 69% of questioned students use exclusively the web pages (others than those offered by the library) to elaborate their essays and presentations. Other 22% of the students use their handbooks and only 9% of them use the library resources, both printed and informatics. In my opinion, it is absolutely necessary to specify to the students, especially for those from the life sciences faculties, that information found on one web page could be only partial and/or false and to initiate them to search and use credible and recognized scientific references.

The most important database containing scientific papers concerning life sciences is MEDLINE (<http://medline.cos.com/>), but there are also other databases such as (3): PubMed (<http://www.ncbi.nlm.nih.gov/pubmed/>), ScienceDirect (<http://www.sciencedirect.com/>), MathSciNet (<http://www.ams.org/mathscinet/>), SpringerLink (<http://www.springerlink.com/home/main.mpx>), IPOScience (<http://iopscience.iop.org/>), EMBASE (<http://www.embase.com/>), OXFORD JOURNALS (<http://www.oxfordjournals.org/>), Affimetrix Scientific Publications database (<http://www.affymetrix.com/publications/index.affx>) Encyclopedia Universalis (<http://www.universalis-edu.com/>). The great majority of these databases are interconnected and B.C.U.T. offers free access for 5 of them but a high percent of the questioned students do not know about this opportunity, or they have ignored it the favor of using google or other searching engines, respectively to use web pages containing prepared essays having a poor quality. **Teachers must blame this practice and encourage the students to use certified databases, respectively to teach to the students the queries to elaborate a high quality essay.**

The results obtained using this questioner also confirm the fact that students use multiple styles of learning (4): formal learning, informal learning, professional learning and opportunistic learning, their great majority using informal and opportunistic learning styles. Initiation of students into the methodology of bibliographic research is important also from this point of view because it stimulates the professional learning and develops to the students some psychological features such as: rigorously working, self-respect, auto-evaluation capacity, all these contributing to increasing quality of human resources in our country.

#### **4. Conclusion**

This study underlines the necessity of a strong collaboration between universities and libraries. From the library point of view, its users represent a “market” which is divided in many segments and the activities must be adapted for every segment of this “market” (5). Regarding the segment

represented by the fresh students, the adaptive behavior of the library to their necessities means to organize some presentations concerning the opportunities offered by the library. As the learning program of the students is crowded enough and does not allow introducing a specific course concerning bibliographic research methodology, the mentioned presentations must be done in collaboration with academic staff of the faculty in order to adapt their content to the specific of every scientific field. The marketing developed by the library must also be improved and the effort to promote its services and resources must be based on studies concerning users necessities and expectations. The library must detect and eliminate the poor points such as slowly computers and Internet connections. It also must improve the design and information posted on its web page and to realize attractive tutorials explaining to the users how to use the electronic resources of the library, respectively to use some screens presenting movies concerning the novelties and services offered by the library. In the same time, the universities must pay more attention to form abilities to the students to use modern tools to search and obtain high quality information.

The aim of graduate studies is not only informative, but also formative. It means to make efforts to maintain the students within the universities walls even in their free time by organizing attractive activities for them, also contributing to their intellectual development. From this point of view, in my opinion, a good initiative of the library could be to organize thematic evenings where to make interesting presentations based on the library resources in order to popularize them. Also, if we want that these thematic evenings achieve their scope, the active participation of the academic staff of the faculty is necessary. The academic staff may be involved in presentation preparation or/and in debates concerning its thematic. In our faculty, there was such a tentative, but, unfortunately it was unsuccessful and, in my opinion, the main reason was the poor implication of the academic staff.

A permanent collaboration between universities and libraries is not only a declarative aim of every involved institution, but it is a necessity and a premise of improving the quality of university learning and human resources in our country.

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