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Hans Boon
Department of Telematic Learning and Education Innovation, University of Pretoria

Theo JD Bothma
Department of Information Science, University of Pretoria

Johannes C. Cronjé
Faculty of Education, University of Pretoria

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E-learning and e-libraries – Quo vadis?

J A (Hans) Boon
Department of Telematic Learning and Education Innovation
jaboon@up.ac.za

Theo J D Bothma
Department of Information Science
tbothma@postino.up.ac.za

Johannes C Cronjé
jcronje@postino.up.ac.za
Faculty of Education

University of Pretoria
South Africa

Abstract

The objective of this paper is to discuss the implications of the model of e-learning for university libraries in terms of information organization and dissemination. The following will be discussed:

- The role of the university library regarding the aggregation of content and resources, customization of information portals and value adding, and the changes in educational models.
- E-learning at the University of Pretoria: Case studies and the role of the library in supporting these programmes.
- Challenges for university libraries when e-learning comes of age, e.g. electronic packaging of information in direct support of teaching and learning processes, customization and personalization of information on behalf of clients, electronic publishing, education in info literacy skills and personal information management.

Perhaps a decade from now we will enjoy reflecting back on the progress we have made in transforming libraries in electronic communication centres: if only we could get our librarians on board.

1 Introduction

The University of Pretoria is an internationally recognised academic institution that focuses on teaching, research and community service. Its aim is to help fulfil the educational, cultural, social, economic and technological needs of the South and Southern African communities. It regards itself as a member of the international scientific community and as a comprehensive research university. At present it comprises nine faculties and it offers more than 550 different qualifications. There are approximately 30,000 on-campus and approximately 28,000 off-campus students. The student population is multi-racial and multi-cultural and teaching languages are Afrikaans and English. The University strives to be internationally competitive and locally relevant in its teaching, research and community service. The University has embarked on an extensive effort to offer many of its programmes in an e-learning environment by means of electronic delivery of content and electronic interaction with students. E learning programmes are offered to students that are not in a position to be on campus all the time, but in many cases the electronic communication offers additional support to on-campus students in a flexi-learn environment. This has resulted in a changing role for the librarians at the University. In addition to their traditional functions they now have to provide different services to students. The question is to what extent have they been able to adapt to the changing circumstances, and whether there are further changes that they could proactively make in response to the changing needs of academia.

2 The changing role of libraries

2.1 Libraries are in the information business

World-wide there seems to be no doubt any more that libraries are part of the information business and should be managed as such. Libraries are therefore deeply involved in the praxis of information organization, processing and provision. These processes are user driven. User variables form a major input to the praxis of system design and implementation, complementing the content-driven and the technology-driven models, which dominate present design practice. But ITC will not solve our information problems (information overload, non-pertinent information, etc). Solutions in the way in which we package and present information will enhance the effective use thereof.

However a rough estimation of the time allocation of information specialists to core activities in a university library in present and traditional situations, shows us that more than 70% is still allocated to the traditional function of information retrieval, while only 10% is allocated for analyzing and adapting information for effective information use. The statement is made that in e-libraries this time allocation should be the opposite as indicated in figure 1.

Figure 1: Time allocation of information specialists in university libraries

	Traditional	E-library
Information retrieval	70%	10%
Information organization, indexing, filtering, etc.	20%	30%
Analyzing and adapting for effective information use	10%	60%

2.2 A new age in education

Heppel (1995) distinguishes between three ages in education, the agricultural, industrial and information ages. The significant features of each age can be seen in the figure 5 below.

Figure 2: The significant features of the three ages in education

Agricultural	Industrial	Information
Small - one on one	Input-output	Downsizing
Located in family/community	Economies of scale	Collaborative endeavour
Focus on local ***needs***	Focus on ***products***	Focus on ***process***
	Inspectors and standards	Institutional / organisational drift
	Careful people don't get crushed by the wheels of industry	Located in the family / community

There are striking parallels between the agricultural and information age, particularly in terms of smaller sizes and the local focus. Interestingly enough in South Africa, all three models of education are still in existence. This means that students attending university may have come to us from either one of the above paradigms.

2.3 Processing of explicit information in university libraries.

As far back as 1985, Robert S Taylor from Syracuse University argued that libraries and information systems should actively get involved in the business of information processing other than only the traditional macroselection and accessing of information. Following his argument, we propose a model that compares the traditional to the non-traditional information processing. (Figure 3).

Figure 3: Processing of explicit information in University Libraries

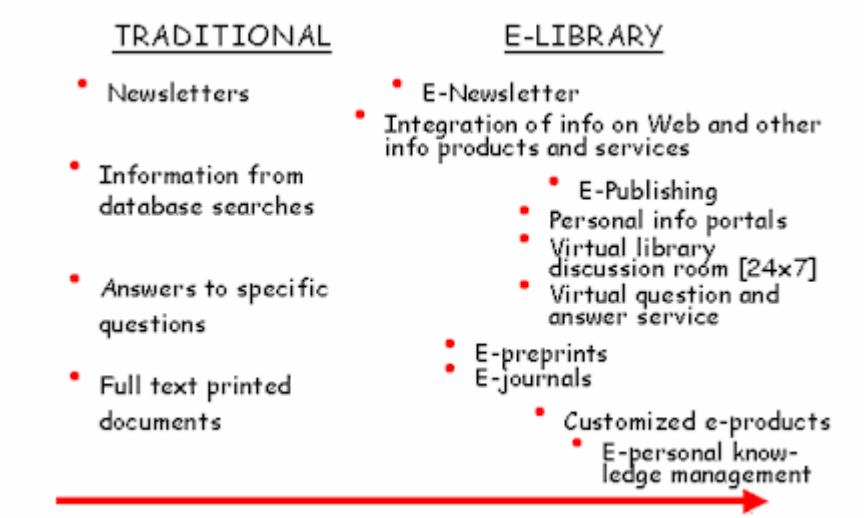
	What?	Why?
T	**Select and organize**	
	Summarize and repackage	
	○ format ○ index ○ physical full text accessibility ○ vocabulary control	To increase relevance
	○ linking ○ filter ○ simplify access [portals] ○ abstracts ○ retrieval tools	
	Analyse, edit, quality control, etc.	
	○ analyse ○ evaluate ○ compare and correlate ○ filter ○ digest ○ extrapolate ○ interpret ○ synthesize	To get high quality information: accuracy, comprehensiveness, currency, reliability, validity, etc.
	Adapt to particular information use environment	
	○ customize ○ simplify ○ repackage ○ rank ○ make it closer to the problem ○ re-organize	To stimulate effective use of information
	Disseminate, building knowledge capital	
	○ knowledge sharing/transfer ○ learning ○ align values ○ building human and structural capital	To enhance knowledge infrastructure ○ generation of knowledge capital ○ greater impact

In this model it is argued that activities like analyzing, editing and the quality control of information should become core activities of university libraries. Even adapting information for effective use and involvement in knowledge management (knowledge sharing and transfer, learning in the organization, aligning of organizational knowledge values) should become part of the core activities of information specialists in university libraries.

2.4 Products and services in university libraries

Progressively more and more university libraries are looking for new and innovative products and services to serve their customers. Figure 4 gives some indication of the trend to move to products and services that will be typical of e-libraries.

Figure 4: Products and services in University libraries



Translated in the web environment, figure 5 depicts some of the developments in terms of a web strategy for the academic information services (university library) at the University of Pretoria.

Figure 5: Web strategy

To a much greater extent than before, university libraries are entering the e-learning arena: e-resources, customized products and applications as well as integration of information and document provision in e-education. However, the question remains if university libraries have entered the domain of the non-traditional processing of information as explained in figure 3.

3 E-learning at the University of Pretoria

As stated earlier, many programmes at the University of Pretoria offer web content and support for students. The following is a sample of such programmes and indicates the role of the library or Academic Information Service (AIS), as well as the attitudes and perceptions of students and staff.

3.1 Virtual campus / Students online services

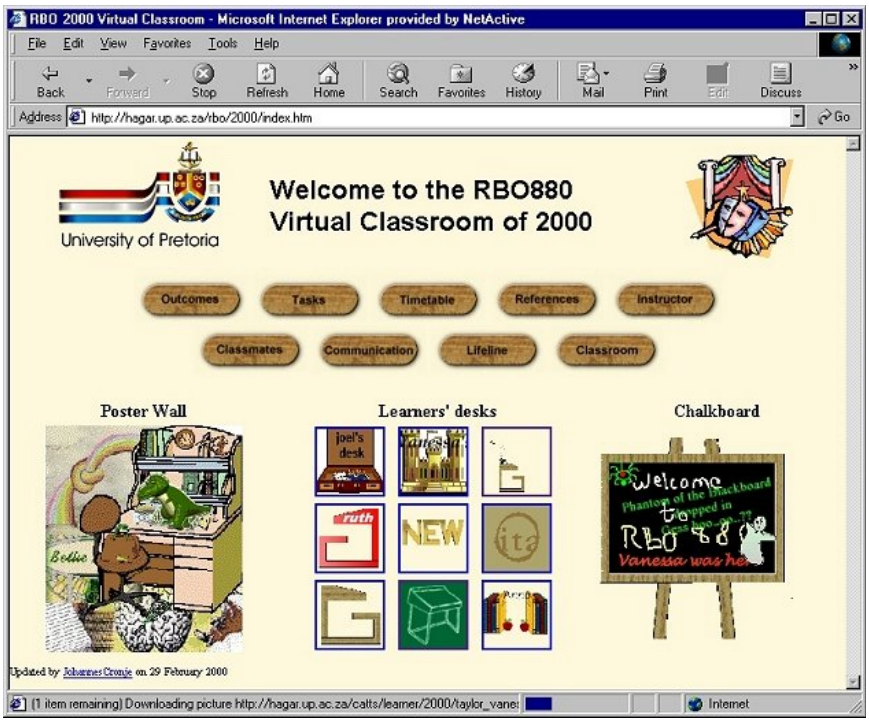
All students have access to the virtual campus of the University. Students log in via a student number and password to the secure server where they can check which courses they are enrolled for, time tables, examination results and account statements. If a specific course is supported by web content, the student can link directly to the relevant web pages. Course content is usually offered in WebCT where the course content is provided, as well facilities for e-mail, a bulletin board, and links to prescribed material.

3.2 RBO880

The University of Pretoria presents a two-year tutored masters' degree in computer-based education. The students range in age from 23 to 55, and all work full time. The methodology followed in constructivist rather than instructivist. Students meet once a month for three days and keep in contact via the Internet. One module, "Teaching on the Internet" is presented entirely over the Net. Course information is presented on a website, while interaction takes place via email and a bulletin board. Students are assessed on their electronic, web-based portfolios.

The primary presentation vehicle of the course is a "Digital Classroom" (figure 6) that contains the study guide, examples of the work of work of previous students. As this is an internet-based course on internet-based learning, very little primary information is presented on the course website. Instead, a number of relevant sites are listed under the "references" section.

Figure 6: The classroom interface



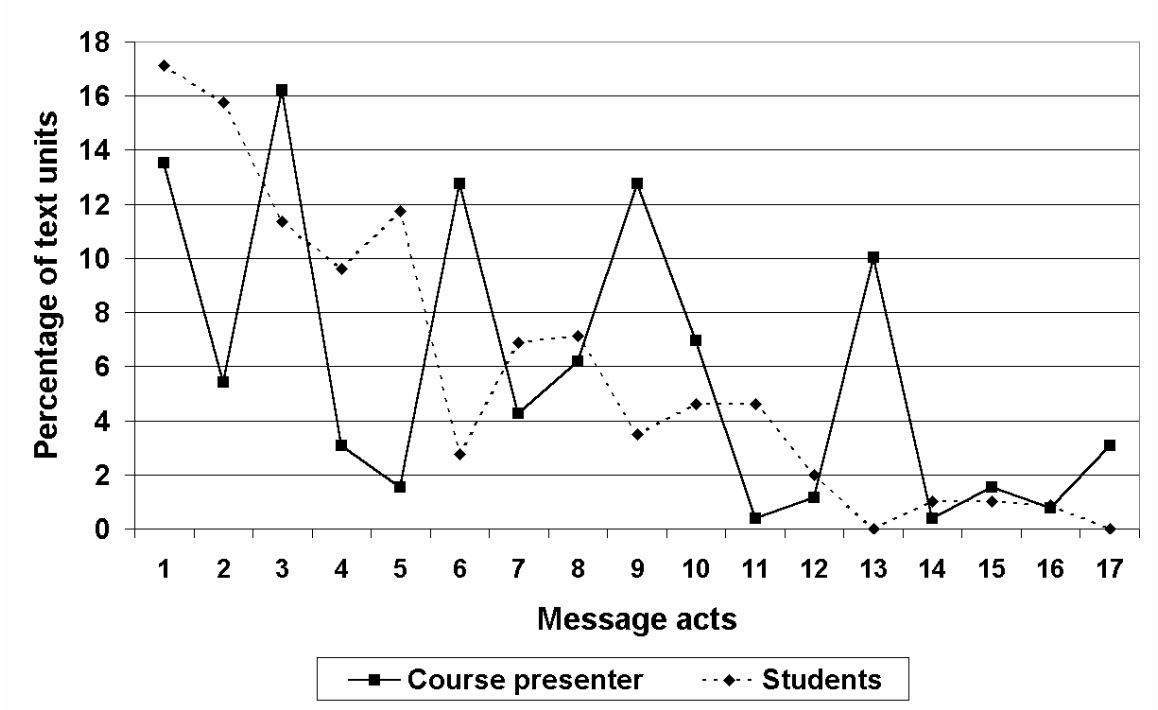
A bulletin board is used for communicating stable information (i.e. information to which students may wish to refer again later) and email is used for ephemeral communication.

Instead of conventional tests or essays, students construct their own electronic "desks" and fill those with electronic projects as shown in the figure below. They are required to construct websites in response to themes that are given to them. One such example is a site that had to be constructed by Cathy and Ado on "Cyber conflict" (see figure 7 below).

Figure 7: Examples of projects – Patsy's "Desk" and Cathy and Ado's Project

An analysis of messages that are sent during a typical course presentation (Cronjé & Clarke, 1999) helps reveal the information needs of learners.

Figure 8: Analysis of learning messages (Cronjé & Clarke, 1999)



Key to message acts

1. Give information
2. Ask questions
3. Make suggestion
4. Thank /express appreciation
5. Present a problem
6. Give encouragement
7. Initiate or contribute discussion
8. Express amusement or joke
9. Explain how to do something
10. Agree
11. Provide explanation
12. Offer support
13. Give a directive
14. Apologise
15. Give reminder
16. Confront
17. Criticise

From the analysis of the messages sent through the class discussion list it can be seen that the most frequent actions of the instructor were to:

- Make suggestions
- Give encouragement
- Explain how to do something
- Give directives

By contrast the main actions of the learners were to

- Give information
- Ask questions
- Present a problem
- Initiate or contribute to the discussion
- Express amusement or joke

The analysis shows that the role of the lecturer is considerably different from the role of a traditional lecturer who usually simply stands in front of a class and talks. In the above example the role of the lecturer has changed from “pushing” information, to responding to a “pull” of information from the students.

Likewise the role of the students has changed from passive recipients of information to active participants in the learning process.

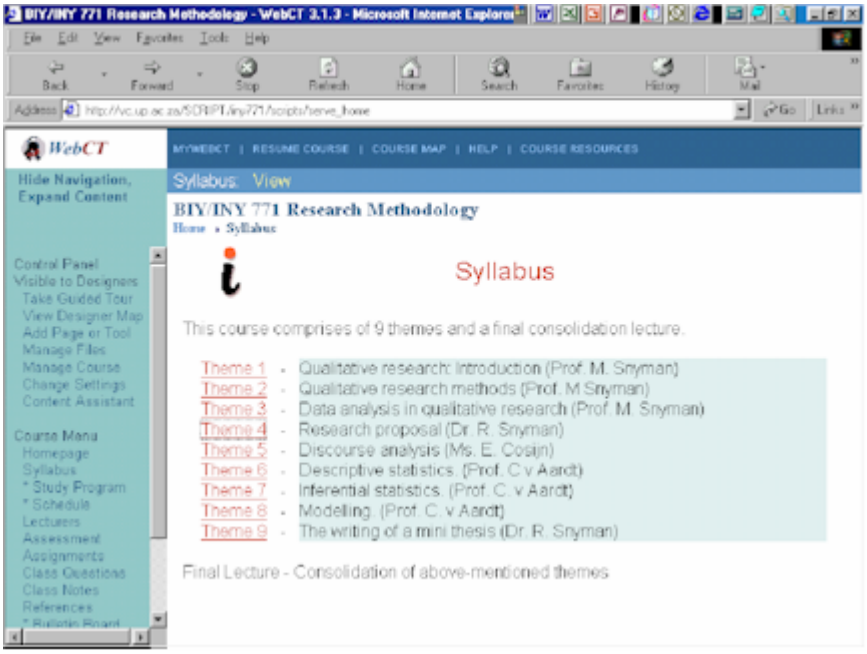
It would be fair to say, then, that the role of the librarian in this specific digital environment should change from the mere custodian of books, be they physical or digital, to a provider of just-in-time information at time of need. This would involve pre-empting learner needs, which in turn involves getting to know the learners. The shift in the role of the librarian then is from knowledge of the collection, to knowledge of the users.

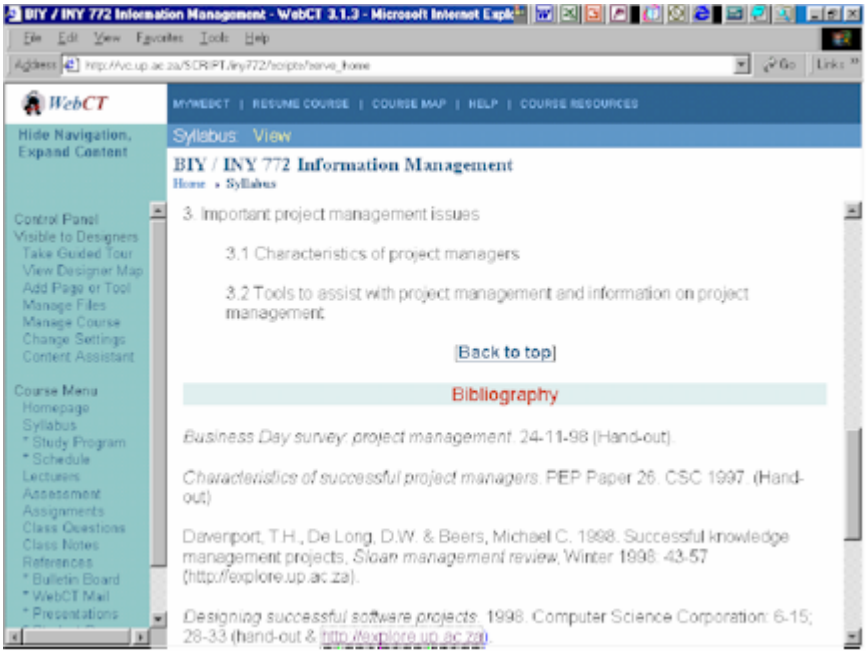
3.3 Programmes in Information Science

In the Department of Information Science of the School of Information Technology all undergraduate and postgraduate courses are offered with electronic support. Course materials are made available on WebCT; this includes study guides (basic course notes), as well as copies of transparencies that are used in class, further class notes and any other material the lecturer may deem relevant. The study guides are usually converted to HTML, but additional material may be in a variety of formats such as PowerPoint, PDF or Word, Students and lecturers can communicate with one another via the bulletin board. In some cases "class discussions" are conducted via the bulletin board. For example, an article can be posted to the bulletin board and students are then requested to discuss this article with one another on the bulletin board. In the case of large groups of students the group is randomly broken into smaller groups, each with its own bulletin board. Discussions are graded and the mark counts towards a student's semester mark.

Figure 9 shows an example of the different themes for a module as presented in WebCT, and the link to prescribed articles.

Figure 9: Course content in WebCT, showing the course outline and links to prescribed material

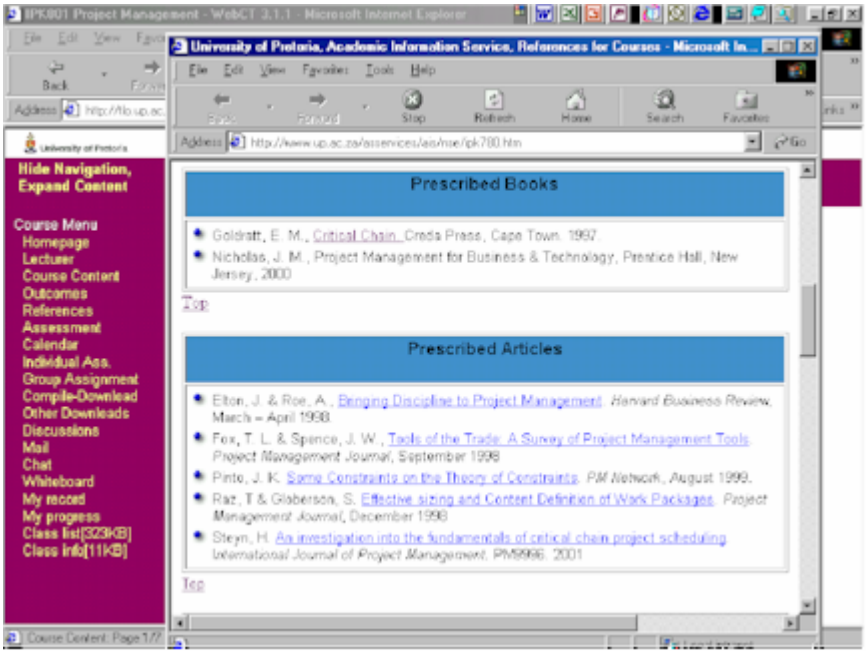


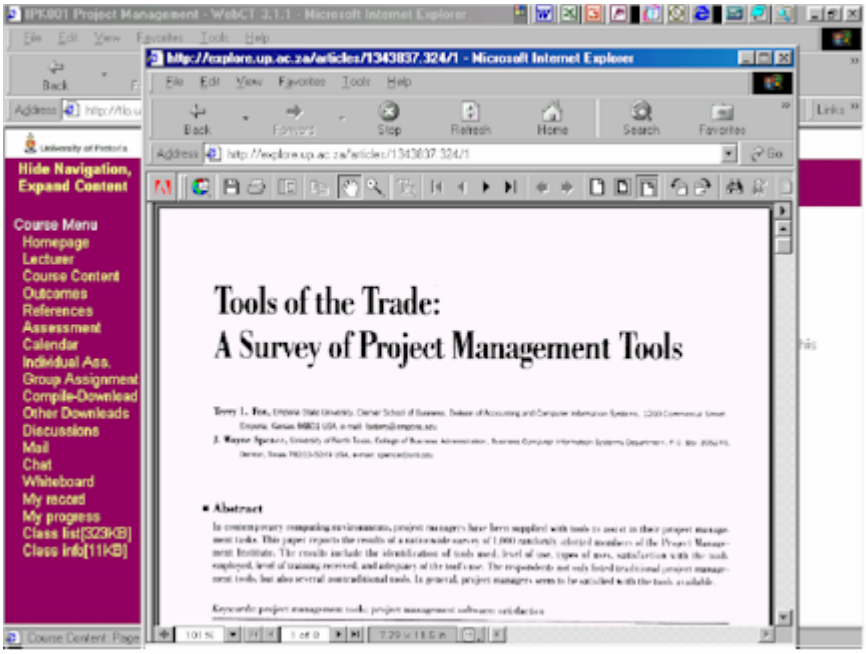


3.4 Masters in Engineering Management

Similar facilities are provided in the courses for the Masters in Engineering Management, and figure 10 below illustrates the links from the bibliography supplied in WebCT to the actual article that lies on the server of the Academic Information Service.

Figure 10: Linking in the Masters in Engineering Management



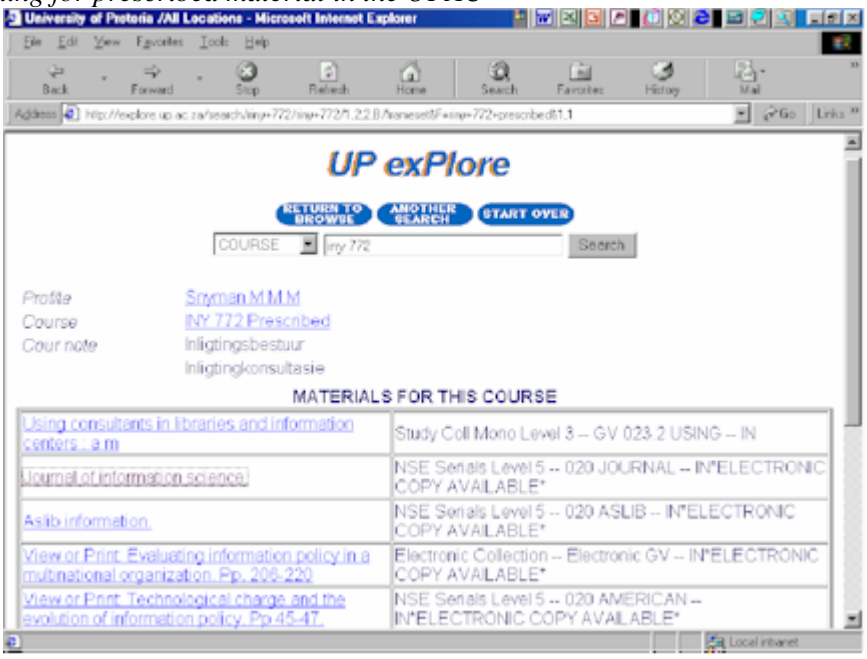


3.4.1 Services offered by the Academic Information Service

3.4.1.1 Digitising articles

The AIS provides a service to digitise prescribed articles and list them on a web page linked to the student's course materials on WebCT. Digitisation is done with a Bookeye scanner from ImageWare Components GmbH. Files are stored in PDF format, and in some cases as TIFF files. The articles are therefore seamlessly integrated with the course content. A student can, however, also search for the online prescribed material via the OPAC, Innopac, via various search points such as the course code, lecturer and standard bibliographic items, as is illustrated in figure 11 below.

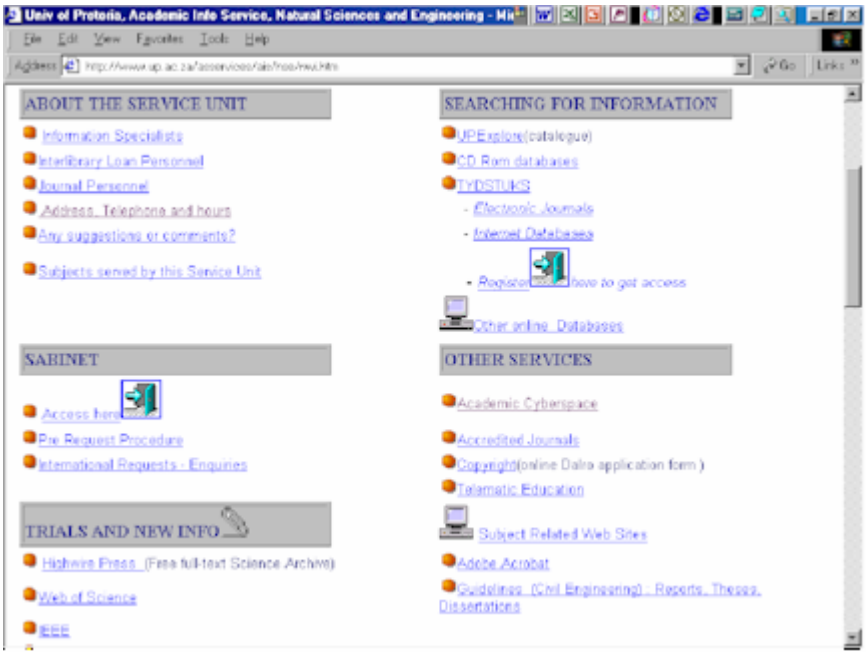
Figure 11: Searching for prescribed material in the OPAC



3.4.1.2 Providing web portals

Portals are designed for and by specific service units. The portals provide links to subject-specific electronic journals and databases and information of importance for specified user groups, as is shown in figure 12 below. These portals are still in their initial stages, and as yet contain no added value features, repackaging of material or integration with research or teaching materials. There is also a gateway to the e-journal collection and CD-ROM databases of the University.

Figure 12: A web portal for the Natural Sciences, Engineering and IT



3.4.2 Experiences by students and staff

Students and staff fluctuate between extremely positive and extremely negative; the following are comments that were made during informal surveys:

3.4.2.1 Students

- Extremely positive
  - "It's wonderful to be able to communicate online with lecturers and fellow students"
  - "Online articles save a lot of time – no more standing in queues, or missing journals"
  - "Interactive learning is great"
- Extremely negative
  - "We have registered for contact tuition, and we don't accept that we have work online"
  - "We don't have access to computers"

3.4.2.2 Lecturers

- Extremely positive
  - "Added-value elements make teaching a much more fulfilling activity"
  - "Interaction with students is great"
- Extremely negative
  - "Learning the new technologies takes up all my research time"
  - "I prefer face-to-face contact with students"

3.4.2.3 Librarians

- Extremely positive
  - "I can provide many new services to my clients"
  - "The challenges of technology makes my work stimulating, and I love learning new things"
- Extremely negative
  - "I'm not a technologist, and I'm simply not interested in working with technology!"

Most people nevertheless fluctuate between the extremes. Negative attitudes can probably be ascribed to lack of proper training, and insufficient opportunities to experience the technologies first-hand. Time constraints due to heavy workloads may further contribute to negative sentiments. Proper training and inductions programmes are therefore essential for people to make the necessary mind shift.

3.5 Conclusion

From the above it is clear that the librarians at the University of Pretoria do offer a number of services that are classified as "non-traditional" in figure 3. This conforms to what is happening at universities world-wide: in most cases universities start offering similar services. However, there are many opportunities that are not yet being exploited, and the challenge for librarians is to provide value-added services at all levels mentioned in figure 3, and even more. Technology will enable us to do that: the initiative and motivation should come from us.

4 Preferred state of e-libraries

Have university libraries introduced added value features? It is argued in this paper that web strategies as explained above have not really made the transformation from traditional information processing in universities to the non-traditional (see figure 3). Very few e-products in libraries are the result of analysis, editing or quality control in response to user's need in terms of high quality information, accuracy, comprehensiveness, currency, reliability, validity etc. Nor do these adapt information to the particular information use environment: customize, simplify, rank or make the information closer to the problem.

The information challenges that are facing the e-library need new roles:

- Presently university libraries are custodians and transfer agents of information (we used to be custodians and deliverers of books). We need to become communicators of information and thus be involved and skilful of all information processes in the typical information life cycle. Our role then becomes one of disseminators to information or knowledge consultant and broker that act on behalf of information clients.
- The management of information needs and the flow of information to customers then become more important than the supplying of information.
- Higher levels of added value should become part of the skills of information specialists: e.g. filtering and quality selection, repackaging for more effective use and monitoring authenticity and the integrity of information. Therefore there is a dire need for introducing domain-specialists in the university library.
- In a university environment the e-library should integrate with e-learning. Information specialists should know the principles of e-pedagogy and support these with relevant information provision.

5 Conclusion: Strategic challenges to the e-library

Following the above preferred state of e-libraries the strategic challenges that lie ahead are:

- Creation of new visions and strategic intents for university libraries. Old thinking models of information dissemination have become of age in the new e-learning environment.

- Organizational structures should be addressed in order to align e-strategies of the university and the e-libraries. Coordination of ICT, e-learning and e-library strategies are needed.
- Information specialists need to upgrade/ transform their skills to those that are core to information/ knowledge management and information consultancy/ brokering.
- University library resources need to be reallocated along the lines illustrated in figure 1 to support these changes.
- University libraries should be visible in terms of new regional and international e-strategies. Unfortunately e-libraries have not yet been very visible in strategic initiatives eg in business plans like *The power of the Internet for learning: moving from promise to practice* (2000) Business plan of the *Consortium Digitale Universiteit* (2000) in the Netherlands and the " Business model for the e-university in the UK (Higher Education Funding Council for England (HEFCE), 2000).

If these strategic challenges were to be met it will result in better quality service delivered to all clients of the academic library – students and lecturing staff alike – by a group of well-trained, motivated librarians and information specialists that can meet the requirements of a fast changing information world.

6 References

Consortium Digitale Universiteit. 2001. *Business Plan*. 19 February 2001.

Cronjé, J.C. and Clarke, P.A. 1999. Teaching 'Teaching on the Internet' on the Internet. *SA Journal for Higher Education* 13(1): 213-336

Heppel, S. 1995. Untitled plenary lecture presented at *Apple Europe* conference Brussels, 25 September.

Higher Education Funding Council for England (HEFCE). 2000. *Business Model for the e-university.* October 2000.

Taylor R.S. 1985. *Value added processes in information systems*. Norwood: Ablex Publishing.

The power of the Internet for learning: moving from promise to practice. 2000. Report of the Web-based Education Commission to the President and the Congress of the United States. December 2000.