

# LIBRARY LIVE: EMBEDDING AND CONTEXTUALIZING INFORMATION RESOURCES IN THE VIRTUAL LEARNING ENVIRONMENT

**Hannie Sander**  
University of Johannesburg  
South Africa  
✉ [js@rau.ac.za](mailto:js@rau.ac.za)

**Anette van Vuren**  
University of Johannesburg  
South Africa  
✉ [anettej@uj.ac.za](mailto:anettej@uj.ac.za)

**Tanya du Plessis**  
University of Johannesburg  
South Africa  
✉ [tduplessis@uj.ac.za](mailto:tduplessis@uj.ac.za)

## Abstract

Library LIVE (Learning In a Virtual Environment) is a service aimed at integrating information resources in the learning centered multi-modal approach of the University of Johannesburg, which can be briefly defined as a combination of contact teaching and of electronic delivery of content and services such as discussion groups – a so-called integrated learning system.

This paper discusses the course specific information integration strategy of the University of Johannesburg Library and Information Centre's Library LIVE project against the background of the multi-modal approach to teaching and learning of the University of Johannesburg (UJ). Feedback received from students regarding value added to the WebCT-based learning environment, referred to as *Edulink* at the University of Johannesburg, is briefly reported.

## Keywords

Library integration; Virtual learning environment; Multi-modal teaching and learning; E-learning.

**Hannie Sander Anette van Vuren**

# 1 Introduction

The University of Johannesburg (UJ) is a newly established South African university, which reflects the many changes in the country's Higher Educational system. It offers its more than 45 000 students a wide range of academic programmes developed according to the University's multi-modal teaching and learning system [2,3]. This learning centered multimodal approach can be defined as a combination of contact teaching and electronic delivery of content and services such as discussion groups – the so-called integrated learning system [1,5]. The UJ and the UJ Library and Information Centre is participating in the move to the virtualization of the learning environment. Conceptually, the Virtual Learning Environment (VLE) represents a learning milieu in which full advantage is taken of advanced Information and Communication Technologies (ICT).

# 2 The University of Johannesburg

The University of Johannesburg was established on 1 January 2005, following the incorporation of the Soweto and East Rand campuses of Vista University with the Rand Afrikaans University (RAU) on 1 January 2004, and the merger of RAU and the Technikon Witwatersrand (TWR) on 1 January 2005.

As a comprehensive university, the University offers full integration of academic and vocational programmes, while it also promotes the articulation from certificate and diploma programmes to degrees up to doctorate level.

The University has nine faculties with programme offerings on 5 campuses. It currently has more than 45 000 students, about 6 200 staff, of which about 2 500 are permanent appointments. 26 610 students are based at the Auckland Park Campus (former RAU); 7 350 students at Auckland Park Bunting Road Campus (former TWR); 8 748 students at Doornfontein Campus (former TWR); about 2 000 students at the Soweto campus (former Vista); and about 350 students at the East Rand Campus (former Vista).

# 3 UJ Integrated Multi-Modal Approach to Learning and Teaching

The integrated multi-modal approach to teaching and learning was adopted by the Senate of RAU in 2002 following a recommendation of a Strategic planning task team. At UJ the system used is known as *EduLink*. Different modes of delivery, including information technology, are used in an integrated way in the teaching and learning function of the University to make education more accessible.

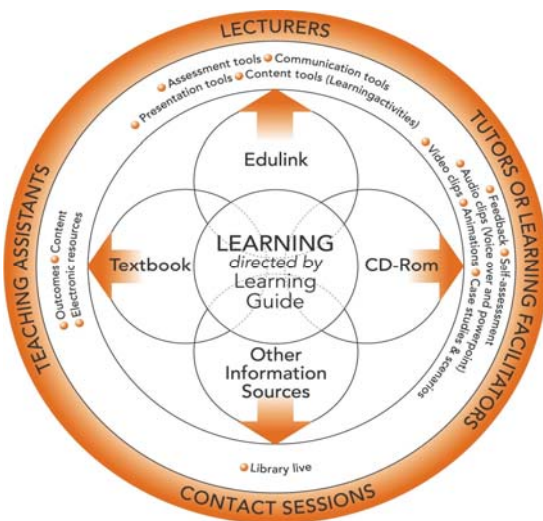


Figure 1 Diagram of Integrated multi-modal approach to learning

This learner centred approach is not a substitute for contact education. It adds value to and enhances the education process since it promotes guidance of students in the learning process by creating more - and more diverse - learning opportunities for students. A richer and more interactive learning environment is designed by implementing a variety of learning activities with feedback supported by using different multi-media formats. More flexible communication opportunities with students are also created. Students are actively engaged during learning events. More learning styles can be accommodated, while more and different assessment opportunities are possible through automatically graded, tracked and managed learning management system, WebCT. [2].

Course material is designed by a professional team of experts at the Centre for Technology Assisted Learning (CenTAL) of the University. The activities of this dynamic centre are best described by its slogan: Sikhuthaza Imfundo! We energise education!

The learning guide is made available in paper format. The Intranet and the Internet is used to deliver the variable information of a course. Due to limited bandwidth availability and high cost of online access, the design also allows specifically for the use of CD-ROMs. Depending on the initial analysis during the course design phase, interactive activities such as self-assessment with feedback can be included in a variety of formats, e.g. audio, audio video clips, animation, case studies and scenarios.

There currently are more than 15 000 students in eight faculties and three campuses actively using *EduLink*. In 2004 *EduLink* was accessed at more than 205 000 000, while it is expected that this figure will increase to 350 000 000 in 2005. A fully equipped computer laboratory with 744 workstations is available on the Kingsway campus, with smaller laboratories on the other campuses. In the very near future all residences will be equipped to link directly from students' rooms with the UJ Intranet. This is currently being done at a rate of about two residences per semester [2].

A joint project with the University of Fort Hare (UFH) started in 2003 and has been successfully implemented where all the modules for the B.Comm. degree for accounting were developed using funding from the Carnegie Foundation. The University of Limpopo is currently using some of these offerings under a licence agreement [3].

## **4 UJ Library and Information Centre and the Virtual Learning Environment**

### **4.1 Background**

Academic information support for UJ is provided by 7 libraries as part of the University of Johannesburg Library and Information Centre (UJLIC) on the five campuses. UJLIC is staffed by 121 permanent library staff and about 80 contract and temporary staff.

The collection consists of more than 800 000 volumes, about 2 300 running serial titles, 120 electronic databases, giving access to about 40 000 full text titles.

Some of the services offered by UJLIC include a specialized subject information and research support service; a 24/7 reference service; inter library loans and intercampus lending; electronic course reserves; as well as end-user empowerment (information literacy and information fluency).

The library webpage is the key to information resources and services. An interim webpage was developed during the merger phase, and is in the process of being replaced by a permanent webpage where the already fully integrated single database, bRAUs, will now be known as UJLink. Various modules of the Millennium Library System are used or are being implemented to facilitate the e-services of the library.

More than 4 000 seats are provided in the libraries and 24 hour study facilities are provided on all campuses.

### **4.2 Integration of information resources and services**

As with the former RAU Library Services, UJLIC is fully committed to the integration of information resources and academic information support services with the academic programmes of the university and has over many years established and fostered close collaboration with faculty.

The mission of UJLIC is to support and facilitate teaching, learning, research and community engagement of the University of Johannesburg.

This is reflected in the strategic objectives by:

- 1 Providing equitable and optimal access to traditional and digital information resources;
- 2 Providing a comprehensive and diverse information service;
- 3 Integrating information resources and services into the University academic programme;
- 4 Promoting information literacy and life-long learning
- 5 Fostering partnerships through collaboration and cooperation;
- 6 Engaging with, and investing in research and development in the information environment;
- 7 Contributing to social responsibility initiatives

It would not be possible to achieve the above objectives, without focusing on digital and electronic content and services. It is specifically in objective number 3 *Integrating information resources and services into the University academic programme* where the supporting role of the library in the virtual learning environment really comes into play.

The library is not a passive repository for printed and electronic materials. It is an important source of electronic content for the VLE. The Library and Information Centre also contributes to teaching and learning in the VLE by combining digitally delivered content with learning support services

## **5 Principles of Library Support in VLE**

The Society of College, National and University Libraries, SCONUL, [8] identified the following principles for library support of VLE:

- 1 VLE should be appropriately underpinned by good quality information to broaden and deepen understanding.
- 2 The quality of library services and information provision is as important in the VLE as in a traditional learning environment.
- 3 Timely access to a wide range of information resources and services is essential.
- 4 Students in the VLE should be given the opportunity to develop and enhance their skills in finding and using information.
- 5 Library and Information provision should be integrated in the VLE in a flexible way.

## **6 Library LIVE**

Library LIVE originated from the Library Digital Initiative (LIDI) of 2001 to 2004, which had as its objective to provide 70% of information resources and services in digital format [4]. A natural consequence of LIDI was the development of subject portals and a seamless integration of library resources with academic programmes which were fast becoming available in electronic format as part of the university's multi-modal learning approach.

Library LIVE is a service developed in support of the UJ's integrated approach to learning, teaching and assessment. The rationale is that WebCT courses with online access to recommended or prescribed articles via course customized pages, will improve students' use of licensed database content while at the same time minimize the effort and confusion of using a variety of databases or points of entry

The objectives of Library LIVE are to link faculty and library efforts in order to improve access to, and to improve the use of information by:

- providing contextual links to electronic course reserves;
- enhancing subject specific access to databases;
- providing e-reference services; and

- promoting the use of quality sources of scientific information at an early stage of a student's academic development.

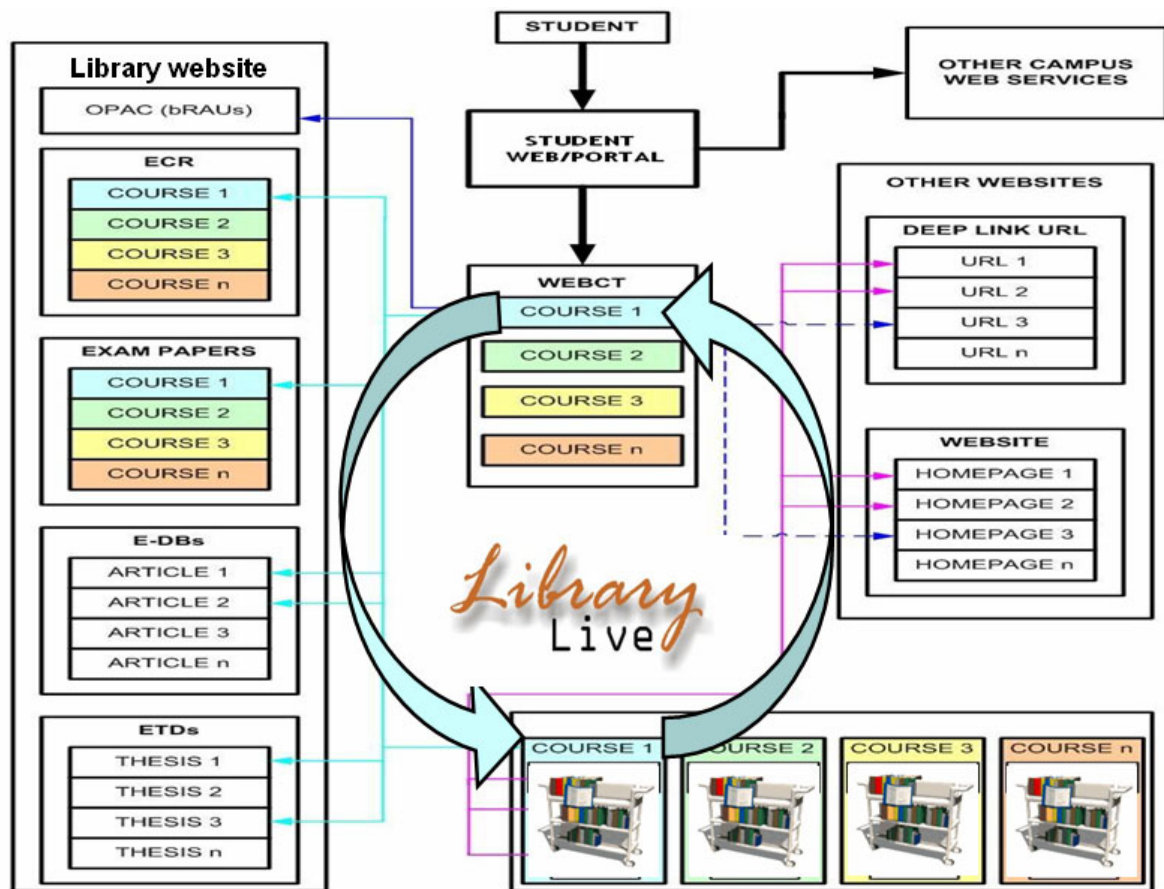


Figure 2: Library LIVE integration model [4] and [5]

Library resources and e-classrooms or e-courses are integrated by creating contextual links. These links are created as follows:

1. Students can either access Library LIVE directly through the library webpage, or using the UJ Student Portal as first point of access to typical "student information", such as time tables, rosters, exam dates, academic results, finances, as well as to the UJ's Learning Management System, i.e. "EduLink" (WebCT). To access an EduLink course in the virtual learning environment (VLE) a student has to be a registered UJ student.
2. Cookies are passed containing students' registration numbers and specific module codes which enable students to gain access to the appropriate courses as well as to library resources and services via a browser.
3. Hard coding is inevitable in VLE library integration, but the recurrent hard coding of links is avoided by creating permanent links (P-linking based on DOIs and PURLs) to library resources, e.g. database contents including any associated query strings, and library services, e.g. 'Ask-a-Librarian'.
4. Templates are used for creating Library LIVE pages (WYSIWIG). These templates incorporate the linking of course specific access points to Electronic Course Reserves, Exam Papers, Databases, Electronic Theses and Dissertations, as well as to open Internet sources or to invisible web sources (deep linking).

5. The UJ Content Management System (CMS) is used to manage Library LIVE pages. The CMS provides the facility to create secure and permanent URLs which are then sent electronically to lecturers for incorporation in WebCT courses.

## **7 Evaluation of the library in the virtual learning environment and Library LIVE**

### **7.1 Evaluation of the *EduLink* and the library in VLE**

An online survey was administered by CenTAL in 2004, and repeated in 2005. The questionnaire consisted of 23 questions and the 2005 questionnaire was made available for a limited time period on *EduLink* to all students registered in the 32 courses presented in the first semester of 2005.

A total of 2036 responses were received. 44% of the respondents were male, while 53% were female, with 3% not indicating their gender.

In general the overall response was positive as shown below:

Regarding Learning packages:

- 91% of respondents indicated the multimodal learning packages as useful
- 93 % indicated the quality of the learning packages as high
- 85% found the layout in Information Mapping style as helpful
- 83% found the learning guide useful in navigating them through the different media
- 84% would've liked to have more courses in multimodal format
- 65% of respondents encountered no problems with learning packages
- 63% were informed where to go when they experienced problems with learning packages
- 52% of respondents did not experience any problems, while 31% of problems experienced by the remaining 48% were resolved
- 55% of respondents used the Help-U-book included in the packages

Regarding *EduLink*:

- 86% of respondents rated the *EduLink* orientation material as helpful
- 63% of students, who attended the orientation course, rated the course as helpful
- 86% of respondents accessed their *EduLink* courses once a day to twice a week
- 75% of respondents rated the help available for *EduLink* as supportive

Regarding telephone support:

- 62% of respondents did not need assistants after hours on weekdays, but most respondents (21,22%) indicated that they needed assistance during weekends on Saturdays from 13:00 to 19:00.

The main advantages indicated were that the multi-modal learning packages made studying easier, because it improved understanding of course material as well as an improved understanding of the content of the course. Furthermore respondents indicated that it led to improved time management and that it made it possible for students to effectively study independently. Some first year students reported that it helped them to adapt to student life at the university.

It was also reported that the availability of additional resources of information is very helpful and allowed for ease of access. Some students reported that the use of pictures and colours on the CD was very helpful in memorizing material.

The ease of access to information featured quite strongly. This ranged from the availability of information on *EduLink* regarding news about test dates and other course related news. The availability of information was also found to be helpful as students did not have to be on campus to be informed and did not physically have to go to the library at all or all that often.

Another major advantage for students, lecturers and library staff is greatly improved communication. Students especially enjoyed the convenience and 'always' availability of e-mail-communication with their lecturers. To students who were uncomfortable to ask questions in class or to communicate

directly with their lecturers, the multimodal approach offers a useful alternative. The email and discussion board facilities allows for active interaction between students and lecturers.

However, not everybody responded in the above positive fashion. Some students heavily criticised the learning guides as being vague, badly organised, of poor quality and sometimes having incorrect information or references on the CDs. Some respondents found the many sources of information and media available overwhelming and confusing.

Overcrowded laboratories were also a source of frustration. In some instances misuse of discussion rooms, bulletin boards and unethical behaviour regarding completion of quizzes were reported.

Interestingly enough and although exam papers and electronic theses and dissertations are available on the library webpage, there were some respondents requesting that question banks should be included at the end of every unit or chapter.

Some respondents were of the opinion that lecturers were not optimising *EduLink*, responded poorly to emails, did not keep promises to put information on the web and did not use *EduLink* extensively enough.

## 7.2 Evaluation of the library in VLE and Library LIVE

How did students experience the integration of Library e-resources into their online classroom as useful, specifically in support of their research and report writing activities?

A WebCT survey was compiled as part of the Information Science 1A module to evaluate student response as to how Library LIVE in WebCT was experienced in their research and report writing activities. The questionnaire covered the following components:

- Relevance of Library LIVE subject specific course materials.
- Electronic study guides linked to subject specific databases.
- Electronic lecture notes linked to subject specific databases.

The overall response of students was very positive and some of the comments include the following:

- This feature is an absolutely awesome idea, it is extremely helpful.
- Everything I need is there.
- Brilliant - why wasn't it like this three years ago!
- I hope all my other lecturers catch on to this idea.
- Great [...] I really hope that this succeeds.
- Easy to access [...] links to the databases with remote location.
- Technology advances the learning experience.
- Thank you [...] I never knew some of these databases even existed.
- There should not be any concern about outsiders using the system because of password protection used in accessing EduLink WebCT.
- The live-links are helpful in writing my report, but are there any reference building tools.
- Study guide with TOC and live links very useful and easy.
- It motivates me to do my course work in more detail and helps find useful information on my topic.

## 8 The way forward

Various database publishers and aggregators have expressed interest in collaborating with UJLIC with a possible view of collaboration to improve the functionality of databases by provision of permanent or deep links. These discussions will be continued.

Planning and development of electronic academic information support services will continue in partnership with faculty, researchers, CenTAL and other external stakeholders.

Survey results will be used to plan for improvement and expansion of Library LIVE. Based on the positive response from students regarding the value of Library LIVE on their research and report writing activities, further development of the current UJ Library-VLE integration project is in progress.

Future integration efforts will increasingly accommodate the research, learning and report writing activities of students working in a virtual learning environment. This will include the integration of additional tools, e.g. Refworks, to assist students to better organize and track their work, build online bibliographies, link their reports and references cited, and manage their report writing activities and other assignments performed in the VLE.

The current Library LIVE responsibility by a single specialist VLE librarian, will increasingly become part of the everyday functions of subject and information librarians, while the current position of the specialist librarian will increasingly become more that of an innovation officer focusing on innovation, research and development.

## 9 Conclusion

The University of Johannesburg (UJ) as a newly established South African university, reflects the many changes in the South Africa's Higher Education system. It offers its more than 45 000 students a wide range of academic programmes developed according to the University's multi-modal teaching and learning system [2,3]. UJ and UJLIC – in its supporting role of the mission and objectives of UJ - is playing a leading role in the move towards virtualization of the learning environment in a very supportive fashion. Full advantage is taken of advanced Information and Communication Technologies through *EduLink* and Library LIVE.

Evaluations have shown that the use of WebCT as a teaching and learning support mechanism has indeed made a positive impact on students' learning experience [3,7].

With Library LIVE subject specific integration of library resources and services the learning experience is enhanced even further. Students are introduced to databases and the availability of information approved by lecturers for the writing of assignments or research reports.

Results show that Library LIVE creates an awareness of what quality information is electronically available by providing only one or two examples of relevant articles. After having direct access to these materials, the student is encouraged to search independently for more material.

Sikhuthaza Imfundo!

## References

- [1] Akeroyd, J. Information management and e-learning: some perspectives, *Aslib Proceedings: New Information Perspectives*, 57(2) pp. 157-167, (2005).
- [2] Broere, IJ. Multi-modale leer noodsaaklik in moderne onderwys (Multi-modal learning imperative in modern education) *UJ: University of Johannesburg News magazine*, 1, pp. 10-12, (2005)
- [3] CenTAL (Centre for Technology Assisted Learning). (2005). The integrated multimodal teaching and learning approach. Available WWW: <http://www.uj.ac.za/cental/> (Accessed: 8 Feb 2006).
- [4] Sander, J. Digital initiatives in information service provision in academic libraries in a developing country. (Paper presented at the LIDA Conference, Dubrovnik & Miljet, Croatia, 24-30 May 2003)
- [5] T. Storey. "Can the power of technology improve teaching and learning? And what role will libraries play in this rapidly emerging field of e-learning?", *OCLC Newsletter* 265 pp. 8-10, (2004).

- [6] Rensleigh, C. 2003. Augmented integration of the WebCT environment and the digital library academic information services: a model for improved student accessibility. (2nd Annual WebCT European User Conference, London, UK, 13-15 January 2003).
- [7] Rensleigh, CW & Du Plessis, T. 2003. First year Information Science students' experience of WebCT as part of a multimodal learning environment. (5th Annual Conference on WWW Applications. University of Durban-Westville, South Africa. 10-12 September 2003). Available WWW: [http://general.rau.ac.za/infosci/www2003/WWW-Abstracts/WWW2003\\_Abstracts\\_POSTERS.htm](http://general.rau.ac.za/infosci/www2003/WWW-Abstracts/WWW2003_Abstracts_POSTERS.htm) (Accessed: 11 Feb 2006).
- [8] SCONUL. 2004. Information Support for eLearning: principles and practice. (Rev. ed.) Available WWW: [http://www.sconul.ac.uk/pubs\\_stats/pubs/info\\_support\\_elearning.pdf](http://www.sconul.ac.uk/pubs_stats/pubs/info_support_elearning.pdf) (Accessed: 8 Feb 2006).