

Reviewing electronic information literacy training packages

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1. Introduction

There is a perception among librarians that the need for students in Higher Education (HE) to enhance their information literacy skills has grown. This is explained by several factors: the increase in student numbers and students with different levels of skills; changes in learning and teaching practices that place a greater emphasis on student centered learning (Ray & Day 1998); a decrease in library expenditure, resulting in more students chasing less resources (Brown & Gibbs 1996); an increase in the availability of electronic information that has led to the need for students to have greater critical and evaluative skills (Brophy 1993).

The increase in demand for measures to improve information literacy is occurring in a climate where lecturers feel under pressure and have scant room in their taught modules to allow “guest speakers” to discuss non-core subject material in lectures or tutorials. At the same time, many students feel that they know how to find information because they can discover what they need on the Internet, (often using Google¹). More detailed discussions on how students search for information and how they assess their own searching skills can be found in the work by Ray & Day (1998), Armstrong (2000) and Stubbings & McNab (2001).

2. What is information literacy?

The term information literacy is commonly used in practice when addressing the development of information searching techniques. At Loughborough University the phrases information literacy and information skills are both used to convey the same meaning. The information literacy programme currently in place is still formally known as Information Skills Training (IST). What does information literacy mean at Loughborough University? It covers the ability to search an electronic database and includes the development of cognitive skills, such as problem solving. At Loughborough therefore the information literacy programme develops the student’s ability to:

- recognise when they require information;
- formulate a search strategy (e.g. combinations of keywords);
- select appropriate resources to search (e.g. library catalogues and databases);
- search information sources effectively;

¹ <http://www.google.co.uk/>

- evaluate and select the appropriate references from those discovered;
- present the data (e.g. correct citation and the creation of bibliographies).

3. Information skills training at Loughborough University Library

The experience of Loughborough University Library is similar to that encountered in other HE institutions. Students have different backgrounds and levels of skills in relation to both IT and information literacy. Academic Librarians at Loughborough University encourage academics to set time aside in their modules for IST. This has met with varying degrees of success. During the academic year (2000/ 2001) the Library delivered 292 hours of IST to 6,026 participants. Sixty percent of this is classified as customised departmental training and is requested by academics for their students. This seems successful, but a high percentage of this is delivered to a small number of departments and often to post-graduate courses. Many of the sessions delivered to undergraduates are hour-long lectures presented to large groups with little or no hands on activities. This is not ideal and does not give the students the opportunity to practise the skills when support is immediately accessible.

To provide support and advice to students who do not receive the formal IST sessions through their Departments, stand-alone sessions are organized and run within the Library. These sessions are of two distinct types. The first is entitled "Lunchtime in the Library"² and forms an hour-long tutorial. It covers generic searching topics, such as how to find books and electronic journal articles, and gives advice on how to find information for specific subject areas. The second is termed "Database of the Month"³ and is an hour and a half training session that occurs every month. These sessions demonstrate how to search a particular database effectively. Approximately fifteen people attend each session and of these 20% come to more than one. The Library also produces comprehensive web pages and database guides, which are then made available on Learn, the University's Virtual Learning Environment (VLE).

Despite the fact that the number of training sessions delivered and the number of participants attending the sessions has risen, Library staff are conscious that not all students who may need assistance and training are being reached effectively. Alternative methods of delivery are being considered and the development of a Computer Assisted Learning (CAL) package relating to information literacy may be an appropriate step to make. Several electronic information literacy packages are in existence and a review of those packages available by HE libraries would enable the discovery of existing materials that could be utilised by Loughborough.

4. Electronic learning and teaching

4.1 Benefits of e-learning

As Brown & Gibbs (1996), Robertson (1996) and Beetham and Bishop (1999) argue there are many benefits in introducing electronic teaching packages. Self-paced learning, for example enables students to use CAL packages at their own time of need and at their

² <http://www.lboro.ac.uk/library/lunchtim.html>

³ <http://www.lboro.ac.uk/library/dbaseofmonth.html>

own pace. Many such packages are also web based and can be used off-campus. This also enables them to be used outside of “normal” opening hours. Packages can be interactive and may enhance student motivation. They also provide a useful revision aid and can be designed to provide formative feedback and advice. It is also possible for them to be incorporated into teaching by academics.

4.2 Factors to be considered before e-learning is introduced

The existing literature describing e-learning recommends that the following factors be addressed before introducing CAL packages.

Are there enough IT resources on campus to support e-learning? Loughborough University has PC labs across campus (several 24 hour), as well as in the Library. There is also an increasing trend for students to bring their own PCs to university. Due to this library staff felt that a web based tutorial that did not require sophisticated browsers would be beneficial. Loughborough also has the majority of its students living on campus during their course and consequently access to current PC technology is not an issue.

Who would be the main audience? Although library staff felt that both undergraduate and postgraduate students would benefit from such a package there were more concerns relating to enhancing the information literacy levels of the undergraduates.

Would such a package replace face-to-face teaching? Within the library it was agreed that if information literacy packages were introduced then they would not replace existing face-to-face teaching, but complement it. It was decided that these same packages should be able to be used as a stand-alone package, to be used by those students that do not receive formal lectures or tutorials from library staff. It would also be possible for lecturing staff to include the use of these packages in their modules.

Should it be linked to the University's Virtual Learning Environment (VLE), Learn? It was felt that it was essential for the tutorial to be linked to Learn so that it was possible for it to be incorporated into modules by lecturers.

Do Library staff have the correct skills (pedagogy and IT) to develop an electronic tutorial? Loughborough University Library has several staff experienced in planning and delivering IST and who are competent in the use of IT. However, none felt confident enough to develop an electronic tutorial from scratch.

What learning outcomes are required? As stated above, the Library wanted to illustrate how to search particular databases AND develop the problem solving skills of students. Any package developed would need to address both these aspects.

Should the wheel be re-invented? Library staff agreed that this was not appropriate, both due to resource issues, staff expertise and time.

5. Review of electronic information literacy tutorials

To prevent us re-inventing the wheel and in the hope of finding an existing package or packages that could be used, library staff investigated previous work that had taken place in the UK. The literature was reviewed to determine the level of activity that had already taken place in the UK. Searching the literature revealed those factors that should be considered when implementing e-learning and also revealed possible sources for content creation. The Learning and Teaching Support Network (LTSN) for Information and Computing Sciences⁴ was contacted, but had not developed a comprehensive list of packages in use. The JISC funded “Big Blue” project⁵ carried out research into information skills. This was also examined and did not appear to have a comprehensive listing of packages used by HE libraries in the UK.

Due to the dearth of centrally located resources the library team undertook research on the availability of electronic IST packages. A formal survey of institutions would have been preferable, but the timescales involved meant that this was not practical. A small team, composed from members of the IST group that plan the Library's generic training sessions, undertook the search for electronic IST packages. University and library web pages across UK HE were searched in the first instance, as it was believed that they would be the most likely sources for IST packages. Some packages were exceptionally difficult to find. This gives some indication that a higher profile should be given to teaching and support material of this nature for students. The dedicated JISCMail discussion list, lis-infoskills⁶ was also used to identify materials by canvassing the views of the library community.

Once materials had been identified a review of each was carried out. Initially it was thought that both academic and library staff could be used to evaluate the materials. Within the time constraints imposed and the number of packages available this was felt to be impractical and therefore it was decided that in the preliminary evaluation process only library staff would be used. However, if a short list of products were reached, then a further review group could be used to add weight to the findings.

Before evaluating each package the literature had been reviewed to determine those factors that need to be addressed when introducing good quality e-learning. These factors included:

- Provide a description of the module and its learning outcomes (Rowntree 1990)
- Give a list of any pre-requisites necessary (Dewald 1999)
- Activities that encourage reflection and discussion should be included so that packages are not just electronic versions of handouts (Brown & Gibbs 1996)
- Provide a logical sequence for topics that is clearly signposted (Rowntree 1990), but also allows students to move around the module in an any manner they choose enabling them to return to sections if they wish (Thornton 1999)
- Use a variety of formats and voices (Rowntree 1990)
- Does not rely heavily on text (Brown & Gibbs 1996 and Joint et. al. 2001)

⁴ <http://www.ics.ltsn.ac.uk/>

⁵ <http://www.leeds.ac.uk/bigblue/>

⁶ <http://www.jiscmail.ac.uk/lists/LIS-INFOSKILLS.html>

- Give subject specific examples (Joint et. al. 2001)
- Units within packages should not take too long to complete as students can have short attention spans (Michel 2001)
- Ability to log transactions and paths taken, so that routes can be evaluated and the most popular sections identified (Legge & Reid 1998)
- Both generic and subject specific material should be included (Joint et. al. 2001)
- Can be easily updated (Robertson 1996)
- Provides support for students with additional needs e.g. dyslexia, colour blindness, blindness. Both the JISC project TechDis⁷ and W3C⁸ provide excellent advice on how to ensure web pages and e-learning tutorials are accessible to those with special needs.

As a result of the literature review the following aspects were deemed to be essential as evaluation criteria by the Library:

- Structure of the package (is it modular, are pathways clearly indicated, do you know where you are at all times in the package and is it easy to use?)
- Interactivity (quizzes and live searches included)
- Content (induction, literature searching techniques and internet searching for example)
- Who is it aimed at (UG, PG and what skills are required to complete it?)
- Relationship between generic and subject specific skills
- Assessment – formal or informal
- Overall impression of the package (look and feel)
- Good and poor features of each package
- It was agreed that accessibility issues would be addressed when a short list of preferred tutorials was reached.

As a team of evaluators was involved it was essential that the review process was accomplished in a consistent manner. An in-house template had been considered for this purpose, but discussions with the LTSN for Information and Computing Sciences resulted in a template for the evaluation of online resources being provided by the Centre. A further benefit of this, considering the fact that packages can change within short periods of time, was that the exercise could be repeated in the future and the results compared with Loughborough.

5.1 Results of the review

The results of the survey were surprising. Forty-seven institutions indicated they had some form of electronic information literacy package, far more than had been anticipated. A list of the packages discovered is available from the LTSN for Information and Computing Sciences web site⁹. This is unlikely to be a comprehensive list, as some packages are well hidden on university websites or may be available in different formats.

⁷ <http://www.techdis.ac.uk>

⁸ <http://www.w3.org/TR/UAAG10/>

⁹ <http://www.ics.ltsn.ac.uk/ILS/informationsskillstraining.html>

The tutorials were divided into three types of package. Virtual tours (four), that included photographs or floor plans of the libraries with hot spots; OPAC tutorials¹⁰(nine); information skills tutorials (twenty-eight) the contents of which varied from basic to advanced searching skills and included topics such as the structure of information, keywords and Internet searching. There were two packages being used by more than one institution and seven tutorials required passwords and as such could not be accessed.

Of the 21 information literacy tutorials reviewed, four were subject specific with the remaining being generic in nature. Of these 80% gave a brief introductory description of the course, however, only 50% outlined the learning outcomes and an even smaller percentage (20%) gave an indication of how long the tutorial would take to complete. Most relied heavily on text with only a small percentage making good use of colour, images and layout of text. A high percentage (75%) signposted broad sections within a tutorial and 70% allowed participants to navigate their own route through the packages. 50% used a variety of voices, but only 25% appeared to encourage reflection and discussion.

Of the total information literacy tutorials 33% had little inter-activity throughout the tutorials, but did provide quizzes at the end of each section or tutorial. Another 30% linked to external web sites and/or databases and encouraged students to undertake “live” searches while using the tutorial. They also included at least one other activity, such as ticking boxes, using a notepad facility so that students can make notes, click on correct answers, drop and drag and question and answers. Only one tutorial, SAFARI¹¹ included more than three types of activities. The remaining 37% of the tutorials had no activities for the participants to undertake at all. One tutorial had a checklist that students were encouraged to complete before they started the tutorials, thus encouraging students to reflect on their own skill levels.

The content of the information literacy packages was variable and included the following:

- 33% included general information about the library
- 38% the library catalogue
- 24% structure of information
- 50% formulating a search strategy, including combing key words & limiting factors
- 28% selecting appropriate sources
- 42% searching databases
- 42% searching the Internet
- 19% e-journals
- 33% evaluation of references
- 42% citation

6. The way forward for Loughborough University Library?

So how should Loughborough go forward? Once the IST group had reviewed all the electronic packages that had been found, the details of the “preferred” tutorials were

¹⁰ Collated by Elaine Blair, Faculty Team Librarian, Science & Engineering, University of Leeds

¹¹ <http://www.open.ac.uk/safari>

forwarded to Academic Librarians, who are responsible for the delivery of IST. The feedback received from the Academic Librarians was mixed. Some Academic Librarians wanted a generic IST package, while others believed that the Library should be looking at subject specific packages, similar to that of GAELS¹² (Joint et. al. 2001) and those at the University of Leicester¹³ and the INHALES¹⁴ material at the University of Huddersfield. There was considerable disagreement in relation to the content, as well as the “voice” and look and feel of the packages. No one package met the needs or desires of the Academic Librarians. The IST group came to the conclusion that the Academic Librarians would prefer a package to be written in-house.

The Library still had strong reservations about re-inventing the wheel and the cost effectiveness of writing electronic IST tutorials from scratch in-house. It was therefore agreed that the IST group would look again at the shortlisted packages to see which most closely met Loughborough’s requirements and then include lecturing staff in the discussions. The Library would then contact the appropriate institution(s) to discover whether they would be happy to allow another university to utilise their materials, and whether the tutorials were easy to customise and met the requirements of those students with special needs. Loughborough has since been invited to take part in a JISC funded project led by Huddersfield University called INFORMS¹⁵. With Oxford University, Loughborough will be investigating how transferable and customisable the Huddersfield tutorials are. During the project Library staff will hopefully develop both IT and pedagogical skills that can be used to further enhance and “localise” the Huddersfield information literacy packages for Loughborough’s own needs.

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¹² http://gaels.lib.gla.ac.uk/Task6_Course/index.html

¹³ <http://www.le.ac.uk/li/>

¹⁴ <http://inhale.hud.ac.uk>

¹⁵ <http://informs.hud.ac.uk>

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