Optimising information literacy delivery to large classes: The contact or the online approach?

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Abstract

DCU Business School runs undergraduate programmes of varying sizes, from 40 to 200 students. Some modules cross disciplines and attract even higher numbers. One such module is *HR118: Skills for success* which in the last year has exceeded 200. Even this number is restrained by the optional nature of the module. Were it to be an obligatory module, the total would exceed 300.

The Library has been providing embedded information literacy sessions to HR118 since its inception, providing face-to-face training on essential resources and research techniques, together with assessment. Generally the experience has been successful. There have been some problems, mainly organisational and logistical, but the Library and module co-ordinator have resolved these as they arise.

However, the recent class size increase, and the possibility that the module may sometime become obligatory, forced the Library to devise an alternative strategy for 2008-09 – a hybrid approach which has enabled the Library to combine new technological options with traditional face-to-face engagement. There are many elements to the new programme, all designed to inform students on content, test the process and obtain feedback.

This paper will assess the progress of Library input into the module. It will consider the key nature of relationships with academics, how organisation of the Library content element has been managed over time, and evaluate student response based on diverse evidence derived from online assessment, class feedback and survey. It will examine how developments to date feed into communication with faculty and into future improvements in information literacy development. Finally, the paper will address how Library input has advanced the delivery of information literacy to business undergraduates as a whole, and consider whether libraries should actually invest more in online delivery of information literacy or keep the focus on face-to-face delivery to groups.

I. Introduction - Adapting to demand and diversity

In recent years Dublin City University and the Business School have witnessed increases in undergraduate enrolments[1] and student diversity.[2] On the student output side, there is greater emphasis on learning outcomes, the material students are expected to use for learning, and the methods they employ to produce and present assignments.

Academic libraries are expected to adapt their role to better mediate their extensive and expensive information resources, and to give students a sense of what they need to do in order to usefully exploit information. While it can be simple enough to tune into the needs of smaller classes, achieving similar outcomes for larger classes presents greater challenges. Apart from the reputed emergence the 'Google generation' or 'digital natives' (CIBER; Vaidhyanathan) and the potential for a so-called digital divide with elements of the non-traditional cohorts, perhaps the greatest real challenge with business undergraduates is the divergent information requirements in the subject interests of the students. For instance, outside of a requirement to be familiar with essential scholarly literature, the practical information needs of accounting, finance and marketing students are quite different.

The bulk of my business undergraduate training is now delivered through an optional first-year module to over 200 students. While I have recently settled on a framework that is fit for purpose for the foreseeable future, I have only reached this point after much trial and error, reflection and negotiation with all manner of (thankfully!) interested parties. Having got this far though, there is still a strong sense of contingency about current arrangements, and of course there is no telling what problems may arise in the future.

The purpose of this paper is to evaluate the current state of play from the perspective of the main actors (librarian, academic and student), and in particular to evaluate the principal aspects of delivery, which are primarily a combination of lecture theatre, Library training room workshop and online techniques.

II. The literature

Approaches to training large classes

Some universities have pursued technological, online solutions for library training of large student bodies. One of the most ambitious in this regard was the University of Texas at Austin which produced its *Texas Information Literacy Tutorial* (*TILT*) to impart a range of skills to students dispersed across faculties in multiple locations (Fowler and Dupuis). The tutorial was incorporated into the library's first year

[1] Higher Education Authority data for the four academic years from 2004-05 to 2007-08 show a steady increase of 15 percent in full-time undergraduate enrolments over that period. Precise figures relating to the Business School are harder to discern from the data, but full time enrolments in business and cognate disciplines has increased by 12 percent in the same time period (Higher Education Authority).

[2] International business student numbers at DCU (including postgraduates) have increased by over 30% to 460 students in the five years to 2007-08. Figures for DCU overall show that in the same period, the number of mature, community 'access' and disability students has doubled to almost 20% of the total undergraduate body (Dublin City University).

instruction programme as an independent preparatory exercise for students before they attended library sessions later on. In some cases, the tutorial was integrated by academics directly into their classes, after consultation with the library.[3]

Manchester Metropolitan University (MMU) also took the generic route with their *InfoSkills* package (Donnelly *et al*.). This package included materials for use in both face-to-face and online training. An *InfoSkills Online* tutorial was designed to be mediated through *WebCT*, their virtual learning environment (VLE), and to be customisable for adapting to local needs. The system was piloted on a class of 120 communications first years, with a library presentation and demonstration, followed by workshops in multimedia laboratories using the online tutorial itself. The system has since been embedded into MMU's Business School curriculum to accommodate their first-year undergraduate intake. The law librarian at MMU adapted *InfoSkills* in an entirely different way (Wakefield). An essentially pure e-learning approach was developed, with library and academics jointly promoting the VLE-based tutorial material to the students who were then expected to progress through the course and complete quizzes.

Librarians at Melbourne Law School developed a sophisticated hybrid programme of tours, tutorials, classes and quizzes centred around their *Legal Information Skills Tutorial* (*LIST*) (McLaurin Smith and Presser). The programme was aimed at a large homogenous group of over 450 first year law undergraduates and was developed in close collaboration with faculty, and with funding support from the university. Deakin University also employed an online tutorial, *Smart Searcher*, to support generic skills training (Churkovich and Oughtred). However, its use was restricted to catalogue training for first years, with more specific training being delivered face-to-face.

Not everyone uses online tutorials. Borg and Stretton reported on the delivery of outcomes to a class of 900 new business undergraduates through a combination of induction and hands-on workshops, and supplemented this with a series of seminar-style sessions using active learning exercises to engage the students. The authors wanted to avoid student boredom through reliance on 'passive' lecture-style solutions, but achieved this by applying active learning methods. Andrychuk and Coyne combined class and tutorial lecturing together with online instruction methods to deal with two large classes of 600 sociology and 800 biology first year undergraduates. Verlander and Scutt discussed the limitations of library sessions to over 200 students in a lecture environment, and how they supplemented this delivery style with tools like personal response systems and physical props, and with group work activity.

Comment on the literature

The more comprehensive institution-wide technological solutions discussed above require a large initial investment and sustained maintenance. The motivations seem to vary from top-down university-level inspired initiatives to practical responses to logistical problems with traditional delivery. However, even when e-tutorials can be adapted to local needs, the experience with these centralised solutions has been mixed. On a more local level, faculties or schools with critical mass can also provide

[3] The generic *TILT* approach to undergraduate literacy was discontinued in 2002, primarily on maintenance grounds, and has since been replaced by course-specific instruction. See University of Texas at Austin web page notice at: <http://tilt.lib.utsystem.edu/whyremove.html> [accessed 12 August 2009].

conditions for recourse to e-learning technology solutions, particularly in subject areas like law where information research skills are indispensible. However, in almost all cases, highly structured technological responses have been complemented by direct contact sessions. More pragmatic, low intervention solutions are also widely applied. Some libraries have chosen to supplement the traditional methods with technological tools, keeping face-to-face delivery very much at the core.

The literature studied suggests that after a decade or more of experimentation, technology has not dislodged face-to-face engagement with students in large cohorts. If a common thread emerges, it is that variations on hybrid models have become the norm.

III. Training business undergraduates

1. Background

The Library at Dublin City University has been providing embedded information literacy training to undergraduates at the Business School for six years. Before that, we offered standalone sessions to the first years through individual degree programmes. The standalone sessions achieved varying levels of success, but all encountered recurring problems such as difficulties getting appropriate scheduling, turnover in key liaison academics and generally low turnout.

Undergraduate training took a great step forward in the 2003-04 academic year with the establishment of a module aimed at developing academic and career skills. This "Skills for Success" module, formally known as "Group and Social Behaviour in Organisations (HR118)",[4] provided an ideal platform to apply a new information literacy programme developed by the Library during 2003.

Table: HR118 module learning outcomes

- Developing students' abilities to think reflectively about themselves and situations they find themselves in
- Providing insights into competencies required to work effectively as a team member
- Enabling students to understand the range of information resources within the university that will assist them both during their time at university and as lifelong learners
- Providing opportunity to explore some of the work options and opportunities that will be available to graduates in the future

Our participation in HR118 solved many of the Library's training problems in one fell swoop. We now had a scheduled two-hour slot to host our session. With five percent of the marks for the module allocated to Library assessment the students had a direct incentive to participate. Fortuitously, the module was scheduled for the second semester in order to give students time to settle into university life. This timing worked to the Library's advantage as, by this stage, students were expected to produce assignments, making our sessions more relevant to their needs.

[4] For an overview of the module, its objectives and implementation, see Monks et al.

For the first five years of HR118, the Library delivered hands-on sessions for classes of between 120 and 210 students. Two members of the Library's subject team ran consecutive one-hour sessions concurrently in two computer-enabled training rooms with a maximum capacity of 90 students. Each session typically covered reference resources, the library catalogue, a hands-on database demonstration (usually *Business Source Premier*), and introduced concepts of peer-review, scholarly journals, and some aspects of citing and referencing.

2. Reaching the limits of the traditional approach

The last two years have seen the emergence of operational constraints. HR118 is now attracting well over 200 business students. As turnout now averages over 90%, our ability to handle numbers using our customary approach as been called into question. In addition, a recent training room refit reduced our computer workstation count to 80. Finally, we have a small team of subject librarians with substantial teaching commitments, including for large classes. For instance, our science librarian combines lecture-theatre presentations with training room interaction for up to 220 students. Our nursing librarian follows a similar formula for around 250 students, with the additional brief of developing evidence-based research capabilities. On top of this, the subject team has been achieving 10 percent year-on-year increases in training output. This raises questions about future capacity for joint delivery of sessions to large classes, particularly at peak times.

There are potential unknowns as well. Although HR118 is an optional module, its popularity seems to increase every year. Even at current levels, we are operating beyond constraints placed by facilities and timetabling. In the event that the 'Skills for Success' model were to become mandatory, we could be looking at classes of 300 or 400. Further pressure could be added by changes in pedagogical methods at school level, such as the implementation of problem-based learning and the involvement of the Library in new methods of assignment management.

3. The emergence of a solution

We had been aware of the issues outlined above for some time now, which led us to take a number of deliberate steps. After a significant improvement in turnout in 2006-07, it was decided to survey the class the following year, particularly about session length and coverage. In the event 56 students responded (35% of the turnout on the day). Of those, 67% felt the hour-long session was the right length, while 29% felt it was too long. Four-fifths were happy with the pitch and content of the session. From free text comments, the main points to emerge were preferences for more time on library facilities, databases and journals, the catalogue, citing and referencing, and hands-on activities.

In response to these findings, we turned our minds to possible changes in approach. We initially considered pure lecture theatre presentation, and then heavy reliance on online solutions. Taking the lecture hall route, it would have been possible to develop quite a visual and content-rich package comprising slide presentations, video clips and live demonstration of selected resources. Such an approach could be assessed by online quiz, and feedback obtained electronically. I'm not of the conviction that this option should be entirely discounted. However, it is presentation-based with limited hands-on and feedback opportunities. I would see it best applied to exceptionally

large classes where it is not possible to secure enough scheduled time for separate workshops.

We could have also gone down the purely electronic route. It is feasible enough to arrange separate components like slide overviews, video demonstrations, e-tutorial modules, online quizzes and feedback forms, and possibly also VLE discussion lists or moderation of peer-to-peer communication. However, the online approach has its own drawbacks. First of all, such a radical makeover would require heavy academic buy-in, probably with mandated virtual elements in other parts of the module. Steps would need to be taken to ensure full participation and effective assessment, such as a substantially higher allocation of marks. The detachment from students raises other issues too. While feedback and assessment outcomes in a virtual environment might be adequate, certain options are excluded such as on-the-spot trouble-shooting, and less tangible benefits such as communicating with classes and comparing between different intakes – something academics take for granted with their intensive interaction levels, but also something librarians would quickly become detached from if they were to reduce or eliminate contact hours.

After due consideration, both 'single format' options were excluded. The lecture-style option didn't conform to our preference for substantial hands-on instruction and class interaction in our dedicated training facilities. The online method would have been too radical a departure from previous practice, and is not as yet necessitated either by our own operational circumstances or by the exigencies of the module itself.

IV. A new programme

1. Preparation

On account of the success of the Library's input into HR118, we considered it would be a mistake to stray too far from a formula which has delivered excellent attendance, high assessment marks, and positive student and academic liaison feedback. Key elements such as hands-on training room demonstration and VLE-mediated quiz assessment were still clearly viable, although training room activity probably needed to be rationalised. We looked at removing generic components from the training room environment and transferring these to a lecture theatre induction-type session. However two product innovations gave us scope to produce a new hybrid package with significant developmental potential.

In summer 2008 we finalised *LETS*, our Library e-tutorial for students. We developed *LETS* to help DCU students locate and use information independently and effectively. It was designed to take students through the essential steps of the research process, helping them to plan assignments, identify and find appropriate information resources, evaluate what they find, and avoid plagiarism through proper citing and referencing. The tutorial was organised in modules which could be taken as an entire self-directed learning programme, or consulted occasionally for revision. The potential of *LETS* for the delivery of information literacy was clear to us during the product development phase, so when the tutorial formally went online in late 2008, we decided to exploit it in the reworking of our HR118 input. The other development was our acquisition of *TurningPoint* personal response software and remote clickers. We decided to use these to get student feedback at the actual training sessions.

The information from the 2007-08 class survey was very useful for our deliberations. General satisfaction with the time allocation confirmed that, within our module brief, no major change was necessary. In response to the free text comments, we considered adding a segment on the library catalogue into the lecture presentation, and a brief overview of general facilities. We considered dedicating more time to databases and journals. However this would probably not be feasible, and would be better left to follow-up sessions.

Finally, we considered incorporating a citing and referencing component into the programme. This was considered as a discrete element for a draft programme. However in our experience, training on citing and referencing, and on using associated software (in our case *RefWorks*) requires specialist delivery and a considerable time commitment from both librarians and students. Live training could not be prioritised within our time constraints. If we were to develop this aspect, we would have to investigate self-directed learning options.

We ultimately put together a draft programme which was initially presented to the HR118 module coordinator in December 2008. After adjustments on timing and some fine-tuning with the module coordinator, the programme outline (see Table 2) was finalised in January 2009. The programme was delivered the following March.

Table 2: HR118 programme

- A single 30 minute session at a HR118 lecture in week 3 of semester 2:
  - To introduce library resources (catalogue, periodicals/journals, subject portal, database lists, *LETS*) and
  - To highlight key concepts such as peer-review, scholarly journals and plagiarism
- Recommended self-directed study of first three of the four *LETS* modules and completion of the short *LETS* tests (voluntary)
- A 20 minute Library training room session for each of four groups of 50 students to familiarise them with advanced search features in *Business Source Premier*, and the development of search strategies (week 4)
- Online quiz comprising 10 questions on the material covered in the three components above. The quiz accounts for 5% of module marks and is kept open for a full week

2. Outcome of the new programme

Turnout and assessment marks matched the high levels of the previous years. The 30-minute lecture theatre session went a little over time, but as the students maintained their level of attention and enthusiasm throughout, we felt that next time out we might extent the generic session to perhaps 40 or 50 minutes. This would allow us to introduce the basic features of a database or two, including *Searcher*, our new federated searching tool.[5] We would not be proposing to shift database demonstrations to lecture theatre by stealth, but to allow for a more practical focus in Library training room sessions.

[5] Federated searching is a tool for inquiring across a range of library-mediated scholarly resources. It can be a comprehensive search across all resources, or limited to specific subjects (e.g. business) or resource types (e.g. e-journals, statistical sources).

If we had any fears for the revised programme, it was on the logistics of delivering four 20-minutes sessions to groups of 50 students within our two-hour allocation. These fears were compounded by the decision to pilot the new *TurningPoint* personal response software. However, the organisation went like clockwork with each group arriving exactly on time. The 20-minute allocation was conservatively judged to guarantee turnaround on the half-hourly deadlines. However, the efficiency of the module coordinator in delivering the students on time ended up allowing us extra breathing space to run the hands-on training and to organise the feedback. So in reality, the students got the benefit of practically all the 30 minutes available to each group.

As for the live feedback element, the main object of the exercise was to find out directly from the students themselves what resources they prefer when they gather material. We did not expect them to be particularly up to speed on e-journal searching, and we assumed there would be significant reliance on *Google*.

We already knew from our own data that there was high general usage of our principal general business e-journals database, *Business Source Premier (BSP)*. What we also knew was that *BSP* was being heavily used in the months just after we acquired it, before we had the chance to offer training. This suggested two possible conclusions: that the database was user-friendly enough for independent use; and that, because of the volume of downloads, many of these users must be undergraduates. We could not of course assume that a large portion of the undergraduates was first years.

We proposed to test student response at the beginning and end of each session. The first set of three questions was:

- 'Do you use *Google* to find material for your assignments?'
- 'Do you use any Library databases like *Business Source Premier* or *Emerald*?'
- 'Which do you prefer to use?'

The responses were not unexpected: 99 percent used *Google* and 28 percent used subscribed databases. The preference for *Google* was, at 78 percent of respondents, overwhelming, with only six percent opting for the e-journals databases themselves. No preference was expressed by the other 16 percent.

The students were then introduced to the basics of searching an e-journals database, using a search for human resource management material from *BSP* as an example. We demonstrated synonyms, wildcards, subject and abstract limiters, and selecting scholarly articles. After an exercise and an opportunity for informal feedback, we attempted to get some harder data on how their search preferences might have been influenced by the practical session. The students were asked if they found *BSP* easy or difficult to use, and if they would in future use *BSP* to find material. Again, we were not surprised by the outcome. First, 76 percent indeed found *BSP* easy to use, nine percent found it difficult and 15 percent had no opinion one way or another. As to the follow up question, 58 percent said they would 'definitely' use *BSP* in future, 36 percent 'probably' and six percent not.

This feedback confirmed the value of the practical session. Student awareness of access to scholarly material through subscribed databases was clearly improved. Also it appeared that students would be more likely to resort to easy-to-use subscribed databases for at least some of their resource requirements.

On the practical side, the *TurningPoint* software was relatively easy to use. Software set-up in the training room and general help was administered by a technical support librarian. The questions were easy enough to produce and present to the class. Students seemed to find the remote clickers to be straightforward enough, although the response rate for the final question was 20 percent higher than that for the first question.

V. Conclusions

1. The hybrid approach works for us – for now!
Each student receives one contact hour through the lecture theatre and training session. Apart from the advantages for librarians of dealing directly with students, we are of the view that the 'in-person' element also enhances Library relations and communication with undergraduates who are still coming to terms with university life. We would be enthusiastic about maintaining this aspect of the programme. In the coming years I would envisage possible extensions to the lecture theatre segment, adding generic content especially where it can be augmented by online material, such as video clips on using specific resources. I think realistically there are limits to the lecture theatre option in terms of attention span and opportunities for interaction. Consequently, in the absence of unexpected adverse conditions, I'd be reluctant to go beyond a 50-minute slot. On the other hand, I'd be prepared to shorten hands-on training session slots to a highly focussed 20 minutes. However, I would only recommend this as a response to having to deal with greatly increased class sizes in the same two-hour slot. Within these broad parameters, a combination of lecture theatre and training room sessions are still the conceptual communication and hands-on core of Library involvement in HR118.

We are augmenting our contact hours delivery with online tools. While initially, the only online mediation took place through our VLE quiz, we are now extending our exploitation of technology by using aspects of our e-tutorial *LETS* and personal response software. All these features could be more widely used in future. For instance, we foresee a greater potential role for *LETS* in self-directed learning, particularly for citing and referencing. There is also further scope for greater use of VLE quizzes to support self-directed learning. I don't envisage using *TurningPoint* personal response software much more than for on-the-day feedback, at least for now.

Over the next couple of years I expect the online component of our modestly hybrid delivery to increase, probably by upgrading the use of the tools just discussed as needs arise. Other components may be integrated into our programme in time, such as customised Library-generated video clips on specific information resources, or more thorough feedback and survey instruments.

2. Liaison is key
Close communication between library and faculty has been at the heart of our participation in HR118. Ever since the module's inception in 2003-04, we have had direct lines of contact with the original instigators of the concept, and successive module coordinators. Apart from routine organisational aspects, we also liaise on development matters. For instance, at one point attendance was starting to fall off badly. Attempts to solve the problem through routine arrangements met with limited success. The problem was raised and resolved at a senior level and turnout has been on the rise ever since.

We introduced the revamped 2008-09 programme through direct negotiation with the module coordinator. Future developments, such as an extension of the lecture theatre element or the securing of additional scheduled time for hands-on training of larger classes, will require close liaison. Similarly, if we want to raise the profile of self-directed elements in the Library programme, we'll need to make a clear case to the relevant academics in order to integrate our offer into their learning outcomes. We hope the successful application of online tools and the gathering of evidence from session feedback will demonstrate the benefits of our approach and help us to continually improve the student experience.

3. Flexibility and responsiveness is essential for development
With an undergraduate population of about 6,000 students distributed across 16 schools, DCU Library should be able to deliver information literacy training with a substantial face-to-face component for the foreseeable future. Factors which might force us to revisit this policy would include top-down decisions to deliver university-wide or multi-programme instruction. In light of experience in other universities such as the University of Texas at Austin and MMU, it is unlikely that a one-size-fits-all mandate would issue here. As to more local environments, it is not beyond possibility that an individual school might look to compulsory models for life skills or research-type courses. In such a scenario, where student numbers exceed a certain level the feasibility of workshops might then come into question, and we would have to revisit the possibility of primarily online delivery. Should this come to pass, we have through our hybrid delivery method enough tools in place to respond to new prerogatives. Such a scenario is unlikely, so a sensible, responsive development of our hybrid information literacy delivery to students should offer challenging and fascinating opportunities in the years to come.

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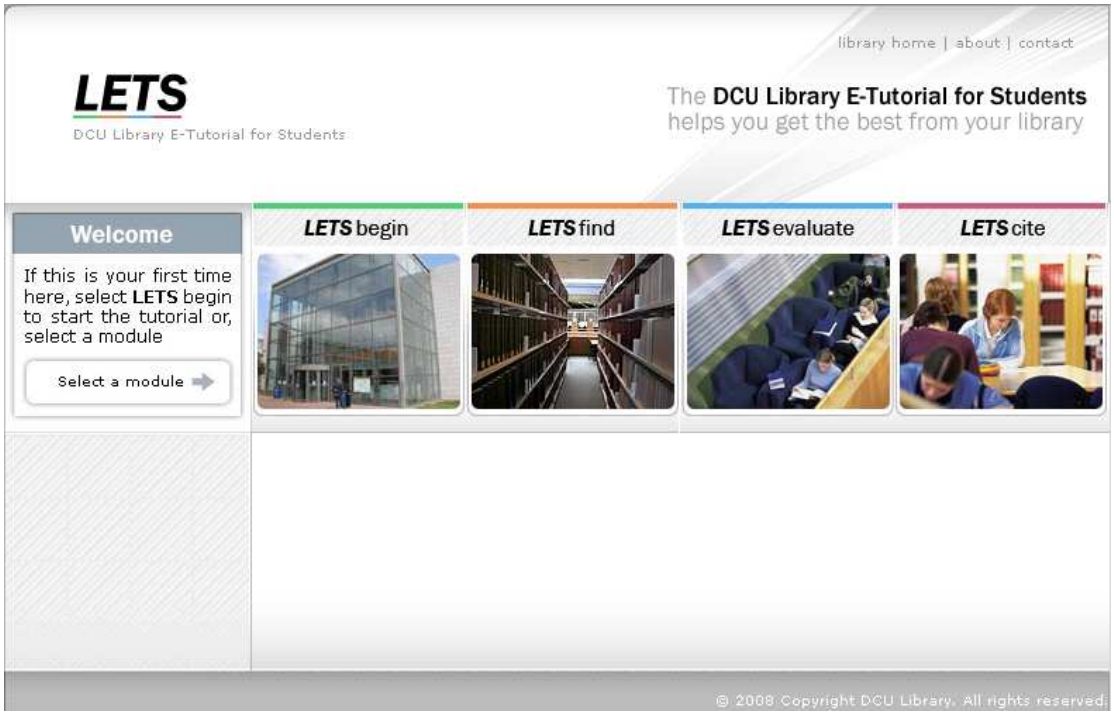
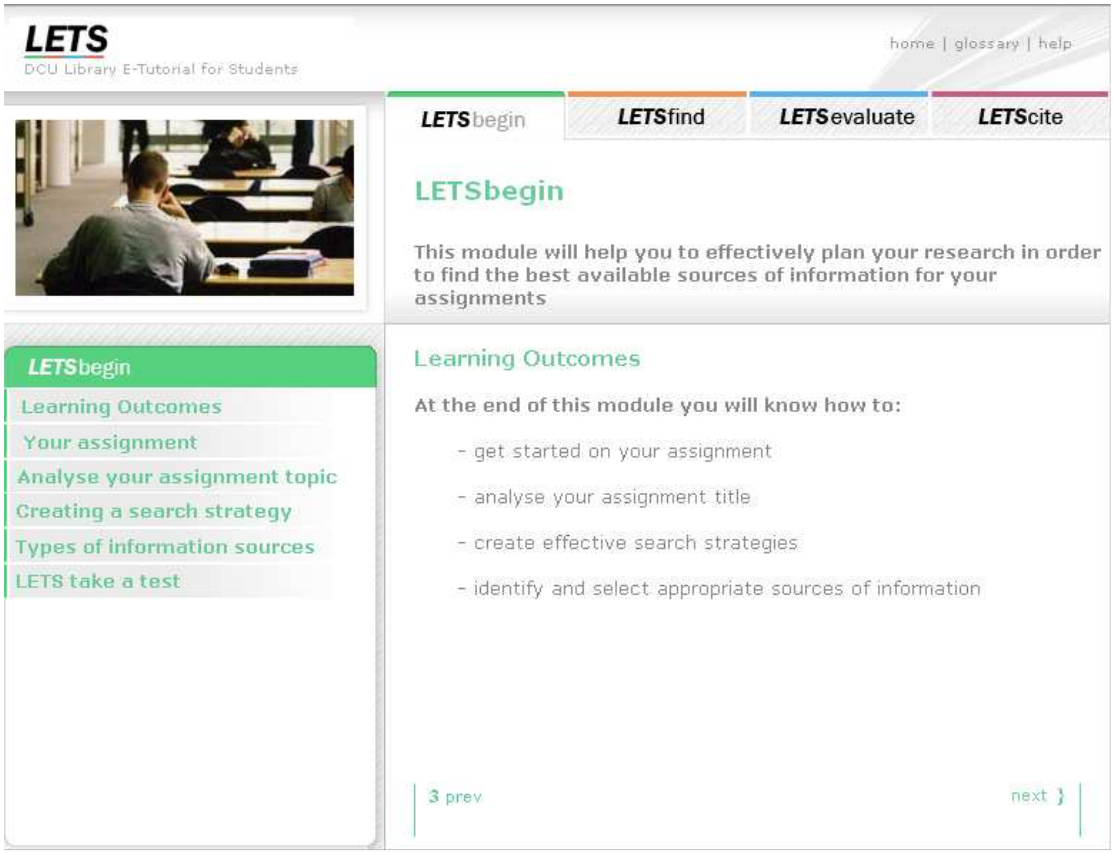
Appendix 1: LETS home page



Appendix 2: LETSbegin learning outcomes