Embedding information literacy skills as employability attributes

Serengul Smith, Principal Lecturer, Programme Leader and Learning and Teaching StrategyLeader, School of Engineering and Information Sciences, Middlesex University. S.smith@mdx.ac.uk

Adam Edwards, Liaison Manager Engineering and Information Sciences, Sheppard Library, Middlesex University. A.edwards@mdx.ac.uk

Outline

There is clear evidence that graduates, in general, lack the personal skills, attitudes and behaviors needed for success in the workplace. For university students, gaining employability skills such as information literacy, reflective thinking and writing skills throughout their education is now more important than ever. British Universities have been increasingly investing in various strategies to ensure that their graduates are fully equipped with knowledge and transferable skills and are able to respond to the changing needs of the job market.

With the heightened need for our graduates to be employable, the focus has grown from academic literacy to include 'workplace literacy'. However, these two should not be considered separate entities but rather a development from one to the other.

At Middlesex University an intra-university team has built a framework to target the development of academic and information literacy as well as graduate employability. The team comprises staff from the School of Engineering and Information Sciences (EIS), the Learner Development Unit (LDU) and Learning Resources (LR). This paper aims to share our experiences at Middlesex University in devising such a collaborative strategy. We will also discuss the results of our work so far, including the changes which have been made and the results of a survey to show the impact on the students' progress.

The Beginning

There is a clear indication that science and engineering students, in general, lack employability skills (King 2002) and they have the misconception that these skills are not necessary in industry. However, regardless of a student's program or discipline, employability skills are critical for success in the workplace and the challenges educators face in aiding students to develop these skills have increased substantially.

Students often arrive at university not realizing that they will need sound information literacy skills, the ability to filter and evaluate the most appropriate sources for research nor that they are expected to read and write reports and essays at academic level. It is crucial that university students are aware of the academic and professional development responsibilities they need to undertake in order to progress to an expected level. They are also expected to enter their careers with the capability for continuous professional development.

Over the last couple of years there have been several attempts to incorporate information literacy skills into various modules within EIS. However, a school report on this trial and subsequent consultation with the LR team has highlighted a number of issues such as weak

consultation and collaboration between academics and LR.

In the summer of 2011 several meetings with the EIS Academic Dean, the Learning and Teaching Strategy Leader (LTSL) and Learning Resources were held. The aim of these meetings was to overcome previous problems and target the provision provided to the students. In this way a larger number of students would receive help and the teaching would be more efficiently and effectively delivered.

It was decided by the LTSL that the embedding would focus on EIS programmes and not modules, and the information literacy and communication skills would focus on those needed in academic and professional environments by following the Confederation of British Industry (CBI) guidelines for employability. The CBI Employability Guidelines have been mapped onto sessions provided by the LDU and LR. Further, in order to create a seamless integration of the LDU and LR academic and professional development sessions into the student learning experience, the LTSL has worked closely with LDU and LR staff and module leaders to identify those sessions that are most appropriate in terms of the module's practical activities and assessment. Subsequently, the module leaders have scheduled these sessions within the normal module timetable. This means that all students take these sessions as part of their study, and these are also tied into their module content, assessment and practical work. At present this initiative relates only to 1st year modules, however the strategic plan aims to extend this into 2nd and 3rd year modules.

Embedding our work within the syllabus of each programme has not only raised student awareness of our existence but also of the importance of each of these aspects (information literacy and academic/professional literacy) in their academic work. Online surveys have been conducted to elicit data on the marks gained for the linked coursework, the skills and knowledge retained by the students and the views of their tutors as to whether this has made a real difference to the quality of the work the students have produced.

The librarian's perspective

For Librarians, there are a number of advantages to the approach outlined above. In this section we look at how this is beneficial for the management of the teaching we do, the changes in methods we have implemented to improve our teaching and the evidence, limited for now, that this does indeed have a positive impact on student's marks.

Management

The first and in many ways most important benefit of this new collaborative working is that the School has agreed to the plan. When negotiating with academic staff for slots to teach the students, the fact that this is a plan the School wishes to see implemented gives the request more weight.

The collaborative planning of the training means we avoid previous problems of duplication. For example, if the Library knows LDU are covering plagiarism in a session, then we do not. The planning has also meant a much greater understanding by Library and LDU of the matrix structure of the undergraduate programmes. This has then meant we have not fallen into the trap of teaching students the same thing twice. For example, for one large module we did not see several lab groups as we knew they would see us through a different module.

For the Library part of the training, the Librarians created a series of sessions to be run over the three years of the undergraduate programme. This is broken down into a "menu" 30 minute segments. Depending on need or time available, the material we use can be easily

rearranged to suit specific needs. Indeed a plus of this has been taking some first year elements and using them for third years who are direct entry and therefore unfamiliar with UK universities and how their libraries work. This menu was then shared and agreed with School and Learner Development Unit staff to ensure no unnecessary duplication.

Methods

At the same time as the Librarians were meeting with School and LDU to discuss collaborative working, we were also looking at different ways of presenting our own material. A small working group comprising the author and two colleagues, Kate Healy and Vanessa Hill, met to work on ideas for better training sessions. Our key aims were to:

- Shift away from teaching as "death by Powerpoint" and the laborious following of step by step instructions. (The behaviourist approach frequently adopted by library trainers, Montiel-Overall, 2007.)
- Make the sessions problem based by relating them to a live project in the curriculum. (Diekema et al, 2011)
- Develop learning through games and group activities, rather than teacher knows best. (A more constructivist approach to learning, Wang 2007.)
- Improve quality by resisting the temptation to cram in material. Less is, we believe, definitely more, to allow students to reflect on and absorb their learning. (Chen and Lin, 2011)

Examples of the games and activities used are in Appendix 1.

Does it improve their marks?

We know from the work at University of Huddersfield that there is a clear link between those who use library resources and those who get higher class degrees. Might we see any evidence of this at Middlesex?

In January 2012 we ran a short survey of second year students we had seen earlier in the autumn term. Of those completing the survey there were 66 attendees and 22 non-attendees at the library sessions. This was 88 students out of a total of approximately 210, 151 of whom had attended our two training sessions.

The results for those attending show they get better marks. The commonest mark for those attending being 65% and those not 50%. The highest mark for those attending was 90% and 75% for those not. Bibliography marks were higher too. There would appear to be some evidence that those attending the library sessions do indeed do better. But were they searching more effectively?

Search tools used	Attendees	Non-attendees
Google	68%	63%
Wikipedia	38%	27%
Summon (discovery tool)	**68%**	40%
Library catalogue	30%	**59%**

The project this group worked on with us in class was about the Cornish villages 4G broadband trial, agovernment funded pilot to improve connectivity to rural communities in

south west England. A clear result from the survey is that the non-attendees relied heavily on the library catalogue. However, as we had explained in class, the information on the topic is such that only with the use of newspapers and journals would the actual project be found, as it is too recent to have featured in any book. Thus Summon would have to be used to find information from library resources. We also teach the students that Wikipedia can be used, but with care.

Finally, the data on evaluation criteria shows those who attended are much more aware of the importance of academic authority. The non-attendees preference for easy to read material has been unsurprising to Librarians but raised understandable concerns when presented more widely to academic colleagues not involved directly with this group.

Evaluation criteria	Attendees	Non-attendees
Current	89%	59%
Relevant	76%	59%
Academic authority	**67%**	41%
Easy to read	24%	**45%**

However, we need to treat the results with caution. The Huddersfield study shows that there are a significant number of 1st class graduates who do not use the library at all. So are the attendees simply those who would do well if we did nothing at all?

Other concerns are that a large number of students, nearly one third, did not attend. Many also responded to the survey to say they already knew how to use the library so did not need this session.One student went so far as to say this:

> "I don't think library training is relevant... I expect to have a real lesson"

Yet the latter two tables of results would suggest they actually do not know. How do you make them appreciate library training is a real lesson too? Should this be compulsory?

We see the answer as even closer working between School, Library and LDU. Despite the planning and closer working, we still have to ask for time to see students. The ideal should be that the library and LDU teaching is a fully integrated part of the curriculum, with this reflected in the aims, learning outcomes and timetable for all our programmes. There is an opportunity to do this over the next few months with the revalidation of the computer science programmes and it is one we intend to take.

Conclusions
Our school level frameworkhas aimed to embed the development of academic and information literacy as well as graduate employability seamlessly into the program curriculum, by integrating module content with input from the LDU/LR services.

Our collaborative work has also aimed to prevent a tick box approach by:
- Fully embedding the development of employability skills into the curriculum
- Integrating the specialist input, appropriate for the Computer Science and Engineering students' needs, offered by central units directly into the curriculum

- Ensuring that staff are aware of the relevance of the sessions to their modules and, by tying sessions in to module related case studies and projects brings together the expertise and experience of subject specialist staff and skills and support specialists

This is only the first year of working in this new way. The new collaborative management structure is helpful to all and is making delivery more efficient. Our changed methods are making sessions more fun for both students and librarians, whilst also allowing space for more reflective learning. But above all else, we can now begin to show some measure of impact in line with studies elsewhere. Or as we say to the students, library training gets you better marks.

References
- Chen, K. and Lin, P. (2011), Information in university library user education, *Aslib Proceedings*, 63 (4), 405.
- King, T. (2002), *Development of student skills in reflective writing*, http://www.osds.uwa.edu.au/__data/page/37666/Terry_King.doc [*a*ccessed 01/06/12]
- Diekema, A.R., Holliday, W. and Leary, H. (2011), Re-framing information literacy: Problem based learning as informed learning, *Library and Information Science Research*, 33, 262.
- Montiel-Overall, P. (2007), Information literacy; Toward a cultural model, *Canadian Journal of Information and Library Science*, 31 (1), 45.
- Wang, L. (2007), Sociocultural learning theories and information literacy teaching activities in higher education, *Reference & User Services Quarterly*, 47 (2), 150.

Appendix 1: The full project team

• Paul Bernaschina, SL English for Academic Purposes, Learner Development Unit
• Adam Edwards, Liaison Manager for EIS, Learning Resources
• Vanessa Hill, Liaison Librarian for EIS, Learning Resources
• Serengul Smith, Principal Lecturer, EIS

Appendix 2: Games and activities we use

These ideas evolved into some worked out activities which are as follows:

Thinking about resources game

Inspired by a workshop at the LILAC 2011 conference, this is a simple card game designed to get students thinking about the five main types of resources they will find searching for information. The five resources, books, web pages, newspapers, academic journals and popular journals are then matched to a definition and a good for and not so good for card. This is done in groups of three and each group is then invited to feed back on a resource. Discussion then ensues on the good for and not so good for aspects of each resource. This enables us to cover the problems of relying too much on the internet and the virtues of the peer reviewed paper. The assumption is that through activity and discussion, deeper learning occurs than if this were simply us talking to slides.

Keywords

Before we let the students explore our discovery system Summon, we get them to think about keywords, starting with an image, deliberately chosen to be not computer related. We then ask for what the students see. Computing students see fruit on the market stall, design engineers tend to see colours. We then ask for more detail. For example, the people in the picture could be customers, the stall holder, passers by and can be categorised as old or young, male or female. We ask the students to think of wider terms, such as business competition (there is a supermarket behind the stall), health (five a day) and the like. We finish this with a discussion of the fruit likely to be confused with technology, apple, orange or blackberry.

We then run the same exercise, but with their real project so they can see the difference this makes to the words they use.

Hands on

For first years, we then get them to apply the keywords to our Summon search engine, which searches across the library catalogue and all our e-journals. It also has a handy built in Harvard reference generator. Even the most sceptical student is won over this activity. We don't set them a search to do, we ask them to explore Summon using the keywords they have and then to tell us what they found. As they search we go round the groups offering advice and pointing out the refining tools and reference generator, if they don't find it themselves.

Evaluation

We then as a final group activity ask students to evaluate a sample set of search results (a website, newspaper article, trade journal article and academic journal paper) and again discuss what we have found.