

Embedding a curriculum-based information literacy programme at the University of Bedfordshire

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Introduction

This article describes the development of an information literacy programme that was embedded into the Psychology curriculum during 2007-2008. The programme was a collaboration between a faculty librarian and the Department of Psychology and utilized a blended learning approach along with a variety of teaching and assessment methods. This paper also reports on the initial findings from an ongoing evaluation assessing the impact of the programme on students' learning and information skills development.

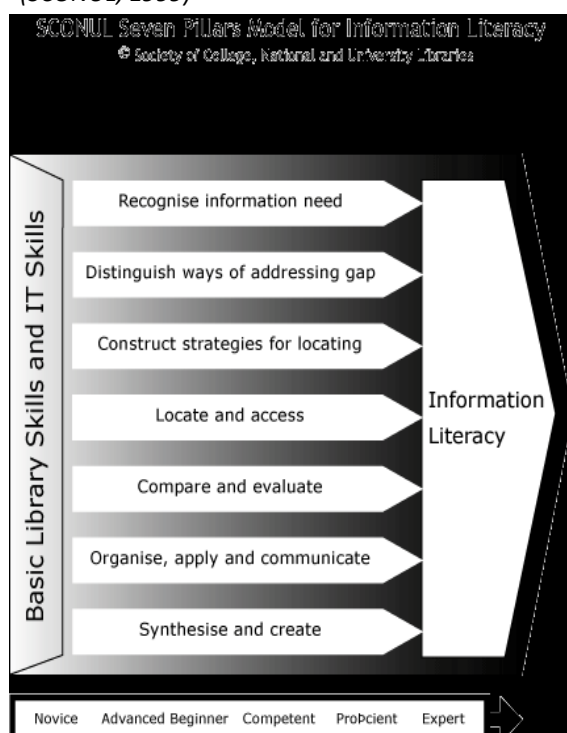
There had been an acknowledgement within the Department of Psychology and at broader University level of the importance of supporting students' and graduates' employability. Indeed, when the University undertook a curriculum redesign in 2008 (known as CRe8) the University recognized that 'there are four core skills areas at

the core of 'graduateness' and employability that the University expects all courses to emphasise: communication; Information literacy; Research and evaluation; and creativity and critical thinking' (University of Bedfordshire, 2009). The development and implementation of an information literacy programme was therefore aligned closely with the University's goals at that time.

What is information literacy?

The significance of information literacy has been highlighted by librarians for many years. In 1999 the Society of College, National and University Libraries (SCONUL) produced its 'Seven Pillars of Information Literacy', a position paper describing a model of information skills. In essence the model showed how students start as novices with basic library and IT skills and by working through the seven pillars become experts in Information literacy as shown in Figure 1.

Figure 1: The '7 pillars' of information literacy (SCONUL, 1999)



This model was promoted both in UK Higher Education institutions and around the world to librarians and teachers to aid them in delivering information skills teaching; the paper also noted the importance of information literacy programmes having 'clear aims and [being] based on sound pedagogic foundations'. Similar standards were drawn up internationally. In the US, the Association of College and Research Libraries developed its 'Information literacy competency standards for higher education' in 2000, while at the same time in Australia and New Zealand a set of core information literacy principles were being postulated by the Institute for Information Literacy (Bundy, 2004).

The SCONUL standards have recently been updated to reflect the 21st century learning environment. This new model 'defines the core skills and competencies (ability) and attitudes and behaviours (understanding) at the heart of information literacy development in higher education' (SCONUL, 2011, p.3).

Importance of information skills

The usefulness and relevance of information literacy (IL) skills for successful completion of academic study is recognised internationally as being 'central to the mission of higher education institutions' (ACRL, 2000). There is also recognition of the significance of information literacy to student's employability. A survey of its alumni undertaken by Glasgow Caledonian University found that the 'link to the employability agenda was notable', and that former students saw it as 'a skill ... increasingly sought by employers' (Crawford, 2005:20).

There is an imperative need for students to acquire good IL skills to be able to retrieve relevant information, critically evaluate it and use it in a legal and ethical manner, both for their assignments and in their professional life (Crawford, 2005). However, Hayes-Bohana and Spievak (2008) found that students struggled to access and use information effectively, and that they often had little understanding of the importance of using good quality information resources.

What is the optimum delivery to enhance information literacy?

So how can educators teach students to become information literate? A variety of studies have been carried out into the optimum means of transmitting information skills to undergraduates. These have included the methods of delivery (Sharkey, 2006) and types of assessment (Salisbury & Ellis, 2003; Sonley *et al.*, 2007).

Faculty-librarian collaboration has been shown to be the most effective means of developing a relevant, timely, programme of information skills training (Lampert, 2005; Paglia & Donahue, 2003) that is more than 'just one shot' at a teaching session (Artman, *et al.*, 2010). Effective pedagogy has also been related to the nature of the task with practical, assignment-related tasks more likely to engage students than does a theoretical lecture (Walton, *et al.*, 2007; Partridge, Baker & McAllister, 2008). Parker & Freeman (2005, n.p.) noted that embedding information skills teaching into the course and making it relevant to students' topics had a high impact on their subsequent results.

Designing and delivering the programme

When designing the information skills programme within the the Department of Psychology undergraduate course we were cognisant of the

need to work in close collaboration. As Meldrum & Tootell comment (2004:50):

...there needs to be close collaboration between all educators Collaboration works well when there is an acknowledgement of the academic's in-depth subject knowledge, the librarian's information literacy competencies and their combined teaching experience and knowledge of the problems students experience.

We took care to use a systematic approach to planning, in order to create 'engaging and effective educational materials' (Anagnostopoulou, 2002:2). Students are more likely to learn if course designers have structured their learning materials using proven theories and models of instructional design theory such as the widely-used ADDIE model noted below:

- Assessment and analysis of need
- Development of course outline
- Development of content
- Implementation of the course
- Evaluation of its effectiveness.

Thought was given to the selection of appropriate methods to achieve the desired learning outcomes and we also tried to take different learning characteristics into account; if one method is used to deliver all teaching within a programme, those students who do not engage with that particular method will soon become disaffected.

Delivery methods can be transmissible, transactional or transformational (Haywood, 1997). Transmissible methods use directed instruction, such as workbooks containing practical tasks, or lectures that provide factual information. By using the transmissible approach to teach the students how to search the resources available to them we hoped to enable them to apply the skills they acquired to carrying out their own searches as they progressed through the degree programme, with repetition of the process for each assignment reinforcing their learning and refining their skills.

Lectures and presentations traditionally used to deliver information to large numbers of students, were discounted due to the very 'surface' nature of teaching, which do not necessarily cater for different learning styles. The National Training Laboratories' Learning Pyramid (Markless, 2006; Powis, 2005) asserts that the average retention rate for 'practice by doing' is 75%, as opposed to 5% for information delivered by a lecture.

Moreover, students do not learn how to access electronic information resources effectively by watching an hour long presentation; hands-on practice is needed in this context (Breivik, 2006; Rogers, 2007). For this reason, presentations within the programme were limited to a brief 15-minute introduction to the details of and rationale behind it and students quickly move on to practical exercises.

Transactional methods use a scaffolded and student-centred approach which has been shown to be effective in reinforcing a student's learning. Star and McDonald (2007), for example, have described how 'curriculum design should be informed by a developmental approach aimed at scaffolding student learning by building their independent learning'. Problem-based learning based on real situations applies theory to practice, and tailoring the subject of the information skills sessions to the assignment topic helps students to realise their relevance, something that has been identified as an important factor in engaging them in the process, and which allows deeper learning to take place (Meldrum & Tootell, 2004). Self-directed learning in the form of 'homework' is then used to reinforce the skills that the students should have learned through completing the worksheet.

Transformational methods involve the student in critical thinking and reflection, the final stage of Kolb's learning cycle (Kolb, 1984), with the instructor a partner in the learning process. They help students to transform information into knowledge through active learning, reflection and a wider understanding of the context of the material through critical and independent thinking. This deeper approach is used to encourage students to develop their own search strategies, which are harder skills to learn and require more creative thinking.

The various levels of information literacy identified by SCONUL can be aligned to the six cognitive stages of Bloom's taxonomy (Bloom, et al., 1956) to create succinct learning objectives. The list below also includes the tasks that students worked on associated with each level;

Level 1: Knowledge – ability to locate information

The first assessment that students undertook in a core tutorial class was to locate information and complete a practical workbook-based exercise on searching the online catalogue and Digital Library.

This workbook included a pre-planned database search demonstrating the stages of devising a search strategy.

Level 2: Comprehension – ability to understand information

Students took part in a short *Keypad* exercise on the characteristics of different types of information resources; this allows for learning to take place as they submit anonymously but were able to learn the correct answers and gain some understanding of how to choose the best resources for the task at hand.

Level 3: Application – using learned information skills in a new situation

Students then had the opportunity to apply and reinforce the skills they had learned so far by collaborating in groups of 3 or 4 on an exercise to plan and execute a general search for information resources related to their topic.

Level 4: Analysis – evaluation of information retrieved

Students also needed to be able to demonstrate that they could critically evaluate the resources they had found. This was achieved by explaining to their tutorial group why they had chosen their resources, based on evaluation criteria contained in several online tutorials that they had been directed to. Students were also provided with downloadable helpsheets containing information about the characteristics of different types of resources.

Level 5: Synthesis – critical thinking

Once students had received their initial feedback from the group exercise they were able to use it to apply their new skills and understanding of the search process to create their individual search plans and carry out a more detailed search.

Level 6: Evaluation – ability to evaluate their own learning

The final self-assessment took place when students submitted a reflective exercise on the search process. They were provided with prompting questions to help them to get started; for example, how successful they thought their search had been and whether or not the keywords they chose were appropriate, what they might do differently and finally how confident they now felt about looking for information. The programme is outlined in Table 1.

Table 1: The information skills programme

Activity	Worksheet on using the online catalogue etc.	Individual search exercise for resources relating to topic	Group submissions of results of individual searches	MCQ quiz to assess understanding of characteristics of information resources	Refinement of individual search strategy	Reflective exercise on the whole search process	Plagiarism quiz to assess knowledge and understanding of ethical issues
Method of delivery	Word document: downloadable worksheet for completion and exchange by email	Word document: downloadable worksheet that directs them through the search process	VLE (BREQ)	Keypad presentation	E-portfolio: template on PebblePad	E-portfolio: template on PebblePad	online tutorial embedded within VLE
Learning objective	2: Gain knowledge of resources available	1: Recognise the need for information 3: Plan and carry out a search for information	4, 5 & 7: Evaluate, exploit and communicate results of research	2: Gain further knowledge of resources available by developing	3: Plan and carry out a search for information	4, 5, 7 & 8: Evaluate the results retrieved, communicate	6: Understand the ethical and responsible use of information
Learning level	1: Knowledge	3: Application of acquired skills	4: Analysis - evaluation of information retrieved	2: Comprehension	3: Application of acquired skills	5 & 6: Synthesis and Evaluation	2: Comprehension
Assessed Method	Completion of worksheets and checking by peers	Peer (group) assessment of individual searches	Group assessment by librarian		Librarian assesses submission via PebblePad template	Librarian assesses submission via PebblePad template	Online tutorial – gives immediate feedback for self-assessment.

There were a number of reusable learning objects available in the form of online quizzes and exercises on plagiarism and copyright issues. Rather than spend time recreating such resources, the prospective course provided links to them and each student is expected to complete them before starting to write their first assignment. Students received immediate feedback in the form of their score, and could retake the tutorials as many times as they wished, helping to reinforce learning. This activity was complemented by the University of Bedfordshire's own referencing guidelines, available online.

Assessing learning

Another issue to consider when embedding information skills into the curriculum is that of assessments. The teaching and assessment activities have to be constructively aligned to the stated learning objectives (Biggs, 1999); matching them in this way will help to make the learning

and assessment process more meaningful. Indeed, there is no point in assessing for the sake of it. Likewise, students can be reluctant to undertake a task if they cannot perceive the need for it and are often only extrinsically motivated, only undertaking work when they feel that there is an assessment attached to it. Indeed, it was notable in this programme that at each level, year on year, only around 32% of students submitted the information skills homework until it was weighted at 5% for the unit, at which point completion rates rose to over 95%.

We utilized a variety of assessment strategies in order to enhance deeper learning, fostering working collaboratively with others and developing communication skills. This would ultimately support graduates when they entered the work place. Specifically, the collaborative exercise planned for the group search strategy, where students' knowledge and comprehension

was informally assessed in the tutorial setting, was aimed at enhancing deeper learning. The preparatory discussions that took place before the group presentation offered the opportunity for greater learning to take place as more than one point of view could be put forward; existing learning experiences brought to the table, and different sources of information shared. Mature students in particular could also contribute a variety of experiences from the world of work.

It was planned that presenting work to their peers would promote active learning by helping students to understand the material. However, many students were naturally cautious about speaking in front of their peers, especially at Level 1. Being able to present in a small group helped to allay some of these fears, especially when they were allowed to divide up the delivery between themselves.

The final piece of work in the programme was that students were asked to upload their individual information skills work to their PebblePad portfolios. E-portfolios have developed in response to the change in emphasis to student-focussed and individualised learning, as well as the need to provide support for lifelong learning and employability (Richardson & Ward, 2005). They provide a personal learning space where students can upload, store and share materials as well as providing tools such as reflective logs. The use of e-portfolios for assessment and reflection is a user-centred technique that promotes independent learning and encourages the students to think actively about the process of becoming information-literate and hopefully to understand its importance both for their studies and in their professional lives. It is more labour-intensive for the tutor as it requires targeted and individualised feedback, when 'detailed, time-consuming feedback is normally given' (JISC, 2009:24), but this also encourages deep learning.

The final part of this homework involved the students reflecting on their personal experiences of the programme, noting down the success or otherwise of their search for information and evaluation of it. Reflective exercises are a form of self-assessment and are particularly valuable as they help the student to become a reflective and independent practitioner. By using this method students are also able to engage in meaningful interaction with the tutor through feedback, as it allows a much more personal and individual perspective to come through, thus enabling deep

learning. Engagement of students in this process varied widely, with some contributing little while others gave detailed feedback on their journey.

Assessing impact

The true test of the success or otherwise of the information skills course can be measured in the quality of the students' assignments; the purpose is to help students develop skills that will enable them to write a well-informed piece of work that shows critical analysis of the literature. Although there are many drawbacks in trying to measure the success of an information skills programme purely from students' written work (McGuinness & Brien, 2007), being able to assess their learning at each stage of the process through the different levels of information literacy provides a much better-informed and realistic appraisal.

A variety of methods have been used in the past academic year (2010-11) to assess student learning, to capture attitudes, confidence and actual understanding. Students completed pre- and post-instruction skills self-assessment questionnaires developed by the librarian, assessing their confidence levels at a range of tasks; 50% of Level 1 students (113) completed both questionnaires in the academic year 2010-11.

Some questionnaire results:

- 55% improvement in confidence in accessing databases
- 41% improvement in confidence in planning search strategies
- 31% improvement in confidence in ability to critically evaluate results of searches.

Attendance at the two information skills tutorials, and submission of the homework, was compared against the grades that all Level 1 students achieved in their first assignment, a literature review. Students who attended hands-on tutorials where they learned how to plan and carry out a search for information using the library catalogue, databases and other electronic resources, achieved on average a full grade higher in their literature review than those who did not (a C as opposed to a D).

From the next academic year, submission of the homework will be weighted at 5% of the grade for the Level 1 Foundations to Psychology unit; in the expectation that, as at Level 2 in 2009, submission rates will increase. It is hoped that an overall improvement in grades will result.

Going forward, it is planned that more detailed assessment will be carried out:

- anecdotal: focus groups, individual interviews.
- skills testing: online tutorials have been developed for Level 1 students, using Articulate, with a view to creating more complex tutorials for students at Levels 2 and 3.
- evidence of use: coding and analysis of PebblePad submissions.

Conclusions

Using sound pedagogical theories to develop an integrated information skills programme has enabled staff to support students in the development of vital skills that enable them to construct well-informed, evidence-based assignments from the start of the university careers. The scaffolding approach reinforces their learning and allows them to apply the skills they learn in practical sessions to all of their academic work, hopefully fostering independent learning and a structured approach to their information-seeking behaviour.

That the programme has been successful is attested by the results of recent research carried out at Level 1, where grades of those students who completed all activities scored significantly higher in their first assignment. Weighting the tasks has been shown to improve completion rates, the logical corollary of which should be higher scores overall. It is hoped that this will be demonstrated in the results of the ongoing impact assessment project.

(Editor's Note: Averil Robertson has since left the University of Bedfordshire.)

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Thriving as an International Student: Personal responses and the trajectories they create.

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Abstract:

During a study investigating their experiences on a British university campus, relatively successful long stay international students critically reflect on their experiences of cross-cultural interactions and how these have shaped not just their current behaviour but also their longer term attitudes and aims, or in Wenger's term their trajectories.

A tentative taxonomy of trajectories is described and its pedagogical relevance discussed in terms of ways that this understanding can inform staff interventions to enhance intercultural learning, not only of international students but of home students and staff also, and lead to further critical reflection by all participants on their own cultural influences.