Embedding information skills training on student learning: making a difference

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Background and rationale

This embedding project builds on one that was delivered in 2001, headed by Oliver Pritchard, Dudley Learning Centre Manager, leading a research team with staff working from different Learning Centres in the University. In the 2001 project, sessions on information skills were run in three differing subject areas for second and third years and their impact on student learning was assessed using questionnaires and focus groups for students and in-depth interviews with academic staff. Findings were encouraging: "skills and experience gained within the sessions were taken on and applied within assignment work to good effect. Within this small study there is evidence of a progression in student awareness, confidence and skills" and ''Information Skills sessions ….bring a longer-term, practical and tangible element to the learning experience and are a valuable part of helping students to become more effective learners". (Pritchard 2001).

Subsequent to the 2001 Project, the School of Humanities and Social Sciences was amalgamated with the School of Languages and European Studies and re-located to the City Campus. It became obvious in numerous informal conversations and feedback from subject groups and School committees that academic staff had concerns about particular standards in students' work relating to an increase in plagiarism, an over reliance on the internet, poor exploitation of information sources with a restricted range of references in some subjects. Learning Centre staff were also increasingly aware from feedback on the helpdesks and work with individual students that many students were experiencing and demonstrating a significant gap in their information skills which was affecting their confidence and ability to deal effectively with important aspects of the student learning experience. A project that could provide for deep integration of information skills within the curriculum while working through a subject focus was greeted enthusiastically by librarians and academic staff alike. It was decided to focus on the first year experience as retention issues were high on the agenda across all Schools in the University. Additionally, feedback from students involved in the first project had identified that information skills sessions would give maximum benefit in the first semester before the first undergraduate assignment.

The Phase 1 project concentrated on the impact of information skills delivery. Our Phase 2 project needed greater pedagogical underpinning for successful embedding in the curriculum, so we decided to adopt an Information Literacy programme. This would provide a theoretical framework for the set of information skills and provide a model that could be transferred across subject areas.

Interest and research in Information Literacy has increased enormously in recent years. A search of the available literature in the Phase 1 project (completed in 2001) revealed initial development taking place strongly in the College and University sector in Australia and the United States, with more isolated strands being developed in some institutions and organizations in the UK. More recently there has been a surge of interest in Information Literacy programmes throughout the HE and FE sector in this country. It has resulted in an annual national three day conference (LILAC) on the subject and very well attended single day Conferences as evidenced by the one held in July 2006 at Staffordshire University. It is clear that there is much activity currently in HEIs, but that much of it incorporates a "top-down" approach (ie. an Information Literacy strategy accepted at institutional level). In cases such as Staffordshire University this is supported additionally by a team of librarians who work full time on the development, delivery and evaluation of an Information Literacy programme. This has not been achievable, so far, at Wolverhampton. This was a further influence on our opting for an approach that is "bottom-up", ie firmly grounded, initially, in a School-based curriculum.

Our approach needed the authority and structure of a well-established model. We chose Seven Pillars, which was produced in 1999 as an important part of the position paper produced by the Information Skills Task Force for the Society of College, National and University Libraries. (SCONUL 1999). This has been used subsequently in countless initiatives at all educational levels in the country and seemed more appropriate for our UK context than models developed in the USA or Australia.

The Seven Pillars model is based on the following seven skills:
- recognise a need for information
- select appropriate sources
- construct search strategies
- locate and access information
- compare and evaluate information
- organize, apply and communicate information
- synthesize information

These general skills were mapped over at the novice/advanced beginner level into important, specific skills for first year undergraduates that we identified during consultation with lecturers. (See Appendix 1)

In order to negotiate a programme with academic colleagues, we also needed a relevant and meaningful definition of information literacy. After some searching we used the one offered by CILIP: "Information literacy is knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner."

(Chartered Institute of Librarian and Information Professionals 2004). This definition linked through most clearly to the current climate in Higher Education and also important issues such as student retention, employability and lifelong learning. The "ethical manner" used in it became a useful tool in discussions and led to the inclusion of plagiarism issues in our sessions.

We needed access into the curriculum to secure our 'bottom-up' approach and saw academic partnership as instrumental to this. Two lecturers from HLSS expressed interest in working with us on the project and expressed their enthusiasm for supporting the first year learning experience in this way: Jackie Pieterick who is module leader for FD1000, Writing for Academic Success, and Fiona Taylor who heads SO1000, Images of Inequality. It was useful that FD1000 is a cross subject elective skills module and SO1000, by contrast, a core subject module. It was during discussions with them that we developed another important feature in the phase two project: the idea of a series of bite-sized sessions. Small fifteen- or twenty- minute sessions were chosen, each on an area incorporating one of the skills mapped through from the seven pillars. Each session was delivered by librarians at the end of a lecture starting in week two, the final one in week eight. The programme was built using the classroom experience of teaching staff and helpdesk experience of librarians. Sessions were planned within the University's Teaching and Learning Framework and kept module outcomes in mind.

HLSS librarians developed a series of PowerPoint presentations for ease of delivery and it quickly developed into a bank which could be customised by colleagues working in different subject areas. After the session, the slides were mounted on WOLF the University's VLE, so that students could access them in their own time. The sessions, on the final mapping, ended up as follows:

- Introduction. Explanation of project. Module reading lists on OPAC
- Information sources – books, reference material, journals and websites
- OPAC – searching for books, use of 'my account' to borrow, reserve and renew items. Collections in the Harrison Learning Centre
- Plagiarism. Referencing – insertion into text
- Referencing – compiling the bibliography
- Evaluating websites. Subject gateways and safe sites
- Advanced searching techniques. Using databases to find online journals

Some sessions were supported by online quizzes (with prizes), others by quizzes and tests in class. Interactivity was, almost by necessity, fairly minimal as the classes were large, with 40 and 70 students. Additionally, there was a second iteration of FD1000 with 40 cross-subject students in the second semester when the sessions were altered to incorporate the increased experience of students taking it. A two hour session which included all seven topics was also delivered to forty first year social workers. This proved to be a useful counterpoint whereby we could test for the validity of smaller, bite-sized sessions.

Importantly, the lecturers stayed in the sessions and contributed to them. They frequently emphasized points, stressed how important some things were for the first assignment and added additional information or humour.

Findings

As mentioned in the previous section, both lecturers had contributed towards formative evaluation of the sessions in planning meeting. For the summative evaluation, questionnaires and focus groups were used to obtain responses from lecturers and most importantly, the students themselves. One of the main aims of the project was to identify how students responded to the "bite-sized" embedded sessions and if they had made use of any elements covered in the sessions. From lecturers, we wanted to establish if our sessions were suitable to the needs of their module and had met their expectations. Finally, we wanted to assess our own reactions.

Student response to the sessions was formally assessed quantitatively by questionnaires and qualitatively by focus groups and in depth interviews. Informal feedback by students was also noted from the following sources: personal visits to the Helpdesk, plus telephone and email enquiries.

Feedback from lecturers was collected formally through in depth interviews at the end of the second semester. Informal feedback was provided by comments and suggestions on a weekly basis throughout the delivery of the programme, both inside the class and outside it.

Students

An online questionnaire on WOLF was used with students on SO1000 in Semester One (see Appendix 2). Despite the offer of free photocopying cards, only seven students from a possible 70 replied to this questionnaire (any resulting data analysis can only therefore be partial). All responses to the sessions were positive. To improve on the disappointing return figures, two questionnaires were used for FD1000 in Semester Two; these were handed out to students before the lecture started and then collected at the end. Response rates showed a significant improvement. The first questionnaire (see Appendix 3) sought to identify how students searched for information, the second to assess their response to the sessions (see Appendix 4).

From the first questionnaire we were able to establish that 81% of students rated their information skills as at "beginner" or "need to develop further" level, indicating that students were not complacent as regards their information skills and perhaps that by Semester 2 they had become aware of the variety of information sources available to them and were wanting to make better use of them.

The use of 4 short sessions (as opposed to one long session) received a positive response from students with just over 70% preferring this option. These figures received corroboration from a second source when Jackie Pieterick reported that mid-semester module evaluations had also included positive feedback to the shorter sessions. Students in the focus groups further reinforced this, commenting that it would be difficult to remember and take in all of the various elements

covered in one long session. The response of Social Work students to their two- hour session (which was used as a counterbalance) provided a somewhat opposing viewpoint, with 60% preferring one longer session (however, some students did comment that the session was too long).

Student usage of elements covered in the sessions was encouraging. Identifying and using keywords was (only just) the element that had been used most. Journal articles were the least used of the elements; this is unsurprising as most first years are not expected to make use of journal articles. Interestingly, the focus groups selected this session as one of particular interest to them citing the fact that the topic was new to them (two members of the focus groups were Psychology students who would be aware of the importance attached to journal articles by their subject).

Attendance at sessions in Semester 2 was a cause for concern with only 16 students attending at least 3 of the 4 sessions. Some students took the opportunity to leave at the end of the lecture and before the start of the information skills session: this may have been due to the fact that the lecturers themselves did not stay for the sessions. It may also suggest that while some students felt that they did not need the sessions, equally there was a core of students who felt that they did.

Contrary to the perception of student over-reliance on the Internet as a source of information, most students selected OPAC and reading lists as the resources that they would use first in any information search. It would be interesting to explore this further, to identify why and how resources are selected and to look at the quantity and quality of information a student felt was needed for an assignment (when asked in the questionnaire, just over 50% of students expressed themselves satisfied with the quantity and quality of information that they found).

One finding from the focus groups would appear to challenge the conventional approach to Information Skills whereby emphasis is placed on the use of the library catalogue; students felt that this was something they could figure out for themselves. Librarians will need to decide what consideration is given to this and if it should be used to inform future sessions. Although the librarians involved may need to consider the emphasis given to certain elements in the sessions, reassuringly no student felt that the sessions were too advanced for them.

The focus groups (5 students attended – two in 2 groups and one individual student) not only enabled us to explore issues raised by the questionnaires but allowed us to obtain an in-depth impression of how first year students felt about themselves as information users and learners. One common theme that did arise was the uncertainty felt by students when looking for information and how the sessions had given them confidence to use different resources, encapsulated by a student's comment that they felt empowered by the sessions.

Lecturers

In meetings at the end of Semester 2, both lecturers confirmed their support for bite-sized sessions with one stating that this approach if "carefully structured into the sessions, works well for University of Wolverhampton students". Both saw further integration into the modules as a positive step, and highlighted the efforts of the librarians involved to link their sessions to a lecture. In initial meetings prior to the sessions starting, both lecturers had suggested elements that they wanted covered in the sessions, such as Harvard referencing. In meetings after the sessions,

both made further suggestions: with one wanting Internet searching to be featured earlier in the programme and the other requesting that emphasis be given to online full-text journals.

Lecturers reported that student use of Harvard referencing had improved during the course of the module and that the range of resources that students were drawing from had been extended. Informally, both lecturers commented that the bite-sized sessions added variety and a change of subject, pace and tone which was useful at the end of their lectures. They also noted that an added benefit of the sessions was that they learnt some extra skills and tips!

Librarians

For the librarians involved in the project, working with the two lecturers was both a rewarding and stimulating experience. The planning sessions provided a forum for the interchange of ideas and the librarians welcomed input from lecturers during their sessions as this helped to reinforce the value of the sessions to students. New skills were acquired in designing questionnaires and running focus groups. One tangible result was the creation of a bank of PowerPoint presentations that could be tailored to meet the needs of any module.

Although working with a small sample of students, issues have been raised which require further investigation. It will be interesting to see if the findings of the questionnaires and focus groups are corroborated by the students in next year's sessions.

Benefits and Evaluation

This study brings a number of benefits. We as librarians have been able to assess our approaches to the design and delivery of a structured Information Literacy programme. We have had the opportunity to work collaboratively as a team of librarians with academic staff and, crucial to the embedding process, earn important space on first semester, first year modules. We now know that the bite-sized sessions of information skills which are dove-tailed into existing lectures are a successful way to deliver the programme. This is an important discovery as there is very little research on this aspect of embedding skills.

We have found out that students still find traditional skills important (such as using OPAC) but that they also identify Internet resources and skills as being a necessary part of academic life; that keyword searching across all types of resource, including online journal collections is a viable and effective strategy for first year undergraduates. We have discovered that web evaluation techniques, effective search strategies and referencing skills are all considered important by students. Students have confirmed that timing is crucial and the date of the first assignment is an important milestone around which the programme should be structured.

Quantitative data relating to improved confidence levels was not collected. However, qualitative data has indicated that an effective Information Literacy programme delivered at the very beginning of Undergraduate life can contribute significantly to students' ability to

find, use and record information and increase their confidence regarding academic performance.

Future Developments

It makes sense to build on the success of this project, and extend it to other subject areas in the School of Humanities, Languages and Social Sciences. Successful implementation in professional subjects such as Social Work and Deaf Studies and academic based subjects like Linguistics and Sociology would provide strong models and could lead to the adoption of similar programmes in SHLSS in other subjects, for second and third years and also in other Schools in the University.

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Appendix 1

Information literacy

Skill mapping

Sconul Novice/ Advanced beginner

Skill 1   Recognise a need for information
        -Identify importance of information given on module
reading   lists
        (session 1)

Skill 2 Select appropriate sources
        -   Use OPAC reading lists option to find items on
            reading lists
            (session 2)

Skill 3   Construct search strategies
        -   Search for individual items and subjects
        -   Analyse components in citations and use author, author/title,
            author/keyword and keyword searches in OPAC.
          (session 3)

Skill 4   Locate and access information
         - Find items in learning centre
        -   Understand Dewey Decimal Classification system
        -   Know the collections in the learning centre: books, short loan collection,
            study skills collection, reference and videos/DVDs
        -   Understand how to borrow, renew and reserve items. My account.
            (session 4)

Skill 5   Compare and evaluate information
        -   understand the difference between information in   textbooks, and
            reference material (encyclopaedias,
            dictionaries etc)
        -   understand the difference between information in
            books and journals

and **Skill 4** -   understand how to locate and photocopy printed
            journal articles in the learning centre
            (session 5)

Skills 1   - Use the subject web pages to find appropriate sites,
 - 4   particularly subject gateways and hubs
                (session 6)

Skill 5   **Compare and evaluate information**
              -   Evaluate quality of information in print and online
                 using criteria of authorship, bias, currency etc
                 (session 7)

Skill 6   **Organise, apply and communicate information**
              - Using the UW Harvard style, reference books,
                articles and online material
                (session 8)

Skill 6   **Organise, apply and communicate information**
              -   Cite references in the text of a written work
              -   Understand issues associated with plagiarism and importance of
                  acknowledging sources
                  (session 9)

WB 5/8/05

Appendix 2

Embedding Information Skills
Student Questionnaire December 2005

1. How many sessions did you attend?

All **5**	Half **2**

2. Did you like the short weekly sessions at the end of your lecture?

Yes **5**	No

3. How would you rate the following sessions?

	Very useful	Useful	Not useful
a) Different sources of information - print and online			
b) OPAC – including reading lists	**2**	**5**	
c) Harvard Referencing – including bibliographies	**2**	**5**	
d) Internet Searching : websites and subject gateways	**5**	**2**	
	3	**4**	
e) Internet Searching : online journals	**5**	**2**	
f) Study skills information	**1**	**5**	**1**

4. What use did you make of the information in each area in this module and other modules?

a) Different sources of information - print and online
useful;   very much;   used when looking for information for assessments

b) OPAC - including reading lists
useful;   regularly;   to obtain or look up books;   useful as I wasn't sure before;   not that much; used for looking for books off my reading list

c) Harvard Referencing - including bibliographies

very useful;   used for all work;   useful;   very much;   this helped when writing my essays

d) Internet Searching: websites and subject gateways
very useful;   occasionally;   very useful as I did not know of these;   very much;   helped with looking up information;   google scholar was useful

e) Internet Searching: online journals
useful;   not yet;   good again I wasn't aware of;   not that much;   helped me when I had to find some journals for other modules; need more information, did not quite understand

f) Study skills information
not useful;   not that much;   not really used this one

5. Was the information at the correct level for you?

Too advanced	Correct level **6**	Too basic **1**

6. Would you have preferred   more interactive sessions e.g.   workshops, which enabled you to put the skills into practice?

Yes **3**	No **2**	Don't know **2**

7. Did you have any comments from your lecturer on your first assignment about
(a) range of materials you used or (b) your referencing?

No – 3   Yes – 4 (Referencing- 2)

8. Have you been able to make use of the information from these sessions?   If so, in what way?

Referencing information very useful, only practical guidance I have received
Correct any referencing
Yes
I have used them in assignments
Sessions have helped me to learn how to reference and make use of the information
Yes when doing all my assignments or when looking for information on the module in general
Yes, searching for journals for my assignments

9. Any other comments?

If you would like to take part in the draw for prizes (photocopying cards), please put your student number here:
Had trouble hearing library staff speak sometimes
Found Internet searching very helpful
Produce handouts so people can follow it when doing assignments

Appendix 3

FD 1000   Tuesday 21st February 2006

How would you rate your information seeking skills?

Beginner 6
Need to develop skills further 18
Satisfied with skill level 3

Which resource would you use first to find information for your assignment?

OPAC – keyword search 13
OPAC – title search   5
Internet 5
Module reading list 13
Ask at Information Help Desk In Harrison Learning Centre 2

When selecting an assignment to answer, do you select the assignment because: (please select one or two options)

You know about the subject already 8
There are books available in the Learning Centre   3
Information is available on the Internet   1
You are interested in the subject   19
The question looks easier than the other questions   4

I am satisfied with the amount and quality of information that I can find for an assignment.
Agree 15   Disagree 12

When looking for information, do you use any other libraries besides those at the University?
Yes 10   No 16   If yes, please give name of library……………………………..
Darlaston 1
Wolverhampton 6
Bilston 1
Walsall 1
Telford   2
Aston 1
Kidderminster 1

Do you use the Subject Starting Points (on Learning Centre site) to help you search for resources?
Yes 9 No 2   Don't know what they are   13

Google Searching   Do you use:

Advanced Search   Regularly 8 Sometimes 9 Never 4
Google Scholar   Regularly 7 Sometimes 4 Never 13

Have you ever used the OPAC online reading lists option?
Yes   17 No 9

Comments:
Depends on information needed
Literature books and videos disagree with amount and quality at HLC

Appendix 4

Embedding Information Skills
Questionnaire for Students on FD1000
2nd Semester 2006

1. How many sessions did you attend?   (Please circle one.)

     All 4 **10**   3 **6**   2 **2**   1   **4**   None **2**

[2. If you did not attend any sessions, can you say why? _____

_____]

3. Did you like the short sessions at the end of the lectures? (Please tick)

     Yes   **13**   No   **5**   Don't know   **3**

4. How would you rate the following sessions?

Session	Very useful	Useful	Not useful
Using keywords for searching/analysing essay title	**7**	**11**	**2**
Internet searching – websites and subject gateways	**13**	**6**	**3**
Finding journal articles	**5**	**6**	**6**
Harvard Referencing	**2**	**13**	**1**

5. Would you have preferred to have one long session to learn about these skills rather than the four shorter sessions?

     Yes   **4**   No   **12**   Don't know **1**

6.   In this module and other modules this semester, how have you made use of the information from these sessions?

Session	Used a Lot	Some use	Not used
Using keywords for searching	**8**	**10**	**1**
Internet searching – websites and subject gateways	**9**	**7**	**2**
Finding journal articles	**4**	**8**	**5**
Harvard Referencing	**5**	**9**	**2**

Continued…

7. Was the information given at the correct level for you?

Too advanced **0**   Correct level   **13**   Too basic   **6**

8. Please feel free to make any other comments.

I was ill
Time constraints - 4
Session would be better at start of lecture
Already knew keywords for searching
Only one session would be more useful – 2
Good idea but already knew information provided
Identifying journals – could do with more information
More useful to have several short sessions rather than one long session with too much to absorb