

# Case studies in embedding information literacy learning outcomes



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## Information literacy policy

In 2001 Information Services Learning and Training Group devised a Learning and Training Policy which informed Cardiff University's approach to skills development. This recognised the value of information literacy as a basis for lifelong and self-directed learning as well as a key employability skill.

The Policy adopted the framework from the Association of College and Research Library's Information Literacy Competency Standards for Higher Education (2000) (Appendix A). As well as providing a set of information literacy standards, this framework suggests outcomes and performance indicators which can be adapted, as appropriate, by individual institutions. These served as guidelines for the development of scenarios within the Learning and Training Policy which demonstrate how information literacy learning outcomes could be devised for an undergraduate student, a PhD student and an administrative member of staff in an academic department (Appendix B).

In 2002 the Learning and Training Policy was passed to the University's Teaching and Learning Committee, who approved it as University policy. A Guidance Note was produced to facilitate implementation of the policy across the University. A key argument of the Guidance Note is that information literacy skills should be embedded into the academic curriculum and not be treated as a 'bolt-on' set of generic skills. The importance of establishing collaboration between all those involved in the learning and teaching process in order to achieve this integration is also stressed.

The Guidance Note was formally launched in May 2003 at a University Quality In Learning and Teaching (QUILT) seminar. Prior to this Information Services staff had already begun to promote the concept of information literacy to academic staff. A number of academic Schools have adopted the concept but the extent to which it is embedded fully into a module or modules varies. In the following section, case study examples demonstrate how information literacy has been embedded into first-year modules offered within two Schools.

## Cardiff Law School – Legal Foundations

The Law School was the first to embed information literacy learning outcomes into a module at Cardiff University. The revised module, Legal Foundations, has been running for three years. It is a compulsory, semester one, 20 credit module for the 230 first year law students. The module introduces students to the main features of the legal system in England and Wales and develops the basic legal skills needed in the study of law. Its aims and learning outcomes are given in full in Appendix C.

The module leader used the information literacy standards and examples of learning outcomes from the Learning and Training Policy to remodel the module's learning outcomes. The standards gave a theoretical framework to the skills element of the module and tied the IT and legal research skills, which had previously been 'bolted-on', fully into the module's legal content.

Half way through the semester, students are given a hypothetical but topical scenario, which is used as the medium for gaining information literacy skills over the next three to four weeks. The legal knowledge needed to underpin the scenario is delivered during earlier lectures. Each of the 16 seminar groups is split into two teams of “lawyers”, to argue opposing viewpoints.

The Law Information Specialists facilitate one of the weekly two-hour sessions for each group, helping students find the information they need for their preparation. Skills from information literacy Standards One and Two (Appendix A) are developed during this session and in the student preparation. Standards Three and Four (Appendix A) are developed in the following two tutor-led seminars during which the teams discuss what they have read from the information found in the previous seminar and the tutor helps them evaluate the sources. The information is then used to argue their case in the seminar and draft a clause of a bill. The following week the scenario topic is again used, this time in developing essay writing skills.

The model used in Legal Foundations integrates the accessing of information into the total research process, as a “means to an end”. The skills are developed further by the students in preparing and delivering an oral presentation and in a moot, and the learning outcomes are assessed through the formative coursework.

### **Cardiff School of Computer Science – Communication Skills and Project Management**

The Communication Skills and Project Management module incorporated information literacy learning outcomes for the first time in the 2003/4 academic session. It is a compulsory ten credit module which all first-year students undertake during Semester One. The module introduces students to basic project management as well as to computer virus recognition and protection methods. Appendix D details the module aims and learning outcomes.

Information literacy skills are developed during weeks seven to nine of the module. The Information Specialist delivers two workshops during which the students learn how to use electronic databases effectively, evaluate the quality of information and cite references. In preparation for the workshops, module tutors give the students a choice of eight subject related topics to research using the techniques they will learn.

This programme contributes to students’ development of information literacy skills as identified in Standards One to Three of the framework (Appendix A). These workshops are then followed by written and verbal presentation skills sessions, delivered by module tutors, to develop aspects of information literacy Standard Four (Appendix A).

In week nine students consolidate this training by incorporating the information they have gathered into an assessed PowerPoint presentation and a bibliography detailing the sources they have used. Students’ information literacy skills are then assessed again during the module exam using short answer questions.

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## **Cardiff University Appendix A: Association of College and Research Libraries Information Literacy Competency Standards for Higher Education:**

1. The information literate individual determines the nature and extent of the information needed.
2. The information literate student accesses needed information effectively and efficiently.
3. The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.
4. The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.
5. The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

ACRL. 2000. Information Literacy Competency Standards for Higher Education. pp. 8-14 [WWW] <URL: <http://www.ala.org/ala/acrl/acrlstandards/standards.pdf>> [Accessed 9 February 2004]

## **Cardiff University Appendix B**

### **Scenarios**

The following scenarios, extracted from Information Services' Learning and Training Policy (2001), demonstrate how the information literacy standards can be adapted to devise learning outcomes.

#### **Undergraduate student**

Tom is a first year Astrology undergraduate. He is working on his assessed essay for the History of Astrology module. He is already familiar with finding information from a reading list, but now needs to produce a well-referenced essay using a range of resources beyond those given in the directed reading.

A week after the assignment is set, the tutorial focuses on the Astrological Abstracts CD-ROM and how to cite references. The tutor directs the class to the RDN Virtual Training Suite course "Internet Astrologer". Tom discovers that the original historical sources noted in the essay title have been digitised and are freely available on the Web. For background information, he visits a higher education gateway recommended by the RDN course then searches for his topic via Google. Although some of the sites seem interesting, he remembers the advice of the "Internet Detective" online course and evaluates the web sites before using the information.

A search on Astrological Abstracts reveals a number of useful-sounding references. He finds three of the articles in the library and another two in electronic form linked from the library catalogue.

As he types his assignment, he has trouble inserting footnotes and page numbers. He refers back to the self-paced guide to Word which he was given at the start of the year. There had been drop-in workshops to support those who lacked confidence, but as he was familiar with Word already he had just kept the guide.

This assignment has given Tom a firm foundation in information literacy skills which will be built on at appropriate points during the next two years.

*Learning Outcomes.* These are the information literacy learning outcomes set by the Department of Astrology to be achieved by students by the end of Year 1. Those learning outcomes achieved through preparation for the assessed essay are bordered.

## Standard One

The information literate individual determines the nature and extent of the information needed.

- Identifies the value and differences between potential resources in a variety of formats (at this stage; books, journal articles, manuscripts and web sites).

- Differentiates between primary and secondary sources, recognising the importance of each in the study of astrology.
- Analyses the given essay title and defines the information need.
- Defines a realistic overall plan and timeline to acquire the needed information.

## Standard Two

The information literate individual accesses needed information effectively and efficiently.

- Locates required print materials in the library and uses internal organisers such as indexes and contents pages in books and journals to identify the required information.

- Selects the appropriate information tools to access the required information.
- Identifies keywords, synonyms and related terms for the information needed.
- Searches the Astrological Abstracts CD-ROM in an effective manner, using Boolean operators and truncation appropriately.
- Selects appropriate Web subject-related gateways to navigate the Web efficiently and effectively.
- Uses web search engines in an effective manner, using appropriate commands such as Boolean operators and truncation.
- Assesses the quantity, quality and relevance of the search results to determine whether alternative search terms or techniques should be used.
- Extracts the needed information using the most appropriate technique (such as copy/paste, downloading, emailing or printing).

## Standard Three

The information literate individual evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

- Selects the main ideas or key data accurately and analyses the structure and logic of supporting arguments or methods.

- Examines and compares information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness and point of view or bias.

- Determines if original information need has been met, and if not, reviews and expands sources to include others as required.

## Standard Four

The information literate individual uses information effectively to accomplish a specific purpose.

- Participates with well-informed contributions to tutorial discussions.
- Integrates appropriate information, including quotations and paraphrasing, into written work, in a manner that supports the purposes of the assignment.
- Presents written work as well-formatted word-processed documents.
- Communicates by electronic mail where this is the medium which best suits the message and the intended audience.

## Standard Five

The information literate individual understands many of the economic, legal and social issues surrounding the use of information and accesses and uses information ethically and legally.

- Demonstrates an understanding of copyright issues and complies with fair use criteria when photocopying and manipulating data electronically.
  - Complies with institutional policies on access and use of information resources and facilities.
  - Maintains the security of approved passwords and other forms of ID for access to the computer network and information resources.
  - Demonstrates an understanding of what constitutes plagiarism and does not represent work attributable to others as the student's own.
- |                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Uses the citation system selected by the Department of Astrology consistently to cite sources in footnotes and bibliographies.</li></ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
- Follows accepted practices ("Netiquette") when communicating in an electronic medium.

Further learning outcomes are developed through second year options and the final year dissertation.

## PhD Student

Helen is a year into her PhD, looking at the role of astrology in medicine in Elizabethan society. She has just updated her literature search and discovers a recent article analysing a physician's astrological casebooks of thousands of medical consultations in London during her period. The research was funded by the ESRC.

She remembers from the research training scheme at the start of her PhD, that the data from ESRC funded research is often deposited with The Data Archive. She didn't investigate the service at the time and does not know its address. She follows the principles shown in the training, by browsing the astrology subject pages created by the university. Under the Statistics and Datasets section, she finds a link to The Data Archive. She reads the help pages before using the BIRON catalogue. The statistical data from the casebooks has indeed been deposited in electronic form.

She registers with The Data Archive then downloads the relevant data set and proceeds to analyse the data using SPSS. This works well but she realises that the results could be displayed more easily in a graphical format. SPSS has some built-in graphing facilities but these are quite basic and whilst talking with some friends she realises that Microsoft Excel has a much more powerful graphing capability.

Helen contacts her Resource Centre. The Information Specialist gives her documentation describing forthcoming IT courses, noting that a course on producing and formatting graphs in Excel is being offered in a couple of weeks time. In the meantime, she puts Helen in contact with an Excel specialist. He shows her how to import her results into an Excel worksheet but confirms that the course would help her become more familiar with graphing techniques.

## Learning outcomes

The Department of Astrology sets a comprehensive range of information literacy learning outcomes to be achieved by research postgraduates by the end of their first year. These learning outcomes are met through the research methodology training and applied in the students' research. Helen has achieved those learning outcomes.

Listed below are the learning outcomes demonstrated by the scenario. New learning outcomes are bordered.

## Standard One

The information literate individual determines the nature and extent of the information needed.

- Recognises that existing information can be combined with original thought and analysis to produce new information.
- Identifies potential resources of information.

## Standard Two

The information literate individual accesses needed information effectively and efficiently.

- Selects an efficient and effective approach for accessing the information needed.
- Implements a search strategy using appropriate commands for the information retrieval system selected.
- Extracts, records and manages the information and its sources.
- Uses specialised online or in person services available at the institution to retrieve information needed.

## Standard Three

The information literate individual evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

- Synthesises main ideas from the information to construct new concepts.
- Compares new knowledge with prior knowledge to determine the value added, contractions or other unique characteristics of the information.
- Uses computer technologies (such as statistical analysis applications and spreadsheets) for studying the interaction of ideas and other phenomena.

## Standard Four

The information literate individual uses information effectively to accomplish a specific purpose.

- Chooses a format which communicates the information effectively.
- Uses appropriate information technology applications to display numerical data in a format which best supports the purposes of the document and its intended audience.

## Standard Five

The information literate individual understands many of the economic, legal and social issues surrounding the use of information and accesses and uses information ethically and legally.

- Demonstrates an understanding of intellectual property and fair use of copyrighted material.
- Ensures that text, data and images are obtained, stored and disseminated legally.

## **Appendix C: Legal Foundations – module aims and learning outcomes.**

*N.B. Aims and learning outcomes associated with information literacy are underlined*

### **Aims of the module**

1. To introduce students to the main features of the legal system in England and Wales and to its operation in contemporary society.
2. To develop in students basic skills in:
  - 2.1 legal analysis of primary materials;
  - 2.2 legal research;
  - 2.3 construction of legal arguments;
  - 2.4 applications of information technology;
  - 2.5 presentation of the results/productions of the above in written and oral form.

### **Learning outcomes of the module**

#### **Subject-specific abilities**

At the conclusion of this module, students will be able to:

1. define the functions of law within society and illustrate how law may be used to achieve social goals;
2. identify the principal methods by which law is reported and distinguish between official and unofficial reports;
3. explain the principal features of the court system in England and Wales;
4. outline the sources of law and explain their relative authority;
5. describe the roles of the judiciary and magistracy in the legal system and evaluate the effects of arrangements for their selection and training on performance of that role;
6. outline the structure of the legal profession in England and Wales and explain its role in the delivery of legal services;
7. explain the doctrine of precedent and demonstrate how precedent operates in a common law legal system;
8. identify the primary rules of statutory interpretation and recognise how these relate to the role of judges within UK constitutional arrangements;
9. identify the principal features of a case report and analyse the judicial reasoning in a case;
10. construct legal arguments on behalf of a hypothetical client;
11. identify accurately issues that require researching;
12. access, evaluate and use effectively information for a research task.

#### **Generable transferable intellectual skills**

When presented with a proposition or a set of facts raising legal issues, a student will be able to:

1. identify and prioritise the significance of legal issues explicitly or implicitly raised;
2. conduct effective research on the primary and secondary issues of law raised, recognising the relative authority of sources;
3. evaluate, on the basis of research, the significance of law in its social context;
4. identify, through research into primary and secondary sources, the principal arguments for and against a proposition;
5. assess the strengths and weaknesses of arguments relevant to a proposition;
6. use arguments to present a considered conclusion to the issues raised;
7. give an independently and individually research presentation on an assigned topic.

#### **Keyskills**

At the end of this module, students will be able to:

1. demonstrate basic skills in oral advocacy;

2. present a research topic orally, making accurate and effective use of language;
3. present written material in a style appropriate to the task set and to its target audience;
4. evaluate and discuss the moral, social and economic implications of current legal issues;
5. analyse and discuss primary legal materials in oral and written form;
6. make effective use of the world-wide web, e-mail, electronic databases and computer assisted learning packages;
7. perform effectively in a group mooted exercise.

## Cardiff University Appendix D: Communication Skills and Project Management – module aims and learning outcomes

*N.B. Aims and learning outcomes associated with information literacy are underlined*

### AIMS OF THE MODULE

*(Aims define the broad purpose of the module)*

This module aims to provide students with:

An elementary understanding of the issues involved in project management and some basic skills to manage software development projects;

Basic transferable skills for use both during and after their degree course

An insight into the effects of computer viruses and some ways of protecting against them

### LEARNING OUTCOMES OF THE MODULE

*(Learning outcomes are statements of what a typical student is expected to know, understand and be able to do)*

***On completion of the module a student will be expected to be able to:***

#### ***Knowledge and understanding:***

Describe the difficulties associated with software project management

Illustrate the main activities involved in project management

Recognise the symptoms of a virus and understand its mode of action

Be aware of potential sources of viruses and understand how to protect against virus infection

Understand the differences between viruses and trojans

Understand the importance of being in control of the machine when looking for viruses

#### ***Skills:***

Analyse a project and identify tasks

Use computer tools to produce project plans

Write well structured, referenced reports to effectively communicate the outcome of project work

Use documentation preparation software to produce project reports

Plan and give an oral presentation to small groups using a variety of presentation aids

Write a targeted CV