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INTEGRATING INFORMATION LITERACY INTO THE CURRICULUM



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Preface



Training in information literacies should be provided in all second-level and higher education institutions so that students are able to identify, search, locate, retrieve and above all critically evaluate information from a range of appropriate sources (HEA 2009 p11).

CONUL is committed to leading, promoting and facilitating the development of such vital information literacy skills (CONUL, 2004). As the following pages show, library staff in CONUL institutions have considerable expertise in this area - working closely with academic colleagues to provide learning outcomes for students that underpin their success in study and research more generally.

This booklet includes both practical advice concerning the integration of information literacy into the curriculum and a large number of case studies showing what has been achieved already in an Irish context. CONUL members hope it will encourage others to work with their library staff in order to develop more and even better information literacy initiatives in the future.

Dr Philip Cohen,
CONUL Chair

Introduction

This booklet is aimed at all staff engaged in course design and delivery. Its purpose is to show what information literacy (IL) is, how it can be successfully built into courses and programmes of study, and how library staff can engage in collaborative partnerships to achieve this. It offers:

- Practical guidance to support the integration of information literacy
- Case studies of good practice within the CONUL Libraries
- Helpful tips for teaching staff, programme committees and module teams

Information literacy is a key component in the development of the student as an independent learner. It also contributes to the ability of students to work confidently with information and IT tools, and to develop essential critical thinking skills. All these are essential attributes for the modern graduate and the modern employee.

> *The new graduate must not only have specialist knowledge in their field, but also have a range of generic competencies required to participate in a workplace subject to constant change, the skills to continue learning throughout a professional lifetime.* (IUA, 2005)

Integrating information literacy is about creating a curriculum which enables students to develop the skills to learn independently and to carry on learning, throughout their employment and life.

The term "Information Literacy" is used on the whole throughout this booklet given its broad international acceptance and usage. However we acknowledge that the preferred term in some CONUL institutions is "Information Skills".



What is Information Literacy

A range of models and terminology has been developed worldwide by both academics and librarians, and by national and international organisations, to articulate the suite of skills implicit within the term 'information literacy'. Fundamentally, information literacy is the ability to recognise when information is needed, then locate and evaluate the appropriate information and use it effectively and responsibly. CONUL has endorsed the widely accepted American Library Association (ALA) definition:

> *To be information literate an individual must recognise when information is needed and have the ability to locate, evaluate and use effectively the information needed.* (ALA, 1989)

The skills implied by this definition require an understanding of amongst others:

- The resources available
- How to find information
- The need to evaluate results
- How to work with or exploit results
- Ethical and responsible use
- How to communicate or share your findings
- How to manage your findings

Because information now comes in many different forms and its quality varies enormously, students need to develop the cognitive, transferable skills to be able to work efficiently with information. Finding and evaluating information has never been more important; nor has the need to develop skills in the ethical use of information, in order to mitigate against plagiarism.

CONUL is committed to the development of collaborative working partnerships between its librarians and institutional teaching staff to support the successful development of students' IL skills and knowledge. It recognises the importance of a disciplinary context for information literacy and the benefits of a curriculum-integrated approach where for example:

- Students acquire a clearer understanding of the research process
- Students produce better assignments and research papers
- Students use a wide variety of information resources
- Students evaluate information critically and systematically
- Plagiarism can be discussed and addressed more effectively
- It contributes to improved student success and student retention (CONUL, 2004)

CONUL endorses the information literacy standards as set out in the Australian and New Zealand Information Literacy Framework (Bundy, 2004). The ANZIIL standards (see Appendix 1) provide an excellent framework within which teaching staff and librarians can design information literacy learning outcomes, assessment criteria, and supporting workshops and classes.

Why integrate Information Literacy into the curriculum?

Integrating information literacy into the curriculum is about building skills for independent and lifelong learning in a systematic way throughout a student's career. Graduates should be able to find, evaluate, process, present and communicate information in any work or life situation.

Information literacy skills are essential in the workplace. In their document 'Assessment Criteria for Engineering Education Programmes', Engineers Ireland defines a chartered engineer as someone who has received an education that:

> *will have been such as to make him/her capable of closely and continuously following progress in his/her branch of engineering science by consulting newly published works on a worldwide basis, assimilating such information and applying it independently. He/she is thus placed in a position to make contributions to the development of engineering science or its applications.*
> (Engineers Ireland, 2007)

How to integrate IL

The ideal place to start is at the programme design stage by mapping IL skills over an entire programme. This will ensure IL knowledge and skills are introduced and developed in appropriate modules and contexts in a logical and sequential way. "It is the cumulative experience from a range of subjects and learning experiences which creates the information literate person" (Bruce, 1994).

Of course most programmes have been up and running for a long time and it is not always easy, or possible, to take such a programme wide approach to IL integration. However, IL integration at programme level should be considered when a programme is being reviewed.

Information literacy knowledge and skills are, like other similar skills, best learned when they are developed within the context of a particular discipline, rather than bolting on a 'library element' to a particular module or course and assuming students will 'acquire' the necessary skills. Students are rarely motivated in such scenarios and often complain that they cannot see the relevance or need for such interventions.

At module or course level, it is essential to include information literacy learning outcomes in the assessment criteria for particular assessment activities. This helps students understand that they must perform to a certain level to demonstrate their information literacy knowledge and skills. How are students to know, for example, if they are required to use 'scholarly sources' to back up their arguments if they are not clearly told this? Where information literacy learning outcomes and assessment criteria are clear for students to see, they will be motivated to attend library workshops and classes.

Sample criteria for assessing information literacy

- Explanation of the level of **reading** required for assignments, e.g. students must read from a variety of sources and perspectives
- Evidence of the **use** of information to support arguments and points of view
- Demonstration of **correct** citing and referencing
- Critical **evaluation** of the literature

By being clear about the assessment criteria being used, the student in turn will be clear about the level of performance expected to achieve good marks (see Table 1). It also provides useful feedback to students about how they are progressing and areas of potential strength and weakness.

Table 1

In this example 'use of information' is one of four areas used to mark essay content.

CRITERION	PERFORMANCE				
	1	2	3	4	5
Use of Information	No information cited	Some information cited	Reading is limited to information supplied by lecturer. Information cited covers crucial arguments and points of view.	Evidence of additional reading. Information cited covers most crucial arguments and points of view.	Evidence of wide reading. Information cited covers all crucial arguments and points of view.

Source: (Library, Queensland University of Technology, 2005).

Assessment tasks and learning activities for IL development

Assessment tasks that get students to actively find, analyse, evaluate and synthesise information and at the same time reflect on their experiences will develop information literacy.

Learning and teaching strategies such as problem-based learning and enquiry-based learning provide an excellent context in which to develop students information literacy knowledge and skills. Problem Based Learning (PBL) curricula for example, require students to work on 'problems' in groups and source their own information to successfully complete tasks. There are many ways that librarians can support these activities; participating in PBL workshops before students begin working on their 'problems'; providing workshops when students are working through 'problems' and participating in review discussions to offer expert support to students. Your librarian can also work with you to design effective 'problems' (Fallon & Breen 2005, Dodd 2007).

Here are some examples of tasks that will allow students to develop and practice their information literacy skills either on their own or in group activities:

- **Annotated bibliographies**
  Students could be asked to include a variety of sources in their bibliographies. They might, for example, be asked to include a scholarly journal article, a source from the web, a newspaper article, a government report or a recent study. By summarising the main points in each source and evaluating them, students will see their value and become familiar with the range of sources available in their subject area.
- **Documenting the search and retrieval process**
  It is particularly useful to ask students to record and reflect on the search strategy they undertook for a particular assignment. This will help them understand and reflect on the information retrieval process itself. They will learn the best search techniques to adopt for particular library databases and reflect on the quality of the results retrieved. This should be considered when asking students to reflect on their learning in portfolios or learning journals.
- **Find and critically evaluate sources which present contrasting positions on a particular topic**
  This is a useful task to help students see how arguments are developed and supported. They will also learn how to use evidence to support and back-up a particular point of view. A task to encourage students to engage critically with information would be to ask them to critically evaluate documentation produced for the general public, and used by organisations in campaigns to persuade the public to support a particular viewpoint, for example, referendum material.
- **Contact a Librarian**
  Librarians can work with teaching staff on the design of appropriate tasks and activities. They can also deliver workshops at point of need, contribute to a lecture or participate in a class online forum.

> *My colleagues in the library have been instrumental in the development and success of this module. They were involved in re-designing the assessment process to highlight literature searching and critical appraisal aspects. They run tailored literature searching workshops, provide online resources specifically for pharmacy students and answer individual student queries. Instilling an evidence-based approach to sourcing and interpreting information is an important skill for future pharmacists. The librarians are key in achieving this.* (Lecturer, RCSI)

> *The ability to critically evaluate the ever increasing range of electronic resources is at the heart of the teaching enterprise, one in which librarians and academics must play an important part. If you want your students to learn research skills by means of a delivery system like EBL or PBL, you cannot do so unless you draw on the expertise and knowledge of library staff…. Without close liaison with the library from the earliest stages, EBL in English simply would not have happened, and our contact with library staff has definitely improved the module design and delivery.* (Associate Professor, UCD)

Using the Virtual Learning Environment (VLE) for IL skills development

Most of our institutions now subscribe to a VLE. VLEs exist to complement, not to replace the classroom. Its interactive framework offers opportunities for the delivery of information literacy education. At its most basic it can be used to connect students to course materials - book lists, e-resources, full text articles, all tailored to their individual course of study. Then there is the potential for more dynamic and proactive use with the aim of nurturing reflective learning and greater understanding:

- devising quizzes to gauge and test knowledge
- engaging in discussion boards and chat to stimulate debate and discussion
- uploading and working collaboratively on papers, reports, documents to encourage analytic thinking
- developing guides to resources
- producing online tutorials, for example: evaluating resources; getting the best from the internet; avoiding plagiarism.

This is all very similar to what can be taught in face-to-face library classes but in an e-format which allows student access at a time and place of their choosing. Online tutorials and guides also provide students with the opportunity to learn about information sources and tools at their own pace and when they need it most. To ensure the best support from the library, teaching staff should consider enrolling a librarian on their VLE courses.

It is also possible to incorporate many “web 2.0” type applications into the VLE: blogs, podcasts, wikis, social networking and social bookmarking all lend themselves to academic adaptation. Librarians are open to investigating ways these dynamic and interactive applications could benefit student learning. Many of these applications are intuitive, easy to use and do not require large staff or financial investment. There are no hard and fast rules here, just the need for awareness of emerging technology and communication trends and any academic potential for the so called ‘net generation’.



Top tips for successful IL integration

i. Contact your Librarian as early as possible in the process of programme and module development or review. Library staff can work in partnership with you to build IL skills into a programme or course.

ii. When identifying and developing learning outcomes for IL, engage the support of your Librarian. Consider what skills you would like your students to develop. Use the ANZIIL standards as a guide in this process.

iii. Once you have developed IL learning outcomes, library staff can work with you to develop learning activities and assessment tasks around these skills and advise in relation to suitable print and online resources in your subject area.

iv. Consider how the VLE can be used to help students develop their skills and support IL. Your Librarian can help you develop online learning activities for example, quizzes to test students' existing skills levels.

v. Always be as explicit as possible with students about IL and its importance and relevance to a particular programme, module or task. Students can then approach their study and work with a clear understanding of the skills required to complete a module and the skills they will develop by doing the module or programme.

> *Involving the librarian challenges us to 'think outside the box' rather than being driven by content alone resulting in a more dynamic and creative approach.* (Lecturer, Nursing)

> *Collaborating with Library staff has enabled a blend of experience and expertise which would have been otherwise impossible.* (Lecturer, Information Studies)



CASE STUDIES

The following case studies provide an overview of modules and programmes, with significant library involvement, aimed at building information literacy skills from undergraduate through to PhD/researcher level within the CONUL institutions.

The best practice examples cover a range of disciplines and include details of module evaluation and assessment criteria and outline specific information literacy learning activities.

UNDERGRADUATE STUDENTS

TAUGHT POSTGRADUATE AND RESEARCH STUDENTS



Undergraduate Students

Information Literacy for Engineers - DCU

CONTEXT

Information Literacy for Engineers is delivered as part of a 5 credit module “Professional and Personal Skills for Engineers”. Library contact hours: 5 (1 hour lecture, 2 x 2 hour workshops)

LEARNING OUTCOMES

- Know about different publication types (books, journals, newspapers)
- Be able to differentiate between popular and academic sources
- Know how to formulate an effective search strategy
- Be able to perform a successful search using a relevant library database
- Be able to evaluate search results
- Understand how to cite and reference sources

LEARNING ACTIVITIES

A number of group tasks are set to allow students to work collaboratively. One such task asks each group to research a particular engineering related topic. They must first explore their topic by developing a mind map. They are then required to identify appropriate keywords for effective searching and conclude by identifying and locating a relevant book and newspaper or journal article.

ASSESSMENT

Knowledge and basic skills are assessed using an online quiz worth 10% of the total module mark.

KEY POINTS

- Group tasks are a really effective way of engaging students in the process of information searching and evaluation
- A key success factor is also ensuring tasks and discussion relate effectively to the rest of the module and their overall programme of study

Study and Research Skills: Humanities and Social Sciences - DCU

CONTEXT

This module aims to facilitate the transition into a third level learning environment. The Library was fully involved in the design of the module and had significant input into how best to integrate the development of information literacy knowledge and skills into the module.

LEARNING OUTCOMES

- Introduce students to technologies and resources that will underpin their university work
- Enable students to gather, interpret and present information
- Introduce students to academic writing skills
- Enable students to reflect on their work practice and progress
- Foster group work by identifying common goals and working towards individual and group aims

LEARNING ACTIVITIES

Group tasks allow students to engage with print and online sources of information and reflect on their value and use in specific contexts. Such activities include:

- Identifying the types of sources they would use to research a famous politician. A discussion follows and useful sources not identified are highlighted.
- Finding answers to a list of questions using a variety of print and online reference materials

Students are given the same topic to research but can only use a particular source. Each group then reports on their findings and discuss the pros and cons of the information found.

ASSESSMENT

- Worksheets are completed at every session
- An annotated bibliography is required which accounts for 20% of the module marks

KEY POINTS

- The importance of early communication with non library colleagues in the design and development of a collaborative module is vital to its success
- Diagnostic and summative assessment activities are crucial to the student learning experience
- Constant feedback assists both student and teacher and ensures the activities are both relevant and time appropriate

> *To say the least, university libraries are overwhelming! The sheer volume of content, most of which I will never even use, is enough to make any student panic. I had no idea where to even start. I took to avoiding the library completely to the detriment of some of my earlier assignments. However, the library skills workshops in weeks 4 & 5 sorted me out. Every student should have to attend.* (First-year undergraduate student, DCU)

1st Year Nursing: How to conduct research using library databases - UL

CONTEXT

An embedded programme of a one-hour lecture to first year nursing students is followed by small group workshops for hands-on practice.

LEARNING OUTCOMES

At the end of this programme students will be able to:

- access a database on and off-campus
- describe the contents of a database
- give reasons for selecting a particular database
- distinguish between full text articles and abstracts
- use basic search techniques and devise search strategies using Boolean logic
- evaluate search results
- print/email/save search results

LEARNING ACTIVITIES

- Introductions and logon
- Presentation of basic searches with print/save/email options
- Demonstration of how to access from home
- Using worksheets, students try searches in different databases
- Compare results in terms of number and relevance
- Evaluate the quality of the results and select one item to email or save to memory stick
- Prepare and run searches related to their own assignments and evaluate the results
- Time for questions and resolving problems

ASSESSMENT

Assessment is through a subject based essay. 30% of the marks are given for the information literacy component. Students must supply a reference list of at least ten items and include books, journal articles and websites. A reflective description of how the sources were identified and selected must be included and marks are awarded for the variety of sources, quality of the sources, clear description of the search strategies used and overall competency in researching the topic.

KEY POINTS

- Cooperation of faculty in embedding information literacy and its assessment into a required module is essential for success
- Skills learned will be built on with further IL input in future years of the nursing programme

1st Year Commerce Information Literacy Skills Tutorials - UCC

CONTEXT

There are 180 first year Commerce students. For the purposes of the tutorials the group was divided into 6 groups of 30. Four one hour sessions (24 in total) were delivered to each group. Attendance was compulsory and students received 5% of the module mark for attending all sessions.

LEARNING OUTCOMES

- To be able to identify different types of information sources
- To become familiar with the information sources available from the library and to know which source to choose
- To be able to devise and implement a search strategy to search the sources and find the required information
- To find out how to use the information correctly (evaluation, plagiarism, citing sources correctly and creating a bibliography)

LEARNING ACTIVITIES

- Carry out searches of databases demonstrated
- Mark, save, email records
- Search different databases and compare results

ASSESSMENT

Assessment is by two assignments. In one the tutorial group is divided into teams of four or five to discuss and critique a seminal reading in management. The other involves each student being assigned an article for which they have to find the full-text article, find an article that cites it, find a related article, find a book and a web site that cites any of the articles, briefly summarise and compare the three articles and compile a bibliography of the articles.

KEY POINTS

- Co-operation between the librarian and the lecturer was crucial to the success of the tutorials
- The skills taught were directly related to the students' assignments so students were interested

> *The library workshops have increased my confidence in finding good quality sources for my assignments and projects.* (First-year undergraduate student, UCC)

1st Year Physiotherapy: Search Skills and Finding the Evidence Workshops - RCSI

CONTEXT

Three sessions are presented to approximately 36 First Year Physiotherapy students during the Methods of Enquiry (research) module. An initial lecture on sources of information is followed by two workshops: a basic PubMed database workshop followed a month later by an advanced Finding the Evidence workshop.

LEARNING OUTCOMES

- searching PubMed using different approaches
- retrieving different types of studies
- critically evaluating search results
- identifying two relevant fulltext studies to answer the clinical problem
- using other evidence-based resources to explore the evidence further

LEARNING ACTIVITIES

In the first workshop, students follow a worksheet, guiding them through various search approaches to find relevant articles to answer a clinical question. Following an introduction to the theory of evidence-based healthcare by the lecturer, the students are assigned different clinical questions. The questions are agreed in advance by the lecturer and librarian. In the Finding the Evidence workshop, they work in groups of four and use advanced search techniques to identify types of studies. They evaluate the search results, and identify the most relevant full text systematic review and randomised controlled trial. The link to the trial is emailed to the lecturer to be critically appraised by the group in the next session.

ASSESSMENT

The workshop is evaluated by staff and students in the context of the overall module evaluation. There is no formal assessment.

KEY POINTS

The success of the sessions is due to the close collaboration between the lecturer and librarian and to the fact that students have to produce a result which is carried on to a further class.

1st Year Hospitality: Get Smart Initiative - DIT

CONTEXT

To address retention issues, and poor research skills identified amongst a cohort of 1st year students. Aim to enhance the 1st year experience, improve quality of written work submitted, encourage wider reading and student use of relevant academic resources. To be delivered in tutorial format to all 1st years in a particular school - 6 programmes in all.

LEARNING OUTCOMES

- Confident use of library to support and benefit academic study
- Ability to choose, locate and evaluate resources relevant to research needs
- Formulate a search strategy
- Use Google and internet effectively to find information
- Avoid plagiarism, understand referencing and citing, and successfully compile a bibliography

LEARNING ACTIVITIES

The library component consists of 5 sessions. Each session designed and given by library staff and lasting **one hour**. Delivered in a training lab usually with a powerpoint presentation followed by interactive exercises devised in conjunction between the library and the academic.

ASSESSMENT

- Classes coordinated and timetabled by the tutor
- Librarian works with the individual tutor to devise relevant exercises
- Assessment built it into their marking system, e.g. 5% for evidence of wider more reflective reading, applied journal research in their assignments, or in their use of referencing or quality of a bibliography
- Online questionnaire devised - responses have been encouraging

KEY POINTS

- Successful cooperation between library and academic staff
- Sessions timetabled
- Exercises devised with academics to suit the class

> *I couldn't believe there is such a large store of information available to us…electronic searching will help me get the information I want for projects in a very quick and efficient way…I can now spend more time examining the articles rather than looking for them.* (First year undergraduate student DIT)

Avoiding Plagiarism and Building Confidence in Academic Writing - UL

CONTEXT

This is a 'one shot' session within a seven session module on Research Methods for undergraduate students in a four year Digital Media Design course.

LEARNING OUTCOMES

- Students will have the necessary skills and competencies to avoid plagiarism
- Students will engage effectively with their academic learning and writing tasks
- Students will be aware of online resources available to them for ongoing support and reference

LEARNING ACTIVITIES

- Students are introduced to the Harvard referencing system and shown examples of its use in relation to referencing books, journal articles, newspaper articles and web resources
- The mechanics of in-text citation are demonstrated
- Students practice by manually referencing a number of items including a book, a journal article, a newspaper article and a web based resource
- Time is allowed for hands on practice using the bibliographic management software RefWorks
- Factsheets are provided giving details of online resources and activities developed by the library Students are encouraged to make use of these in their own time and for future reference

ASSESSMENT

The learning outcomes are not formally assessed by the librarian but referencing skills are assessed by the course leader in the assessment of submitted course work.

KEY POINTS

- Collaboration between the course leader and librarian was crucial to the success of this IL activity
- Embedding the session within an academic module ensured the skills related to the context of the students' course
- The librarian presence within the module highlighted the role of the library as a provider of ongoing and further support in relation to research support activities and information literacy tutorials

> *I didn't really understand what plagiarism was before I attended this class. I was also really nervous about referencing. Now I know not only why you have to cite and reference, but also how you do it.* (2nd year undergraduate student, UL)

3rd Year Economics Research Project Module - UCD

CONTEXT

The library component of this module consists of two practical training sessions per week over five weeks. Students submit a research project at the end of the module and the information skills sessions are designed to provide students with an appreciation of the wide range of information resources available in their discipline and beyond. Students are encouraged to develop the necessary skills to exploit a range of information sources effectively and efficiently, and to critically evaluate the information found. Areas covered include creating a research strategy, reference sources (online and print), searching skills, using Google, subject database searching, evaluating information, avoiding plagiarism and using Endnote. The sessions deliver the skills required to enable students to leave university as self directed learners and information literate graduates.

LEARNING OUTCOMES

- Create a search strategy
- Identify background information
- Use relevant print and electronic journals
- Use relevant subject databases to locate information
- Locate and evaluate web resources
- Consider alternative resources: Advanced Google and Google Scholar
- Evaluate information
- Avoid plagiarism and manage references using “Endnote”

ASSESSMENT

- Workbook of 8 assignments - 10%
- Creation of Endnote Library - 20%

KEY POINTS

- The Library component is embedded in the full module and is tied to the final project of the module
- The library had full access to the VLE (Blackboard) and the co-ordinating librarian was able to regularly communicate with students via Blackboard as well as displaying PowerPoint’s, assignment information and contact details
- The full support of the School was received and the module ran smoothly as a result
- Feedback was positive from students, and areas singled out for commendation included the Google, Endnote and database searching sessions

> *Embedding library sessions in this module has resulted in students having a better understanding of the range of resources available and have also gained skills that’ll be of benefit in the workplace when they leave university.* (Professor Rodney Thom, UCD)

ICT for Research and Learning - NUIM

CONTEXT

This is a five credit module offered to undergraduates as part of the B.A. in Local & Community Studies. The participants are part-time evening students, ranging between their third and fifth year of study. The module is delivered using flexible blended learning including 18 hours face to face, and 6 hours online work supplemented with online discussions and support via Moodle. The module aims to give participants formal training in finding, using, evaluating and managing information efficiently and effectively.

LEARNING OUTCOMES

- Develop an awareness of electronic information sources
- Find and evaluate information sources via a range of electronic tools including library catalogues, databases and the internet
- Recognise the importance of effective search strategies
- Compile annotated bibliography
- Introduction to Moodle (virtual learning environment)

LEARNING ACTIVITIES

A number of practical exercises are undertaken in class. Students can undertake the class work in pairs. The assignments relating to assessment must be completed by each student outside class.

ASSESSMENT

- Practical exercise 10%
- Database Review 10%
- Annotated Bibliography 80%

KEY POINTS

- Requires high degree of collaboration between the Library and the Department of Adult & Community Education
- Adult learners work well in peer groups
- While the face to face sessions are considered to be the most effective students enjoy the mixed delivery approach
- Student feedback indicated a high level of satisfaction with module however suggested it could be offered at an earlier stage of the degree programme for maximum benefit

> *I thought I knew everything about finding useful information for my assignments - this module proved otherwise. I found the practical elements especially helpful and will approach my research in the future very differently!* (3rd year undergraduate student, NUIM)

Finding the Evidence - RCSI Senior Cycle 1

CONTEXT

The Finding the Evidence Workshop is presented to Senior Cycle 1 students on the first day of the General Practice rotation. It is delivered over four two-hour sessions throughout the year to approximately 200 students. In addition, academic and library staff facilitate a follow-up workshop at the end of each rotation.

LEARNING OUTCOMES

During these case-based workshops, students:

- analyse case studies and define clinical questions
- use advanced features of the PubMed database to answer the questions
- critically evaluate the results
- use evidence-based filters to further refine the search
- use other evidence-based resources to explore the evidence further
- provide the answers to the clinical questions

LEARNING ACTIVITIES

Students work in small groups to initially attempt to answer the clinical questions. Following feedback to the group, clarification of search techniques and introduction to advanced searching and evidence-based filters, they try another case. Discussion follows around evaluating the results and comparing the techniques. They then search the evidence base in other resources. At the end of the rotation, students return to a follow-up workshop. Again working in small groups, they define clinical questions from cases encountered in GP surgeries, search the literature for the evidence and critically appraise the results. Both academic and library staff are on hand to answer questions and address problems.

ASSESSMENT

The workshop is evaluated in the context of the overall module evaluation. Summative assessment takes the form of an OSCE station at the end of the year.

KEY POINTS

Librarians work closely with academic staff to tailor the content of the sessions to coursework and to jointly deliver the second workshop. Students respond well to the case-based content.

> *"The input from librarian colleagues has been invaluable. Students are given an interactive library session on searching PubMed and the Cochrane Library. Student evaluation has shown that this module is very well received. We feel that the input from Library colleagues has been critical to the success of our evidence-based practice module."* (Professor, Medicine, RCSI)

Taught Postgraduate and Research Students

Advanced Legal Research for Taught Masters Students - NUIG

CONTEXT

The Advanced Legal Research module is run by the School of Law for their taught post-graduate law students. It aims to ensure that all LLM students quickly attain high level legal research and writing skills for their academic studies with further emphasis on carrying these skills forward into their professional careers. The Library component typically compromises of four lecture hours of the module, usually given through 2 x 2hr research workshops delivered in the Library's training room by the course lecturer and the law librarian. These workshops prepare students for their course research requirements, addressing practical access and search strategy needs as well as embracing important citation and style issues. The workshops also examine and evaluate the free web resources available in the legal area which will become particularly important once students begin working in a legal environment where many subscription services will not be available.

LEARNING OUTCOMES

Following these workshops, law students will:

- recognize the expected standards of legal research and citation
- distinguish and access the various legal tools at their disposal, covering both subscription and free services
- construct sophisticated case-law and journal article search strategies
- critically evaluate and analyze results with reference to the strengths and weakness of the source being searched
- be able to cite correctly, with due regard to the different formats and standards of electronic resource available

ASSESSMENT

The students answer an assignment of detailed questions covering legal sources at a case, journal and subject level. This assignment is marked by the law lecturer and contributes a percentage of their final module mark.

KEY POINTS

This is a practical approach to the complex and demanding area of legal research. The fact that it is run by the School of Law ensures student attendance and attention, also quickly revealing any difficulties in terms of student familiarity with IT use and/or the material being covered.

> *Good legal research is all about the 'where' (the theory) and the 'how' (the practice). The first step is where this case is to be found. The second step is having the skills to find it within a resource. This module balanced both elements: I learned that application is important but understanding the research process is crucial!* (Law Student, NUIG)

Information Literacy for Science and Engineering PhDs - NUIM

CONTEXT

This is Unit 1 of the Communication Skills Module which is part of a structured programme in Postgraduate Generic Skills Training for PhD research students. It is delivered using flexible blended learning with two, three hour face to face sessions supplemented with online discussions and support via Moodle.

LEARNING OUTCOMES

Following the course students will be able to:

- recognise the need for information and determine the nature and extent of the information needed
- find information effectively and efficiently
- critically evaluate information and the information seeking process
- manage information collected or generated
- apply prior and new information to construct new concepts or create new understandings

ASSESSMENT

Undertake literature review and compile an annotated bibliography.

KEY POINTS

- Student feedback indicates that the course is considered very useful at the start of the PhD programme
- The 'tailored environment' provides students with a rich learning experience.
- Face to face sessions were very valuable and could not be replaced by an online only environment
- Collaboration between the Library, Faculty of Science & Engineering and Learning Technology staff ensures a holistic approach

> *The module is directly related to the needs of students and it has a positive impact both in terms of their immediate requirement to undertake a thesis and to support them into the future in industry and other areas of the economy.* (Faculty Dean, NUI Maynooth)

Workshop series for PhD Students - UCD

CONTEXT

These Workshops are delivered by the Library and form a fundamental part of a programme called Library Support for the 4th level. The workshops are embedded in the University's Structured PHD and Research Masters Programmes.
Examples of the Workshops are 'Locating Research In Arts & Celtic Studies', 'Finding Images', and 'Exploiting Discovery Tools for Journals'.

LEARNING OUTCOMES

Learning outcomes include:

- Understanding information gateways and union catalogues
- Becoming aware of major databases in specific subject areas and how to build effective search strategies
- Learning how to effectively access journal articles including open access, and how to use abstracting and indexing databases
- Learning how to keep up-to-date in your subject through RSS technology, and alerting services

EVALUATION

- All presentations were evaluated using an evaluation form based on a Centre for Teaching & Learning template
- Coffee mornings and Focus Groups were held to garner feedback from the postgraduate students

KEY POINTS

- The Workshops are designed for Fourth Level students but are open to all postgraduates
- A special blog for researchers was established to back up the programme
- There is active collaboration between the library and the Colleges in presenting the workshops
- This is the third consecutive year the programme has run and each year builds on the experiences and outcomes of the previous year

Bibliographic Management Software Training for Postgraduates - TCD

CONTEXT

Bibliographic management software training sessions are aimed at staff, researchers and postgraduate students and are held throughout the year.
These programs are widely used to publish and manage bibliographies and reference lists. The software automates the creation of bibliographies for many scholarly publications, a tedious and error-prone activity when performed manually. Using these tools, researchers save countless hours of typing and interpreting style requirements of scholarly publications by simply selecting the publication by name and generating a perfectly formatted document. Researchers and students depend on these tools to locate bibliographic data and create bibliographies for research papers, grant proposals, reading lists, curricula vitae, manuscripts and other publications.

LEARNING OUTCOMES

Following a tutorial, participants will be able to:

- Create a database of references using four different methods
  - » Manual entry
  - » Direct export from online databases
  - » Importing using text files
  - » Connecting to library catalogues
- Manipulate and organise references within their own database of citations
- Use the software in conjunction with a word processing program to produce accurate bibliographies for research papers

EVALUATION

- As an example of self-directed learning, this course has no formal evaluation or assessment mechanism
- Feedback from course participants has been excellent and classes are often over-subscribed

KEY POINTS

- The Library is the main provider of training and support for bibliographic management software in the University
- Bibliographic management software is widely used across all academic disciplines
- Proficiency using bibliographic management software is increasingly being offered as an essential skill set for third/fourth level students and staff

> *This workshop has saved me hours working through my references, leaving more valuable time for writing!* (Postgraduate student, TCD)

Graduate Information Literacy Module - NUIG, TCD, UCC

CONTEXT

This is one of six modules within the SIF (HEA Strategic Innovation Fund) Generic Skills Project. The purpose of the Project is to develop generic training modules for PhD students. It is based on current thinking that these students should be given the opportunity to take classes, including generic skills, in conjunction with their own core work on original research.

COLLABORATION

The Graduate Information Literacy module, steered by NUIG, is the result of collaboration by librarians at NUIG,TCD and UCC. Input was also sought and given by students, deans, PhD supervisors, administrative staff and education practitioners. The content while generic to all PhDs, has STM subject-specific examples.
A web-based version of the module is available at www.informationliteracy.ie. Some of the units in the module are designed to be taught face-to-face, whereas others can be studied online at the student's own pace. The web-based module will be customisable with the VLEs available in each institution.

LEARNING OUTCOMES

The module aims to help students:

- Place Information Literacy in the context of their research
- Find the relevant literature/key resources and learn how to search them effectively
- Evaluate research results
- Track down results and keep up-to-date
- Manage information (using EndNote)
- Use information ethically
- Identify how to publish and disseminate their work

ASSESSMENT

- 5 ECTS credits based on 100% attendance and completion of all assessment tasks

KEY POINTS

- The SIF module is an excellent example of the benefits of collaborative effort
- The budget allowed for the employment of a multimedia production company to create the web-based version of the module
- Module is backed at the highest level in the universities and is being offered as a fully credited and assessed module to PhD/Research Masters students across all disciplines

> *I am delighted to have overseen the development of a highly innovative new course for postgraduate research students. It represents a huge advance in the provision of key skills for research students, for which all concerned should be warmly congratulated.*
> (Professor Alan Kelly, Dean of Graduate Studies, UCC)

References

American Library Association. 1989. Presidential Committee on Information Literacy: Final Report.
Available from: http://www.ala.org/ala/mgrps/divs/acrl/publications/whitepapers/presidential.cfm
[Accessed: 14 January 2010]

Breen, E. Fallon, H. 2005. Developing Student Information Literacy to Support Project and Problem-Based Learning, IN: Barrett, T & Fallon, H. (eds), Handbook of Enquiry and Problem-Based Learning: Irish Case Studies and International Perspectives. Galway: Centre for Excellent in Learning and Teaching, NUI Galway & AISHE (All Ireland Society for Higher Education).
Available from: http://www.aishe.org/readings/2005-2/chapter17.pdf
[Accessed: 2 March 2010]

Bruce, C. 2004. Information Literacy Blueprint.
Available from: http://www.griffith.edu.au/ins/training/computing/web/blueprint/content_blueprint.html
https://courses.washington.edu/mlis560/su09/Module1/bruce_information_literacy_blueprint.pdf
[Accessed: 3 March 2010]

Bundy, Alan (ed.) 2004. Australian and New Zealand Information Literacy Framework: principles, standards and practice. 2nd edition. Adelaide: Australian and New Zealand Institute for Information Literacy.
Available from: http://www.anziil.org/resources/Info%20lit%202nd%20edition.pdf
[Accessed: 12 January 2010]

Consortium of National and University Libaries (CONUL), 2004. Information Literacy Policy.
Available from: http://www.conul.ie/committees/documents/CONULILpolicyfinal.doc
[Accessed: 4 March 2010]

Dodd, L, 2007. The impact of problem-based learning on the information behaviour and literacy of veterinary medicine students at University College Dublin.
Journal of Academic Librarianship, vol. 33(2) pp.206-216.

Engineers Ireland. 2007. Accreditation Criteria for Engineering Education Programmes.
Dublin: Engineers Ireland.
Available from: http://www.engineersireland.ie/media/engineersireland/services/Download%20the%20accreditation%20criteria%20(PDF,%20240kb).pdf
[Accessed: 3 March 2010]

Higher Education Authority, 2009. Open and flexible learning: HEA position paper. November 2009. Dublin, HEA.
Available from: http://www.nairtl.ie/documents/HEA%20-%20Open%20and%20Flexible%20Learning%20paper.pdf
[Accessed: 3 June 2010]

Irish Universities Association. 2005. Reform of 3rd Level and Creation of 4th Level Ireland: Securing Competitive Advantage in the 21st Century: A framework proposal submitted by the Irish Universities Association.
Available from: http://www.iua.ie/publications/documents/publications/2005Reform3rdCreation4thlevelBrochure.pdf
[Accessed: June 23 2010]

Queensland University of Technology Library. 2005. Pilot your Information Navigator: an online information skills tutorial [online] Module 1:
Available from: https://pilot.library.qut.edu.au/module1/1_5.jsp
[Accessed: 3 March 2010]

Appendix 1

Australia and New Zealand Information Literacy Framework: principles, standards and pratice. (Bundy 2004)

The standards as set out in the ANZIIL Framework, and endorsed by CONUL, are listed below. They do not include all examples available. To see all examples, we recommend you consult the complete framework document which is available at: http://www.anziil.org/resources/Info%20lit%202nd%20edition.pdf (Please note some of the examples have been slightly amended to accommodate local needs).

Standard	Outcomes	For example, the information literate person
The information literate person recognises the need for information and determines the nature and extent of the information needed	Defines and articulates the information need	~ Explores general information sources to increase familiarity with the topic ~ Identifies key concepts and terms in order to formulate and focus questions ~ Defines or modifies the information need to achieve a manageable focus ~ May confer with others to identify or define a research topic or other information need
	Understands the purpose, scope and appropriateness of a variety of information sources	~ Understands how information is organised and disseminated, recognising the context of the topic in the discipline ~ Differentiates between, and values, the variety of potential sources of information ~ Identifies the intended purpose and audience of potential resources, for example, popular vs scholarly, current vs historical ~ Differentiates between primary and secondary sources, recognising how their use and importance vary with each discipline
	Re-evaluates the nature and extent of the information need	~ Reviews the initial information need to clarify, revise, or refine the question ~ Articulates and uses criteria to make information decisions and choices
	Uses diverse sources of information to inform decisions	~ Understands that different sources will present different perspectives ~ Uses a range of sources to understand the issues ~ Uses information for decision making and problem solving
The information literate person finds needed information effectively and efficiently	Selects the most appropriate methods or tools for finding information	~ Identifies appropriate investigative methods, for example, laboratory experiment, simulation, fieldwork ~ Investigates benefits and applicability of various investigative methods ~ Investigates the scope, content, and organisation of information access tools ~ Consults with librarians and other information professionals to help identify information access tools

Standard	Outcomes	For example, the information literate person
	Constructs and implements effective search strategies	~ Develops a search plan appropriate to the investigative method ~ Identifies keywords, synonyms and related terms for the information needed ~ Selects controlled vocabulary or a classification specific to the discipline or information access tools
	Obtains information using appropriate methods	~ Uses various information access tools to retrieve information in a variety of formats ~ Uses appropriate services to retrieve information needed, for example, document delivery, professional associations, institutional research offices, community resources, experts and practitioners ~ Uses surveys, letters, interviews, and other forms of inquiry to retrieve primary information
	Keeps up to date with information sources, information technologies, information access tools and investigative methods	~ Maintains awareness of changes in information and communications technology ~ Uses alert/current awareness services ~ Subscribes to email lists and discussion groups ~ Habitually browses print and electronic sources
The information literate person critically evaluates information and the information seeking process	Assesses the usefulness and relevance of the information obtained	~ Assesses the quantity, quality, and relevance of the search results to determine whether alternative information access tools or investigative methods should be utilized ~ Identifies gaps in the information retrieved and determines if the search strategy should be revised ~ Repeats the search using the revised strategy as necessary
	Defines and applies criteria for evaluating information	~ Examines and compares information from various sources to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias ~ Analyses the structure and logic of supporting arguments or methods ~ Recognises and questions prejudice, deception, or manipulation ~ Recognises the cultural, physical, or other context within which the information was created and understands the impact of context on interpreting the information
	Reflects on the information seeking process and revises search strategies as necessary	~ Determines if the original information need has been satisfied or if additional information is needed ~ Reviews the search strategy ~ Reviews information access tools used and expands to include others as needed ~ Recognises that the information search process is evolutionary and nonlinear
The information literate person manages information collected or generated	Records information and its sources	~ Organises the content in a manner that supports the purposes and format of the product, for example, outlines, drafts, storyboards ~ Differentiates between the types of sources cited and understands the elements and correct citation style for a wide range of resources

Standard	Outcomes	For example, the information literate person
	Organises information	~ Compiles references in the required bibliographic format ~ Creates a system for organising and managing the information obtained, for example, Endnote, RefWorks
The information literate person applies prior and new information to construct new concepts or create new understandings	Compares and integrates new understandings with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information	~ Determines whether information answers the research question and builds on information used from other sources. ~ Recognises interrelationships between concepts and draws conclusions based upon information gathered ~ Selects information that provides evidence for the topic and summarises the main ideas extracted from the information gathered
	Communicates knowledge and new understandings effectively	~ Chooses a communication medium and format that best supports the purposes of the product and the intended audience ~ Uses a range of appropriate information technology applications in creating the product
The information literate person uses information with understanding and acknowledges cultural, ethical, economic, legal, and social issues surrounding the use of information	Acknowledges cultural, ethical, and socioeconomic issues related to access to, and use of, information	~ Identifies and can articulate issues related to privacy and security in the print and electronic environments ~ Identifies and understands issues related to censorship and freedom of speech
	Recognises that information is underpinned by values and beliefs	~ Identifies whether there are differing values that underpin new information or whether information has implications for personal values and beliefs ~ Applies reasoning to determine whether to incorporate or reject viewpoints encountered
	Conforms with conventions and etiquette related to access to, and use of, information	~ Demonstrates an understanding of what constitutes plagiarism and correctly acknowledges the work and ideas of others ~ Participates in electronic discussions following accepted practices, for example, Netiquette
	Legally obtains, stores, and disseminates text, data, images, or sounds	~ Understands fair dealing in respect of the acquisition and dissemination of educational and research materials ~ Respects the access rights of all users and does not damage information resources ~ Obtains, stores, and disseminates text, data, images, or sounds in a legal manner ~ Demonstrates an understanding of intellectual property, copyright and fair use of copyrighted material

NOTES

