

THETA

The Higher Education Technology Agenda

Just-In-Time Learning for Library Research Skills

In this paper we present a project developed to support student research, conducted jointly by The University of Melbourne School of Engineering and The University of Melbourne Library. Our on-line resource supports students in developing scholarly research skills, providing “anytime-anywhere” support. The resource is currently tailored to students undertaking research projects in Master of Engineering degrees, and is designed to be extendible eventually to cater for other degrees and other disciplines. So far the resource has been released only to selected students, for trial and for formative evaluation, and will be accessible to all research students in the Melbourne School of Engineering from 2015. In this talk, we will outline the structure and content of the resource, discuss major design decisions during development, and will also present the results of our evaluation of how the resource supports student development of library research skills.

Background

Prior to the development of our on-line resource, a librarian would visit each class of 4th and 5th year engineering capstone or research project students to show them some of the more useful library resources, such as how best to use search facilities and how to use databases. While many students found this library skills lecture useful, not everything could be covered, or absorbed, in a 60 minute lecture, so students were sometimes left with gaps in their knowledge. More importantly, when students needed to apply the knowledge, often sometime after the lecture, many had forgotten much of what they had learned. There was also the ubiquitous problem of students who did not attend the lecture, due to other commitments, or because they already had basic library skills and did not realise how much more they could learn.

Other resources such as an extensive collection of Library Subject Research Guides, generic library tours and classes, and the librarians themselves, were made available to these students, but did not seem to fill the gap adequately.

Development of the On-Line Library Research Skills Resource

Our starting point for this project was the hypothesis that an integrated, on-line resource would provide better support for beginning research students in using the library for their research projects. Since students learn readily most when the material is most relevant to them, and given that this moment varies time from student to student, depending on their particular project, their rate of progression, and their starting level of skills, a resource that is accessible on demand, “anywhere, anytime”, seemed like a good idea.

The on-line resource we have developed aims to provide instruction when the student needs it. This integrated resource is structured around a framework of instructional text with embedded multimedia facilities to provide engaging, interactive context. Self-assessment quizzes with immediate feedback and suggestions for applying the content of each learning component to the students’ own research topic are also key features. The resource is delivered through the university’s Learning Management System Blackboard™, which is available on mobile devices as well as stationary platforms, when and where the student needs it.

Components of the resource we have developed include:

- Stand-alone modules on different topics. Student can either work through the modules sequentially or access those they feel would be most useful to them at any given point in time.
- Text with embedded interactive exercises, such as typing in keywords and Boolean operators, without leaving the module, and seeing from the results how different operators narrow or broaden a search.
- Comparison of various resources and approaches, e.g. specific databases vs. Google Scholar.
- Links to carefully selected resources and information.
- Examples, used liberally to clarify exposition.
- Images, used to engage interest and to clarify concepts.
- Videos, used for both engagements and expository purposes. In some of these videos postgraduate engineering students demonstrate their own personal tips and discuss their value.
- Direct access to the library live chat-line, a popular resource where librarians from the University of Melbourne library answer students’ questions in real time.
- A catalogue of relevant resources available in the library, grouped by discipline.
- Self-assessment quizzes, with immediate feedback.
- Exercises designed to guide the student in applying their new skills directly to their own research project.

Evaluation

Formative assessment of our library research skills resource has been carried out using survey data, written comments, and interviews with selected students, and the results have already been incorporated into the design.



With our first general roll-out of the resource to all students, at the start of 2015, we will be conducting summative assessment, using this larger, unselected cohort. We will assess which parts of the resource are most frequently accessed from the embedded statistics that are a feature of Blackboard™. Additionally, we will use survey instruments, supplemented by focus group discussions, to obtain subjective assessments from students of what they found most (or least) useful and why, and their suggestions for further development.

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Presentation

The presentation at Theta 2015 will include:

- A demonstration of the on-line resource and its facilities, with emphasis on some of its more unusual features and discussion of key design decisions.
- Preliminary analysis of the effectiveness of the online resource in supporting the development of library research skills, based on:
 - o Usage statistics
 - o Student responses obtained from anonymous student surveys and focus group discussions with volunteers.

We will also forecast the next steps in the project, which will include specific expansion for students in the Master of Engineering, and possibilities for generalising the resource to encompass disciplines outside of engineering.

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