Embedding Inquiry/Research: Moving from a minimalist model to constructive alignment.

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Abstract

For first year students, developing academic research skills is like learning a new language; you need to start early and practice often. Taking a constructively aligned approach to embedding research skills in first year subjects means introducing students to key concepts early and allowing time and space to practice and rehearse skills in low risk settings prior to formal assessment. Furthermore students need the opportunity to demonstrate improvement after receiving feedback from their formal assessment.

This paper outlines how this approach to embedding inquiry/research skills was applied in a large first year education subject at La Trobe University in 2011 and then again in semester one, 2012. The approach used involves a partnership between academic staff and library staff and the paper discusses the advantages and outcomes of this model and poses questions in relation to application for other subjects and disciplines.

Introduction

At La Trobe University Inquiry/Research is one of six graduate capabilities[1]. Embedding Inquiry/Research skill development and assessment into the design of a subject draws attention to the importance of those skills that academics value (finding research, summarising it, and referencing it properly), but that students often overlook in their drive for grades and content. A constructively aligned approach to subject design allows time and space to introduce students to research skills, to practice skills in low risk settings prior to formal assessment, as well as the opportunity to demonstrate improvement after receiving feedback from the formal assessment. This approach to embedding research skills in subject design is strengthened when development involves a partnership between academic staff and professional library staff. Each partner brings specialist expertise that enhances the design of

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[1] The six La Trobe graduate capabilities are; writing, speaking, teamwork, critical thinking, inquiry/research, and creative problem solving. *Design for Learning* (La Trobe University, 2009) is the University's agreed curriculum plan and involves mapping and embedding graduate capabilities into every course, specifying intended learning outcomes (ILOs) for these capabilities and making ILOs explicit to students. In addition it is a requirement of *Design for Learning* that all students are provided with early diagnostic and feedback mechanisms in relation to the six graduate capabilities.

learning activities and improves specified student learning outcomes related to research skill development.

The relationship between academics and faculty librarians is acknowledged as central to embedding information literacy to support research development in individual subjects (Johnson, 2010; Da Costa 2010; Mackay & Jacobson, 2010). There is a plethora of case studies that describe the advantages of faculty-librarian collaboration in terms of the positive, practical and pedagogical outcomes of embedding information literacy (Miller, 2010; Resnis et al., 2010; SCONUL, 2004; Callan et al., 2001) and especially in the online environment (Mackey & Jacobson, 2011). However there is little discussion about explicitly using constructive alignment as the basis for collaboration on subject design.

This approach was trialled in Concepts of Wellbeing (EDU1CW), a large first year education subject at La Trobe University. This paper outlines the process developed in 2011 and how this model was further developed for semester one, 2012. Student results from 2012 will be presented to review the success of the model and discuss the advantages and outcomes of the partnership between faculty and library and pose questions in relation to application for other subjects and disciplines.

Background and Context: Concepts of Wellbeing (EDU1CW)

EDU1CW is a core subject for first year students in the Faculty of Education. This subject is delivered in the first semester of the first year of study for all primary and secondary Bachelor of Education students (approximately 350 students each year). There are three components to this subject: lectures, tutorials, and weekly independent learning activities in the Leaning Management System (LMS).

One of the major aims of EDU1CW is to facilitate first year students' transition to the university through a content focus on their personal wellbeing, and a skills focus on their academic capabilities. Content addresses all of the dimensions of health (physical, mental, emotional, social, spiritual, and environmental) and there is a focus on key issues for first year students such as: stress and coping with the transition to university; alcohol; sexual health; and body image and self-esteem. The nature of the content is presented with a dual focus on a student's personal wellbeing, and their capacity to teach about wellbeing in schools. Full details of the subject have been published elsewhere (Yager, 2011).

Evolution of embedding Inquiry/Research skills in EDU1CW

Before 2011 there was a very minimalist approach to supporting research skill development in EDU1CW. Library scaffolding for skill development included a workshop but this was not clearly linked to leaning outcomes or assessment. In 2011 to support implementation of *Design for Learning* the library increased options for embedding research skill development including generic online learning activities that matched learning outcomes in the University Information Literacy Framework (La Trobe University, 2011). These online learning objects include an inquiry/research quiz (IRQ) and a suite of online modules (LibSkills)[2].

In 2011 the IRQ and LibSkills were embedded in the LMS for EDU1CW. More importantly the assessment design was modified in order to trial a rubric for the assessment of student's applied Inquiry/Research skills using the University Information Literacy Framework (La

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[2] Available from *Inquiry/Research Toolkit* - http://www.lib.latrobe.edu.au/ir-toolkit/

Trobe University, 2011). The Framework has six standards which articulate learning outcomes at cornerstone, midpoint and capstone levels. The cornerstone outcomes from the Framework were converted into a rubric and used to assess students' assignments.

This was the start of an evolution towards a constructively aligned approach for embedding research skill development. Constructive alignment involves making connections between the intended learning outcomes of the subject, the teaching and learning activities, and the assessment (Biggs & Tang, 2007). One of the aims of EDU1CW is to develop the graduate capability of Inquiry/Research. The IRQ and LibSkills as well as some face-to-face learning activities contributed to the direct and explicit teaching of these skills. Students then practiced and demonstrated their skills in their assessment, and were given formal feedback on whether they met the cornerstone standards for Inquiry/Research.
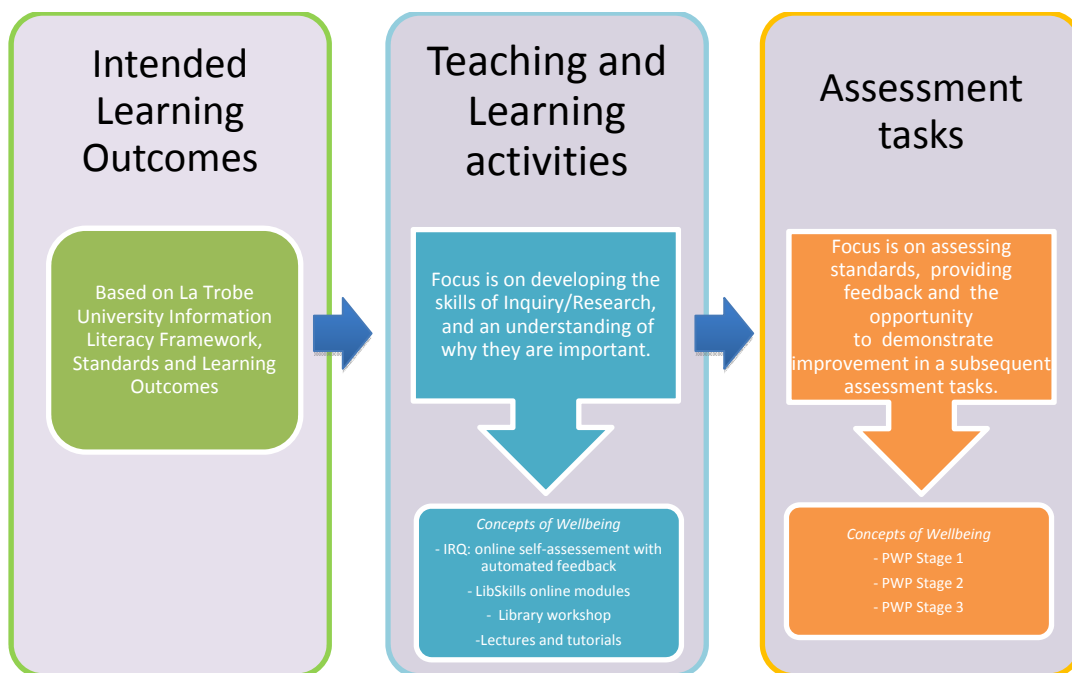

Figure 1: Basic model used in EDU1CW for embedding Inquiry/Research - linking learning outcomes, teaching and learning activities and assessment.

The model provided in Figure 1 uses a range of strategies to embed this capability, including early diagnosis and feedback on skills using the IRQ and direct instruction in lectures and tutorials. The major assessment - the Personal Wellbeing Plan (PWP) - facilitates Inquiry/Research skill development in three stages:

Stage 1 : the *Proposal* (10%, due week four) required students to present an evidence-based plan for behaviour change and to provide the APA references of two peer-reviewed journal articles that they might use to support this plan in Stage 2. The Proposal was marked with feedback focussing on academic writing and referencing skills as well the suitability and credibility of the articles chosen and suggestions for refining database search strategies.

Stage 2: the *Theoretical and Background Information* (30%, due in week eight) task required students to summarise peer reviewed journal articles that related to the area of wellbeing that they had chosen, and to indicate how the research related to their plan. The Inquiry/Research rubric was printed on the back of the regular rubric used to assess Stage 2 of the assignment. Students received information about which of the standards they had met, not met, and

exceeded as well as an overall indication of whether they met the standards for this graduate capability. Feedback to the students focussed on their capacity to summarise the methods and results of the research that they had found, and continued to provide suggestions for the improvement of writing and referencing skills.

Stage 3: the *Reflection* (20%, due week 11) required students to respond to a series of structured reflective questions about their experiences of behaviour change and to demonstrate continuing improvement in their writing and referencing skills. Students again submitted the previous two stages of their PWP with the Reflection. This allowed students the opportunity to further practice their inquiry/research skills after they had received formal feedback on how well they had met the cornerstone standards for this graduate capability.

Impact

The assessment of Inquiry/Research in this subject attempted to assess students' skills in this area against a standardised framework of learning outcomes. Although this did not allow for an in-depth assessment in this area, it at least provided some indication of each student's application of the skills of Inquiry/Research. Although the process used in 2011 did work quite well, a number of improvements are being implemented in 2012 including pulling together the different aspects of Inquiry/Research, and having a much more open and connected dialogue with the students about what each of the elements are, and what they aim to achieve. Direct and explicit links to the Information Literacy Framework, discussions about how learning activities link to the Framework and discussions about the reasons the measurement of these skills will lead to a more holistic growth of this graduate capability.

In addition, we are comparing the results that students received on the IRQ with the applied rubric assessment of student's inquiry/research skills. Samples of student's PWP assignments will also be collected with the aim of increasing grading standards and moderation of the assignment itself in future years and to demonstrate inquiry/research attainment. Using this procedure there will be an unambiguous demonstration of what "standard met" and "standard not met" looks like for each of the learning outcomes.

The PWP assessment has evolved over the last few years, and it has come to accommodate many important aspects of transition to first year study in education. Although there have been elements of the inclusion of inquiry/research instruction and assessment in the past, the recent more explicit identification of this capability, and the process of embedding it into assessment has had many benefits. From the perspective of the subject coordinator, the inclusion of the Inquiry/Research graduate capability has provided a strong framework on which to advise and motivate students to use high quality research to inform their health decisions. Having a framework and standards to work with has provided a common language and a stronger basis on which to provide feedback to students about the process of finding and acknowledging high quality research. In addition, grading Inquiry/Research skills against University standards demonstrates to students the importance of these capabilities, not only for this assignment, but for the remainder of their degree and their career.

The success of the IRQ and LibSkills to support research skill development also suggests that when librarians build reusable learning objects that are designed to be used a part of a constructively aligned curriculum they can work in partnership with academics in a way that goes beyond individual subjects to supporting University objectives related to research skill development. The teaching and learning outcomes of this kind of partnership are

measureable, sustainable and most importantly have potential to be meaningful for students in all disciplines.

Questions and issues for audience discussion

1) At the beginning of the session- What inquiry/research skills do you think university students should learn in first year?
2) How do we define inquiry/research and why is it important?
3) How transferable is the 'drip filter' model of allowing students the time and space to practice new skills in low risk settings prior to formal assessment.
4) At the end of the session- Could this approach to inquiry /research be applied to other disciplines or other elements that need to be embedded in the curriculum? Is the opportunity to demonstrate improvement after receiving feedback from the formal assessment transferable to other skill areas?
5) The process of embedding these skills was supported by the library, how transferable are library generic reusable learning objects?

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