

Research-Based Learning

Strategies for successfully linking teaching and research

Context and key issues

Research, and the subsequent creation, validation and dissemination of knowledge, are fundamental to the operation of a research-intensive university. The intention of research-based learning is that university academics make positive moves to help students build strong intellectual and practical connections between research frontiers and the students' own learning. Student benefits include:

- Inducting students into the disciplines' values, practices and ethics
- Ensuring course content includes cutting edge research findings
- Increasing students' understanding of how their chosen discipline contributes positively to society
- Developing and enhancing students skills and capabilities including:
 - Generic skills such as critical and analytical thinking, information retrieval and evaluation; and problem solving
 - Skills in conducting and evaluating research that are helpful to students' ongoing personal and professional lives.
- Providing enhanced opportunities for teaching and learning approaches such as inquiry-based and experiential methods that have been linked to positive learning outcomes for students

Research-based learning is a multi-faceted concept referring to a variety of learning and teaching strategies that link research and teaching. Good practice in research-based learning may include:

- Research outcomes informing the curriculum
- Research-process based methods of teaching and learning
- Learning to use the tools of research
- Developing an inclusive research context (Blackmore & Fraser, 2007)

The following strategies provide a guide for incorporating research-based learning into courses and programs. There is overlap between categories and some suggestions are more appropriate in some disciplines, at some year levels and in some teaching and learning contexts than others are. They give a range of options that will be most effective if tailored to your particular context and student cohort.

Strategies for successfully linking teaching and research

1. **Draw on personal research in designing and teaching courses**
 - Incorporate current research directly into the curriculum as the focus of an entire course.
 - Refer to your own experience of tackling 'real world' problems in your research as illustrative examples to help students understand ideas, concepts and theories.
 - Illustrate the values, practices and ethics of your discipline by having faculty members, including postgraduate students, discuss their current research projects.
2. **Place the latest research in the field within its historical context in classroom teaching**
 - Contextualise discussions of current research findings by referring to some of the discredited theories of the past and the passionate debates of the present.
 - Demonstrate the provisional nature of knowledge and its dynamic and evolving nature with an historical perspective showing how current policies and practices have evolved from earlier practices.

3. **Design learning activities around contemporary research issues**
 - Ask students to explore cutting-edge research problems or to suggest solutions to current real world problems based on their knowledge of the fundamentals of the discipline. Variants of this activity include asking students to:
 - Investigate the reporting of the status of a current research question in the discipline by comparing media reporting of a study with the official report.
 - Analyse the methodology and argument presented in a journal article setting out recent research findings.
 - Conduct a small-scale literature review, leading to a conclusion about the current state of knowledge and further questions to be addressed.
4. **Teach research methods, techniques and skills explicitly within programs**
 - Develop students' understanding of research methodologies during laboratory classes.
 - Design research methodology courses that provide opportunities to apply research skills to authentic research problems.
 - Design assessment tasks within subjects that provide students with opportunities to learn different methods and skills associated with key contemporary research issues.
5. **Build small-scale research activities into undergraduate assignments**

Students at all levels can benefit from small-scale research activities that can often be carried out in groups. This mirrors the research culture of working in research teams rather than conducting individual research.

 - Ask students to analyse research data from existing 'real world' projects.
 - Provide students with a research question which requires them to conduct a small-scale literature review, decide on methodology, gather data, write up results and reach conclusions.
 - Offer capstone courses that focus on a major project utilising the research skills and disciplinary knowledge acquired in previous semesters.
6. **Involve students in departmental research projects**
 - Give students a self-contained project within a larger project.
 - Organise students to act as research assistants to higher degree research students or faculty members.
 - Organise site visits to university research centres.
7. **Encourage students to feel part of the research culture of Departments**
 - Inform undergraduate students about the research interests and strengths of staff in the Departments in which they are studying.
 - Refer to colleagues' areas of interest and achievements and, where possible, invite them to speak to students about their work.
 - Encourage undergraduate and postgraduate students to attend research seminars by visiting scholars, give papers at conferences, and host student conferences.
8. **Infuse teaching with the values of researchers**

Encourage students to understand and aspire to researchers' values such as objectivity, respect for evidence, respect for others' views, tolerance of ambiguity, and analytical rigour, by:

 - Modelling researchers' values in classroom interactions
 - Talking about the process that researchers go through before their work is published and the number of revisions typically involved
 - Providing structured learning experiences that require students to develop these values, such as, providing research articles presenting opposing arguments on the same topic and asking students to analyse their validity and draw a conclusion

Acknowledgements: Adapted from Baldwin, G. (2005). *The teaching-research nexus: How research informs and enhances learning and teaching in the University of Melbourne*. Melbourne: The University of Melbourne. Available in electronic form from: <http://www.cshe.unimelb.edu.au>. Blackmore, P. and Fraser, M. (2007). Researching and teaching: Making the link. In P. Blackmore & R. Blackwell (Eds.), *Towards strategic staff development in higher education* (pp. 131-141). Maidenhead, UK: McGraw-Hill International.