

Enhancing undergraduate engagement through research and inquiry

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Outline

- ⊗ Why engage undergraduates in research and inquiry?
- ⊗ My ALTC National Teaching Fellowship
- ⊗ Practical implications
- ⊗ How to move this undergraduate research agenda forward



National documents

- ⊗ "Public funding should be directed only to those institutions that: encourage both students and staff to engage in critical enquiry...." (Bradley Review Report page 7)
- ⊗ "Self-fulfilment, personal development and the pursuit of knowledge as an end in itself; the provision of skills of critical analysis and independent thought to support full participation in a civil society; the preparation of leaders for diverse, global environments; and support for a highly productive and professional labour force should be key features of Australia's higher education." (Transforming Australia's Higher Education System)

Integrating research and teaching to enhance student engagement

- ⊗ Positive impact on retention and satisfaction
- ⊗ Students learn what research is and how to do it
- ⊗ They develop a sense of professional identity
- ⊗ Increases in self confidence
- ⊗ Develops of advanced technical skills, problem solving, creative thinking and communication skills e. g. giving presentations
- ⊗ Develops independent work habits
- ⊗ Enhances teamwork and collaboration
- ⊗ Ability to deal with ambiguity and obstacles
- ⊗ Clarifies career goals



What the AUSSE measures...

- ⊗ Six engagement-focused scales
 - ~ Academic Challenge
 - ~ Active Learning
 - ~ Student and Staff Interactions
 - ~ Enriching Educational Experiences
 - ~ Supportive Learning Environment
 - ~ Work Integrated Learning
- ⊗ Six outcomes-focused measures
 - ~ Higher-order Thinking
 - ~ General Learning Outcomes
 - ~ General Development Outcomes
 - ~ Average Overall Grade
 - ~ Retention Intention
 - ~ Overall Satisfaction



High impact educational practices

(Kuh, 2008)

1. First year seminars and experiences
2. Common intellectual experiences
3. Learning communities
4. Writing-intensive courses
5. Collaborative assignments and projects
6. Undergraduate research
7. Diversity/global learning
8. Service learning, community-based learning
9. Internships
10. Capstone courses and projects



Aim of my Fellowship

To enhance student engagement in learning through supporting the development in Australia of undergraduate research and inquiry



How to identify national needs

- ⊗ Study tours
- ⊗ National documents
- ⊗ Undergraduate research
- ⊗ Key personnel



Intended outcomes

- ⊗ Identify national needs
- ⊗ Enhance debates concerning engagement of undergraduate students in research and inquiry
- ⊗ Establish a set of readily available resources and protocols to bridge gaps between current and future practice
- ⊗ Disseminate these through a [website](#) and discussions
- ⊗ Provide the foundation for the establishment of a national centre for the integration of research, teaching and learning

Definition of undergraduate research and inquiry

[An] inquiry or investigation or a research-based activity conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline and/or to understanding. (following Beckman & Hensel, 2007)

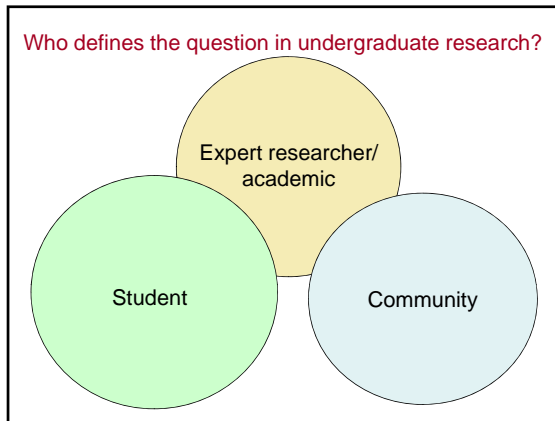


THEMES AND ISSUES

- ⊗ How to assess inquiry-based learning
- ⊗ How to establish an undergraduate scholars' research program
- ⊗ Does the system of modular units help or inhibit the development of inquiry-based approaches to teaching and learning
- ⊗ How to deal with issues relating to research ethics
- ⊗ How to foster critical enquiry among students
- ⊗ How to deal with the myth that students just want lectures
- ⊗ How to engage large groups of students in research and inquiry
- ⊗ Funding excellence in integrating research and teaching
- ⊗ Time and workload issues
- ⊗ Ensuring students study the prerequisites
- ⊗ Students' motivation and preparedness
- ⊗ Can all students participate in research?
- ⊗ Is research only for high achieving students?
- ⊗ The role of undergraduate research in different kinds of institutions
- ⊗ The role of undergraduate research in regional Australia
- ⊗ encouraging under-represented groups into graduate study
- ⊗ Training the next generation of researchers and academics
- ⊗ How to progressively develop research across the whole curriculum
- ⊗ How to specify open-ended learning outcomes
- ⊗ Who defines the research questions and how?



Tensions in implementing undergraduate research and inquiry

Student, process centered	↔	Outcome, product centered
Student initiated	↔	Faculty initiated
Honors students	↔	All students
Curriculum based	↔	Co-curricular
Collaborative	↔	Individual
Original to student	↔	Original to discipline
Interdisciplinary	↔	Discipline based
Campus/community audience	↔	Professional audience




Research in the curriculum can be carried out

1. Assignments and tutorials within specific subjects
2. Whole courses or programs, for example across year levels
3. At whole of degree level e.g. PBL, IBL

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What needs to change?


- ⊗ Course organisation structures: from individuals to course teams
- ⊗ Module flexibility
- ⊗ Vertical integration
- ⊗ Ideas about research and who is capable of doing it
- ⊗ Teaching spaces


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Concluding key issues


- ⊗ Importance of undergraduate research as a beginning preparation for research careers
- ⊗ "The path I am setting out...raises the expectations we have of our young people and their parents and of our great institutions. It asks them to be bolder and more ambitious in what can and should be achieved" (Hon Julia Gillard MP 4th March 2009)

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- ⊗ **Picture of Uno cycle** by Ben Gulak <http://www.nytimes.com/2009/01/04/education/edlife/ideas-Uno.html?ref=edlife> New York Times article: An Easy Ride Around the Crowd of Old Polluters
- ⊗ **Uber shelter** by Raphael Smith: <http://www.nytimes.com/2009/01/04/education/edlife/ideas-ubershelter.html?ref=edlife>
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- ⊗ **Picture of Mars Rover**: From Jet Propulsion Laboratory, California Institute of Technology: <http://mars.jpl.nasa.gov/~j20031104a.html>
- ⊗ Picture of booklets from various undergraduate conferences and colloquia taken by Angela Brew