Introduction

- The Boyer Commission Report (1998) advocated the benefits of Undergraduate Research Experiences (UREs) through engaging students in authentic and experiential learning.
- The education literature continues to report on the ways students engage with research and the benefits they gain.
- This poster describes UREs within the context of an Australian research-intensive university, and reviews the key findings from a large-scale project examining URE diversity.
- The project report provides evidence supporting the diversity of UREs available to students at a research-intensive university.
- The diverse models available for engaging students in research experiences are characterised through four examples.

Institutional Context

The University of Queensland (UQ) was established in 1910 and is one of Australia’s premier research institutions offering a comprehensive education within a research-intensive context. UQ consistently ranks in the top 3 Australian universities in research income. UQ has a total undergraduate student enrolment of over 40,000 (32,000 full-time equivalent (FTE)) from 128 countries; including 6,800 FTE postgraduate students. UQ offers a diverse range of undergraduate degrees, the largest being the 3 year Bachelor of Arts & the 4 year Bachelor of Engineering programs, each enrolling more than 1,000 first year students per year. UQ employs more than 2600 FTE academic staff.

The study illustrated the diversity of ways in which academics engage students in research and, importantly, also engaged academic staff in explicit conversations about the nature of undergraduate research. Beckman and Hensel (2009) called for institutions to engage in explicit conversations on the diversity of ways in which undergraduate students could be involved in research within each individual institutional context. This study has enabled individual academics to understand more clearly the diversity of possible ways to engage students in undergraduate research, as well as allowed the development of a detailed resource of URE models, aims, characteristics and student benefits across a wide range of disciplines.

Examples representing the diversity of URE models at UQ

**Undergraduate Research in 1st Year Chemistry (CASPIE)**

Outcome-centred, all students, faculty initiated, curriculum-based, collaborative, original to the discipline (new knowledge), discipline-based

Active student learning occurs in chemistry through a close collaboration with the Purdue University Centre for Authentic Science Practice in Education (CASPIE). The CASPIE model provides students with an opportunity to design experiments and collect data, contributing to the real research of a scientist. The student benefits include increased engagement, gains in research and communication skills, and ability to identify and solve experimental problems. By linking the practical to the work of a scientist, this model enables students to see the relevance of their work to current research, and gain confidence in their ability to contribute to the development of knowledge in their discipline.

**Undergraduate Science Students’ Experience of Research (USSER)**

Student-centred, all students, informal co-curricula, individual, multi-disciplinary

The USSER Network is a co-curricular program open to all undergraduate science students, which welcomes students into the research culture of UQ through a combination of informal lunches, tours and laboratory placements. Evaluations of the USSER Network indicate that students gain an increased understanding of what a career in research entails, begin to realise the diversity of research being conducted at UQ, make connections with UQ researchers and gain valuable insights into future research-based career paths.

Undergraduate Research within an Australian research-intensive university.

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First year students doing research – Archaeology (left) & Advanced Study Program in Science (right).

**References**

