
Undergraduate Research Experiences at UQ

Dr Paula Myatt
The University of Queensland

Brisbane, Australia
p.myatt@uq.edu.au



Undergraduate Research Experiences at UQ

Some current activities...

1. A Strategic T&L Grant investigating UREs at UQ
2. Emphasising the diversity of “UREs”
3. Researching student gains
 - An evidence-based approach

Undergraduate Research Experiences at UQ

Some current activities...

1. A Strategic T&L Grant investigating UREs at UQ
(3 minutes)
2. Emphasising the diversity of “UREs”
(3 minutes per example = 6 minutes)
3. Researching student gains
(6 minutes)

1. A Strategic T&L Grant investigating UREs at UQ

- *“Undergraduate Students’ Research Experiences: bridging the gap between teaching and research in a research intensive university”*
- Chief Investigators:
 - Dr Kirsten Farrand
Faculty of Science
 - Dr Paula Myatt
TEDI
- Funded through DVCA, Faculties of SBS, EAIT and Science
- UQ-wide study identifying:
 - what URE opportunities exist across 7 Faculties?
 - what are some of the characteristics of these UREs?
 - what evidence do we have of their success?

2. Emphasising the diversity of “UREs”

- the definition of an “undergraduate research experience” varies widely.
- Every student’s experience will differ but it is the responsibility of the institution to offer a breadth of experiences to encompass the different objectives owned by different students.
- At UQ an undergraduate student should have available to them:
 - a number of different experiences
 - offered in different forms
 - available at different levels over the degree Program.

2. Emphasising the diversity of “UREs”

USSER	
U/G Internships	

2. Emphasising the diversity of “UREs”

USSER	Targets 1 st Year science students (from multiple degree programs)
U/G Internships	Targets 3 rd Year Political Science students

2. Emphasising the diversity of “UREs”

USSER	Targets 1 st Year science students (from multiple degree programs)
	Extra curricula; informal; social; no products
U/G Internships	Targets 3 rd Year Political Science students
	Formal course for credit; formal products (eg report)

2. Emphasising the diversity of “UREs”

USSER	Targets 1 st Year science students (from multiple degree programs)
	Extra curricula; informal; social; no products
	Introduces students to research within the discipline
U/G Internships	Targets 3 rd Year Political Science students
	Formal course for credit; formal products (eg report)
	Introduces students to research within the discipline

*undergraduate science students'
Experience in Research
(USSER) Network*

The USSER Network

*An introductory program
networking students with researchers*



Meet the Research Team Lunches

Laboratories Unwrapped Tours

Research Team Placements

undergraduate science students' Experience in Research (USSER) Network

USSER Network is designed to help students:



- understand what scientific research really entails
- find out about the research being conducted at UQ
- interact with researchers
- enter into the world of authentic scientific research
- make informed choices about research-based courses and careers

Example 2 – Undergraduate Internship Program

- Established by the School of Political Science and International Studies, Faculty of Social and Behavioural Studies.
- Developed in partnership with a range of state, national and international organisations, parliamentarians and civil society groups.
- Provides an authentic context for students' situated learning and ensures their employment-readiness.
- Students work collaboratively over 3 months with two supervisors – one from UQ and one from the partner organisation.
- **Students complete an applied research project of immediate value to the partner organisation.**

Example 2 – Undergraduate Internship Program

Partners of the internship program include:

- Queensland Crime and Misconduct Commission
- UN Earthquake Emergency Coordination Centre in Pakistan
- Queensland Parliament
- Australian Medical Association Qld (AMAQ)
- Amnesty International QLD/NNSW
- Various federal MPs Electoral Offices
- Commonwealth Public Service Ombudsman
- Government Departments including: Dept of Communities; Dept of Community Safety; Dept of Natural Resources and Water; and Dept of Primary Industry and Fisheries
- Queensland Ambulance Services
- Women Int. League for Peace Foundation
- UN Association (QLD)

Example 2 – Undergraduate Internship Program

- The internship is *not* a simple work experience program.
- Coordinated (up to 2008) by Dr Andy Hindmoor and Ms Claire Pomery, Sch of Political Science & International Studies.

Example 2 – Undergraduate Internship Program

- The internship is *not* a simple work experience program.
- Coordinated (up to 2008) by Dr Andy Hindmoor and Ms Claire Pomery, Sch of Political Science & International Studies.
- *******2009 Winner *******
ALTC Award for Programs that Enhance Learning

3. Researching student gains: an evidence-based approach

The Context:

A university course which is comprised of a summer research project, 8-10 weeks, full-time, laboratory-based.

3. Researching student gains: an evidence-based approach

The Context:

A university course which is comprised of a summer research project, 8-10 weeks, full-time, laboratory-based.

The Research Questions:

1. What benefits did undergraduate students experience from their participation in the Summer Research Scholarship URE?
2. To what extent did participation in the URE impact on students' future career decisions?

3. Researching student gains: an evidence-based approach

The Methodology:

- eSurvey - based on eSurvey of Seymour, Hunter, Laursen and Deantoni (2004).
- Adapted for UQ context and aims of this study
- Survey developed followed extensive interviews and thematic analysis of interview data to develop survey instrument.
- Combined with interview (qualitative) data.
- Response rate of 63% to survey (n = 54)

Q9. Gains in THINKING AND WORKING LIKE A SCIENTIST:
How much did you GAIN in the following areas as a result of
your SCIE3044 research experience?

Understanding how research is done

Extending my knowledge

**Understanding the theory and concepts guiding
my research project**

**Interpreting results from analyzing scientific
data**

Figuring out the next step in a research project

Problem-solving in general

Figure 1 Student reported gains related to ‘thinking and working like a
scientist’

Q9. Gains in THINKING AND WORKING LIKE A SCIENTIST:
How much did you GAIN in the following areas as a result of
your SCIE3044 research experience?

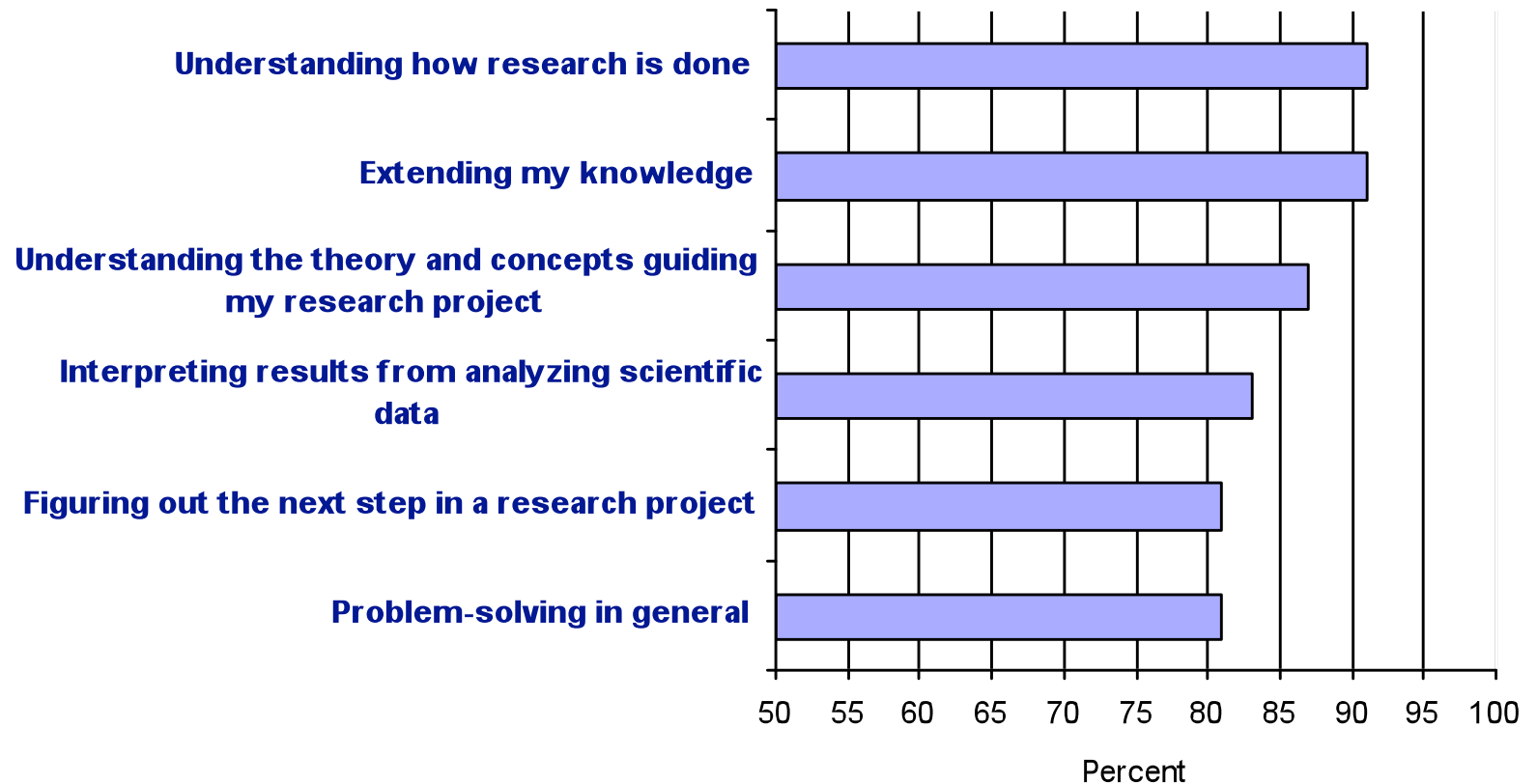


Figure 1 Student reported gains related to 'thinking and working like a scientist'

Q10. Gains related to RESEARCH WORK:
How much did you GAIN in the following areas as a result of
your SCIE3044 research experience?

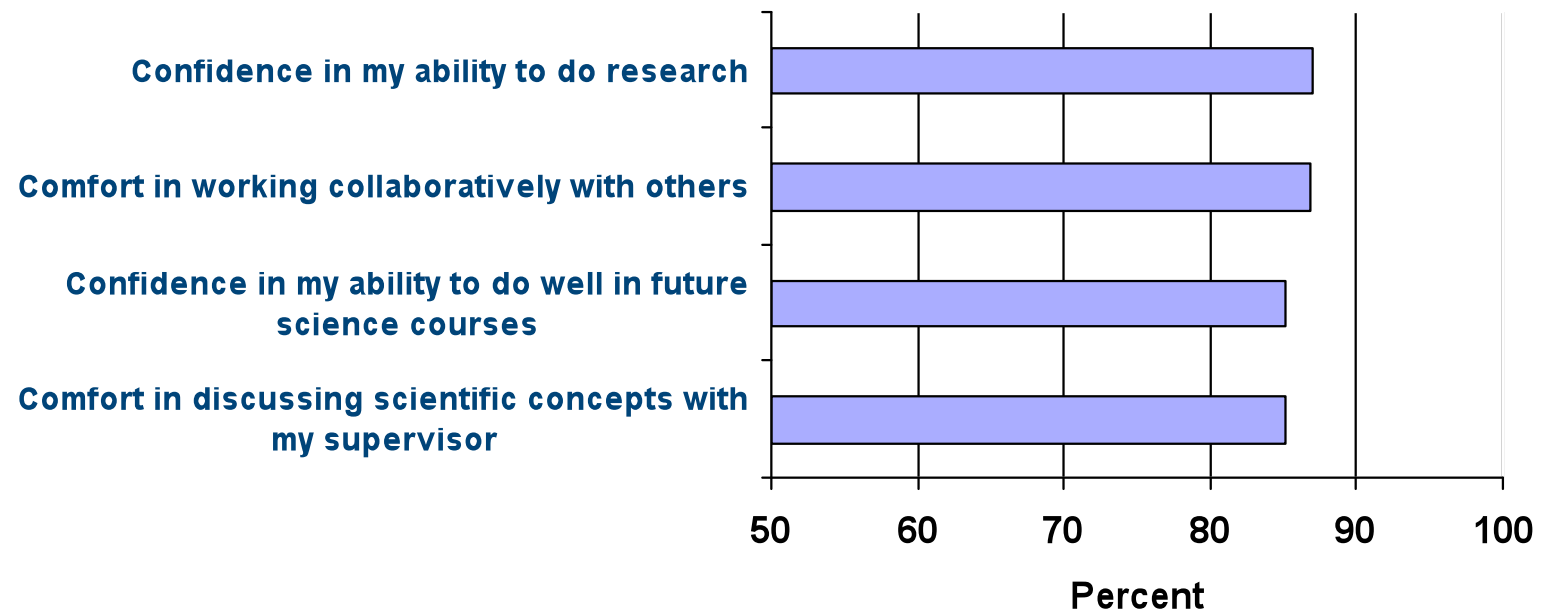


Figure 2 Student reported gains related to 'research work'

To what extent did participation in the URE impact on students' future career decisions?

What was your career plan **BEFORE** participating in the research experience?

Considering a career in science, mathematics, or engineering?	28
Intending to enrol in Honours?	39

To what extent did participation in the URE impact on students' future career decisions?

What was your career plan **BEFORE** participating in the research experience?

Considering a career in science, mathematics, or engineering?	28
Intending to enrol in Honours?	39

What was your career plan **AFTER** participating in the research experience?

Considering a career in science, mathematics, or engineering?	28
Intending to enrol in Honours?	45

Conclusions...

- students reported a number of gains due to their URE – in thinking and working like a scientist, in conducting research itself and in “becoming a scientist”.
- This is consistent with high levels of gain reported by students in the Seymour study (2004) – where 91% of all students referenced gains from their experiences.
- In regards to impact on student career decision making, the results showed that URE participation moved the student career decision making towards the direction of postgraduate research.
- **These findings strongly support the role of research experiences within undergraduate science programs and vindicate the institution’s decision to support this model.**

Undergraduate research experiences at UQ – in summary

- A significant amount of diversity exists – which is good!
- A current research project will tell us more about what undergraduate research “looks like” in different disciplines.
- The profile of UREs is increasing – especially as we look for techniques to enhance student engagement.

BUT

- Still a need to conduct quality evaluations on the experiences we provide.
-

