Distributed leadership to embed scholarship in STEM teaching teams

ACDS Fellows

Tina Acuna and Jo-Anne Kelder

Outline

Part A

- Context – TEQSA and scholarship
- Barriers and response to effective management of curriculum and teaching
- A bright idea – CER framework
- CER – STEM framework and the ACDS Fellowship

Part B

- Resources for course teams
  - Example documents: e.g. ethics application for a course
  - Template documents: e.g. data management templates
  - Workshop to develop an ethics application and research plan

Course – program or degree
Unit – course, program or subject

TEQSA Guidance Note: Scholarship

'The intent of the Standards is that scholarship that is claimed to inform teaching (or supervision) must have a demonstrable relevance to the course being taught, including scholarship relating to the process of teaching and learning in itself.'

Australian Government
Tertiary Education Quality and Standards Agency

TEQSA

Guidance Note: *Scholarship*

Version 2.5 (12 December 2018)

What does scholarship encompass?

In the context of the *Higher Education Standards Framework (Threshold Standards) 2015* (HES Framework), 'scholarship' means those activities concerned with gaining new or improved understanding, appreciation and insights into a field of knowledge, and engaging with and keeping up to date with advances in the field. This includes advances in ways of teaching and learning in the field and advances in professional practice, as well as advances in disciplinary knowledge through original research.

Engagement in scholarship can be viewed at:

- the level of individual activity (e.g. as part of an individual's personal professional development, teaching, research or professional practice), or
- across a provider as a whole (e.g. policy frameworks, resource allocation, cultural expectations, staff development).

As detailed below, the concept of scholarship arises in several sections of the HES Framework with varying emphases.

Various aspects of scholarship are relevant to higher education, but at its core are:

- making a contribution to the advancement of knowledge or professional practice in a field
- transmission of these advances through effective, contemporary approaches to teaching and learning, and research training if applicable.

A broader range of activities is included within the general scope of professional development, and scholarship is a sub-set of these activities concerned with advances in knowledge. Research is in turn a sub-set of the various types of scholarship that is limited to generating new knowledge.

The Boyer Model of Scholarship (Boyer, 1990) offers a framework for higher education providers to consider scholarship, using four discrete yet interdependent themes or elements:

- **discovery** – building new knowledge through traditional research that contributes to the stock of human knowledge and also to the intellectual climate of a higher education provider
- **integration** – interpreting the use of knowledge across disciplines and connecting research so that it is useful beyond discipline boundaries and can be integrated into a larger body of knowledge

TEQSA (2018) Guidance Note: Scholarship v 2.5 https://www.teqsa.gov.au/latest-news/publications/guidance-note-scholarship

For TEQSA, scholarship means:

'those activities concerned with gaining new or improved understanding, appreciation and insights into a field of knowledge, and **... includes advances in ways of teaching and learning** in the field and advances in professional practice, as well as advances in disciplinary knowledge through original research.'


Activities concerned with gaining new or improved understanding, appreciation and insights into a field of knowledge

Find out more at teqsa.gov.au/guidance-notes

Barriers to effective management of curriculum and teaching

- Individual academic's workload and employment status (casualisation)

- **Silo teaching culture**: "I teach a unit" vs "We teach into a degree"

- **Silo SoTL culture**: *ad hoc,* unit focused, person-dependency, not aligned with course or institutional priorities
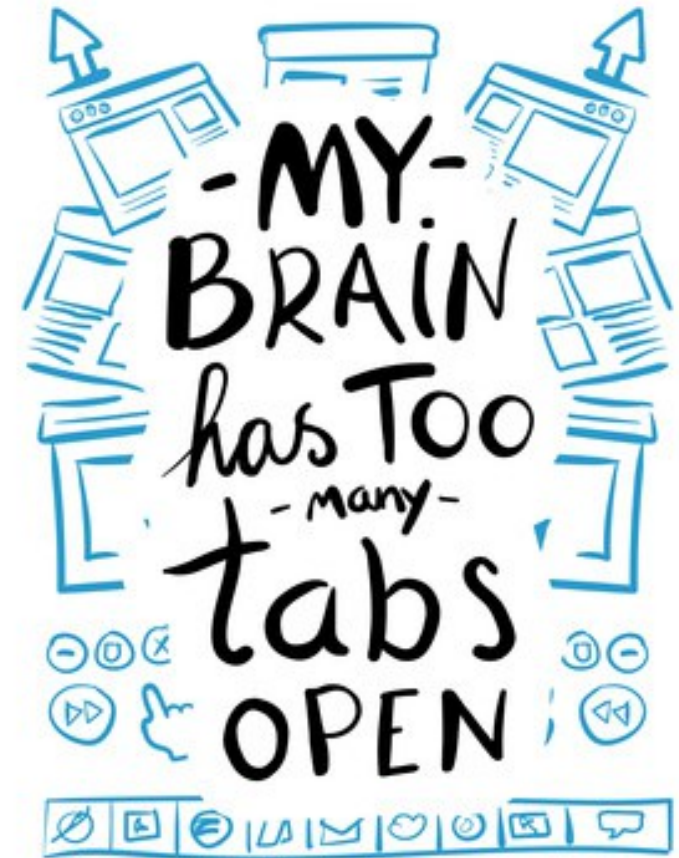
A typical schedule of activities by degree coordinators for HESF compliance

QUALITY ACTIVITIES CYCLE

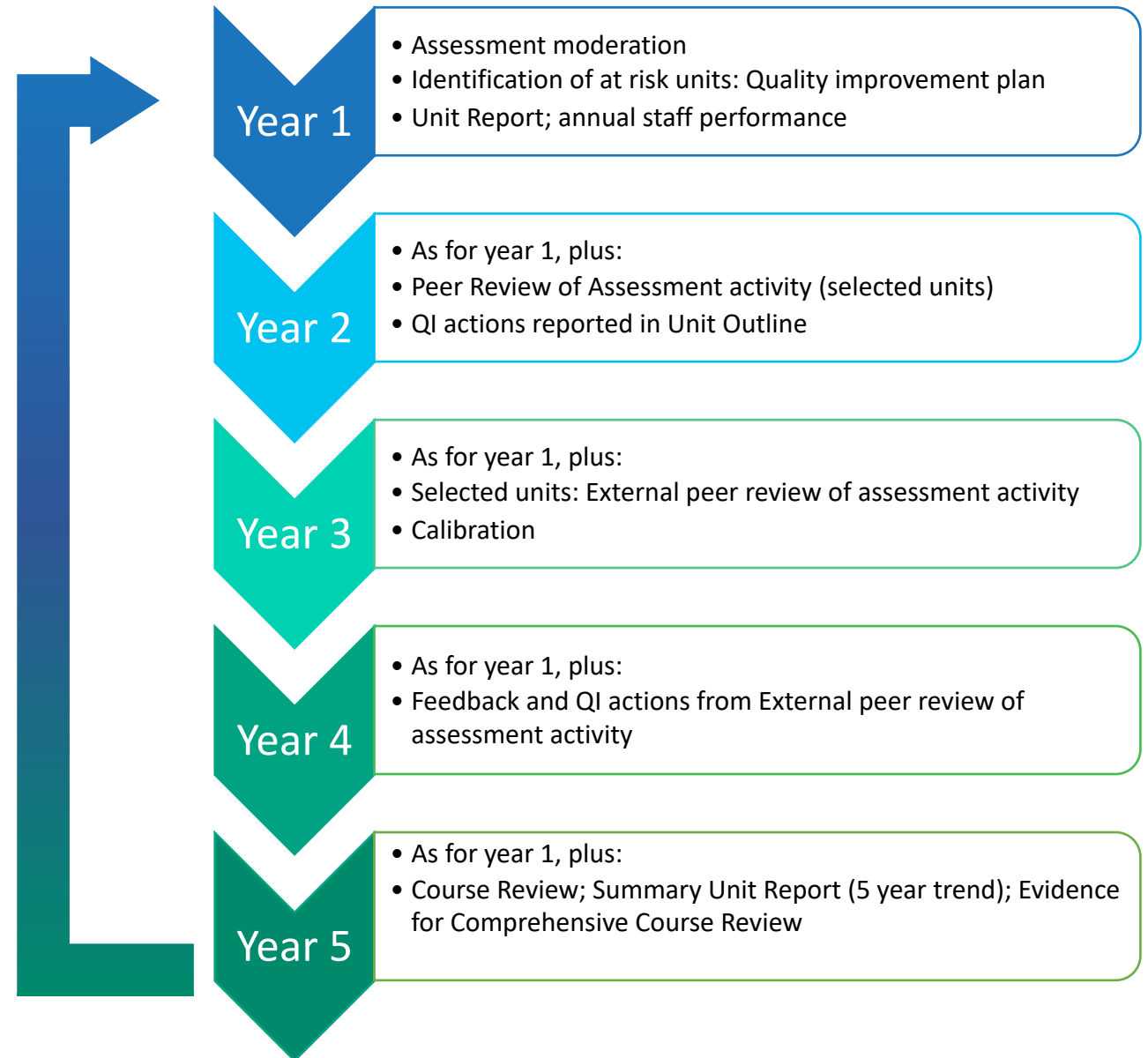*Quality Assurance activities required for unit and course level curriculum compliance*

DATA AND EVIDENCE

Generated in the process of developing, delivering, reviewing and improving unit level curricula

REPORTING

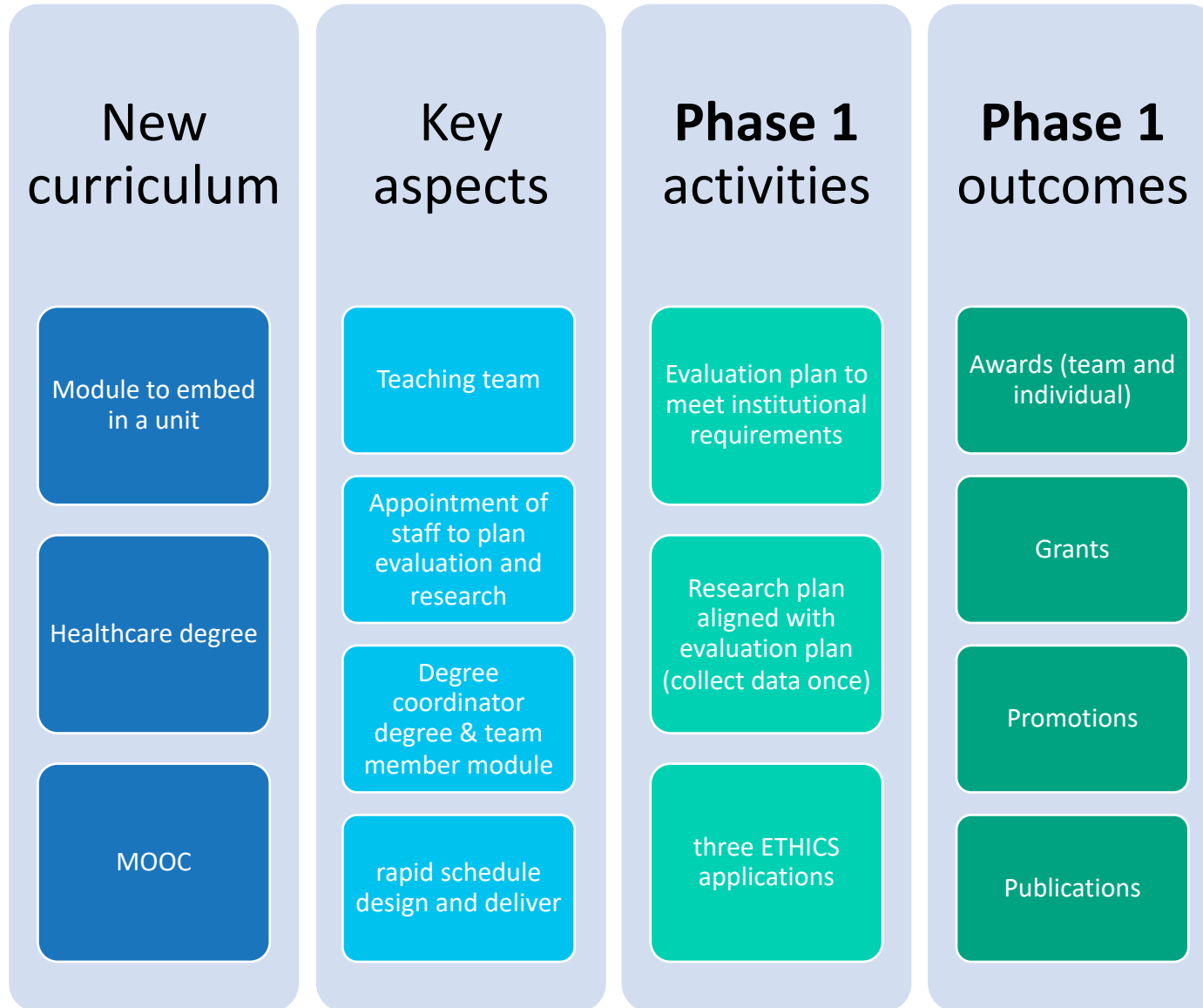*Reports related to institutional compliance (HESF)*

Quality Cycle for institutional comprehensive course reviews

Year 1
- Assessment moderation
- Identification of at risk units: Quality improvement plan
- Unit Report; annual staff performance

Year 2
- As for year 1, plus:
- Peer Review of Assessment activity (selected units)
- QI actions reported in Unit Outline

Year 3
- As for year 1, plus:
- Selected units: External peer review of assessment activity
- Calibration

Year 4
- As for year 1, plus:
- Feedback and QI actions from External peer review of assessment activity

Year 5
- As for year 1, plus:
- Course Review; Summary Unit Report (5 year trend); Evidence for Comprehensive Course Review

Response to effective management of curriculum and teaching

- Relevant unit of activity is the teaching team
- Relevant scope of activity is the course curriculum
- Standardised and validated approach to course evaluation (with scope for research)
- Resources to simplify the set up and sustainable SoTL practice

Curriculum evaluation and research for a degree

New curriculum

- Module to embed in a unit
- Healthcare degree
- MOOC

Key aspects

- Teaching team
- Appointment of staff to plan evaluation and research
- Degree coordinator degree & team member module
- rapid schedule design and deliver

Phase 1 activities

- Evaluation plan to meet institutional requirements
- Research plan aligned with evaluation plan (collect data once)
- three ETHICS applications

Phase 1 outcomes

- Awards (team and individual)
- Grants
- Promotions
- Publications

- Iterative development of the framework, including resources

Kelder and Carr

Generalising the CER framework

| Phase 2 outcomes	Phase 3 activities
CER conceptual framework	Disseminate
'Generic' course ethics	OER
Consent mechanism	build a collaborative network
Supporting documents	Invitation to share

Kelder and Carr

Bachelor Dementia Care Awards

2013 – Two Teaching Merit Certificates

2014 – Institutional program award

2014 – Australian Computing Society (Tasmanian Division) Community iAward

2016 – OLT national award

Publication Outcomes - Bachelor Dementia Care

■ Peer reviewed publications   ■ Non peer-reviewed publications
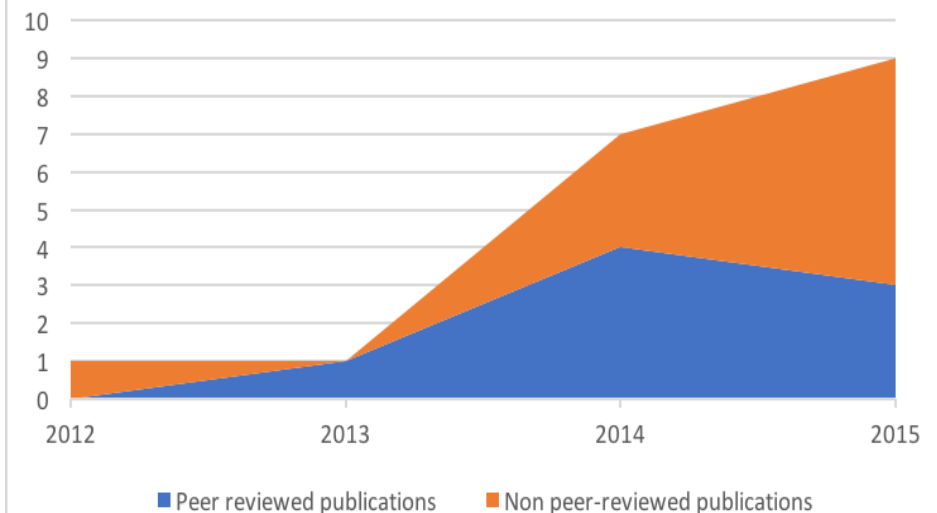
Objectives of the CER STEM fellowship

- Reconceptualise the CER framework based on implementation at six higher education providers, to ensure alignment with the *TEQSA Guidance Note: Scholarship*

- Address barriers to uptake and address identified opportunities and strategic actions that will support institutions to incorporate scholarship into their infrastructure for learning and teaching

- Extend and contextualise the CER STEM framework in at least six Science (or Allied) Faculties/Colleges in Australian universities

- Build on national and international networks and partnerships to promote best practice in learning and teaching.

Why is this Fellowship important to the ACDS?

As the HESF and QILT bite deeper through the work of TEQSA, faculties will find themselves subject to stronger demands for evidence of quality assurance in teaching and learning.

One high priority example concerns research and scholarly informed teaching.

How will faculties meet the demand for evidence that scholarship and research informs their curriculum, and the teaching practices of their staff?

The inaugural ACDS National Teaching and Learning Fellowship provides an approach to answering these questions.

The ACDS believes that it provides a valuable experience for Deans, in considering how they might address efficiently, quality assurance demands for a visible influence of scholarship on teaching that is documented and reported.

It provides an environment for leadership to meet the demands of TEQSA for assuring quality in teaching and learning as set out by the HESF.

Professor John Rice, Executive Director, ACDS

Australian Council of Deans of Science

Why STEM?

- Disciplinary research is prioritised

- Lack of widespread capacity/expertise in SoTL

- Need to identify mechanisms to engage and reward academics who engage in SoTL

- HESF focus on degree-level curriculum implies the whole team of academics
  - Not just the remit of teaching-focussed academics (leadership opportunity?)

- Value proposition for scholarship needs to resonate with academic goals and aspirations
  - Not communicate administration for compliance

- Allows Deans to resource teaching teams to collate evidence of scholarship

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Online resources: http://www.acds-tlcc.edu.au/cer-stem/

EXAMPLE DOCUMENTS

- Ethics application for a degree (including information and consent)
- Project and research management
- Research plan
- Action plan

TEMPLATES

- Action plan
- Research proposal
- Workshop PowerPoint and running sheet

EXPLANATORY DOCUMENTS

- Presentation
- CER framework: structure and process elements

Example ethics application

What it provides:

Codified ethical reasoning consistent with *National Statement*

- Consistent structure for designing evaluation and research into a course, including example:
    - research questions
    - pedagogy for blended/online teaching
    - literature on which to base research approach
- Method for selection and recruitment of students and staff
- Protocols for establishing consent
- Protocols for data management

Online research communication (using the LMS)
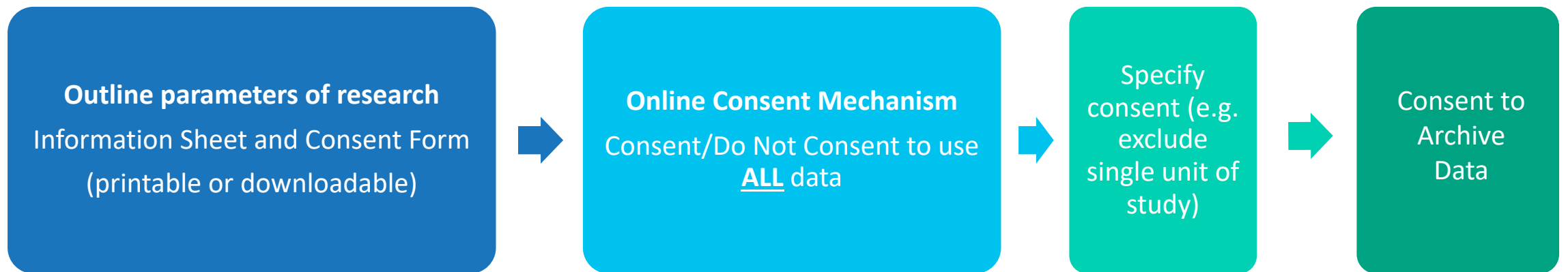
What it provides:

information about the course curriculum research

'One stop' location for participants (students and staff) to find information about:

- Ethics participant information sheet and consent form
- The curriculum evaluation and research project aims, methods and results
- Quality improvements made in response to evaluation analysis
- Publications arising from the research

Flow chart for participant consent

Course Level Consent with ability to specify Unit Level Consent

Outline parameters of research
Information Sheet and Consent Form (printable or downloadable)

→

Online Consent Mechanism
Consent/Do Not Consent to use **ALL** data

→

Specify consent (e.g. exclude single unit of study)

→

Consent to Archive Data

Don't forget Staff (academic/professional) Consent

Bachelor of [xxxx] Research Room

UNIVERSITY of TASMANIA

Print this page

My Consent Status

This is where you indicate your response to the invitation to participate in the evaluation and research activities associated with the Bachelor of **XXXX** .

You can establish or update your consent status at any time by clicking on the link below.

Read the information sheet and consent form and complete the required information accessed through the Course Level overall consent link below:

- Student Number
- Consent status
  - 'I do consent'
  - 'I do not consent'

My Consent Status - Course Level

You can provide **OVERALL** consent to use **ALL** your data (e.g., surveys, applicant statements, assessment items, discussion boards) for research purposes.

- Course Level Consent
- Course Level Information Sheet 2015

Safeguarding your rights as a participant

Consent is completely voluntary - there is no advantage in consenting and no disadvantage in not consenting to participate in the research.

Consent status is managed by an independent third party. No member of the teaching team will have access to identifiable data.

No data will be used for research purposes until grades are finalised.

Data will only be used for reseach purposes for participants with a current 'I consent' status.

Overall consent can be changed at any time via the Consent Status link.

You can change your consent for a specific data collection item. To do this, you go to the relevant variation module, then indicate your consent preferences.

This is a summary, highlighting key points. Please read the information sheet/s for further details.

For further information please contact:

            (Chief Investigator)

UNIVERSITY of TASMANIA

Template provided by the Digital Innovation Team

Consent and ethics

What it provides: participant control and anonymity

- Each student can establish an overarching "consent status" for a course

- Reduces 'nuisance' factor single "consent"/"do not consent"

- Ability to specify "consent" / "do not consent" at any point of data collection

- All student data is de-identifed by independent data manager and only available after grades finalised

Your contribution to the quality and improvement of the Bachelor xxxx

The Bachelor of XXX is a first for this type of course. Continuous and ongoing information from students is necessary to make sure the course is well designed, the content is relevant and the method of teaching works for students. Our commitment to giving you a high quality course means we will frequently ask your opinion on different aspects of the content, design and delivery of the course. We will also evaluate your assessment items for evidence of effective learning. We will use a variety of methods: surveys, focus groups or interviews and analysing student assessment items. Your feedback will help us make improvements for the remainder of your course, and for future students.

Systematic gathering of feedback, or evidence, and making changes based on that evidence is part of the principle of 'evidence based practice' (collecting evidence to change practice). We hope that this will directly contribute to improved outcomes across the course, the healthcare sector

You are not obliged to consent to having your personal or student data included in research.

- To allow you to provide or withdraw consent we have a Consent Status module in the Research Room. This link enables you, at any time, to update your **OVERALL** (i.e., all data types including assessments, surveys, applicant statements) consent status for use of **ALL** your data.
- If you wish to vary or limit the use of your data associated with data gathered from your entry into the course please go the the Course Entry and Progression Research Consent Variation module, then select the relevant page and update your consent accordingly.
- If you wish to vary or limit the use of your data associated with individual units of study please go to the Unit Level Research Consent Variation Module, then select the relevant page and update your consent accordingly.

>Welcome Video Link<

You can watch this video on MyMedia or download it directly

We are very happy to consider your ideas for research and welcome your contribution. Please submit your thoughts to the Ideas for Research Discussion Board. We also welcome your Feedback and Comments and a discussion board is provided for this.

Click this link to watch the Welcome to the Research Room video from Course Co-ordinator or alternatively you can download the video directly.

Thank you for considering our Teaching and Learning Program in the Bachelor of XXX We acknowledge that this is your time, given freely - your input is invaluable

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Publications

The focus of teaching and learning research in the **XXXX** is provide an evidence-base for the ongoing development of the course. We also aim to dissseminate this knowledge through scholarly publications and conference proceedings. Please see below links for associated publications and conference presentations:

2015

- Canty, A.J.; Ziebell, J., Standish-White, S & Goldberg, L. (2015). Using recorded vignettes to enhance learning for distance students. Teaching Matters, Distinctive to us - spotlight on practice, University of Tasmania, December. abstract presentation
- Counsell, J., Wadwell, T., Hornsby, H. & Whannell, P. (2015). Learning Support in an online environment. Teaching Matters, Distinctive to us - spotlight on practice, University of Tasmania, December. abstract
- Canty, A. J., Ceperkovic, H., Ziebell, J. & Goldberg, L. R. (2015) Meeting the Challenge of designing and delivering an entry level unit of study to engage and inspire learners in online neuroscience education in a Bachelor of Dementia Care. iCERI Proceedings, Seville, Spain, 18-20 November. ISBN: 978-84-608-2657-6, p3941-3951.abstract full paper presentation
- Goldberg, L. R., & Canty, A. J. (2015). Quality assurance in online learning: The contribution of computational linguistics analysis to criterion referenced assessment. eLearning Papers, 40, January, 104, ISSN: 1887-1542. abstract full paper
- Goldberg, L. R., Canty, A. J., Elliott, K-E. (2015). Online learning in a Bachelor of Dementia Care program. Alzheimer's International Conference, Perth, Western Australia, 15-18 April. abstract, poster
- Goldberg, L.R., Carr, A. R., Canty, A. J., Elliott, K-E., & McInerney, F. (2015). Addressing the online learning needs of non-traditional students. 12th Annual Conference of the International Society for the Scholarship of Teaching and Learning (ISSoTL), Melbourne, Victoria, 27-30 October (accepted). ISSoTL conference 2015
- Carr, A.R., Burke, K., Ceperkovic, H., Ceperkovic, R., Goldberg, L.R., Grace, A.A., Harper, A.D., & Price, A.D. (2015). Engaging and leading teaching teams in the development of quality curricula: A collaborative approach. 12th Annual Conference of the International Society for the Scholarship of teaching and Learning (ISSoTL), Melbourne, Victoria, 27-30 October (accepted).
- Goldberg, L.R., Carr, A.R., Canty, A.J., Klekociuk, S., Ward, D., Landowski, L., King, C., McInerney, F., & Vickers, J. (2015). Making neuroscience important and relevant: Online learning in an innovative Bachelor of Dementia Care program. eLEOT - 2nd International Conference on e-Learning e-Education and Online Training, Novedrate, Italy, November. Conference Proceedings to be published by Springer-Verlag.BDC Neuroscience paper
- Goldberg, L.R., Carr, A.R., Canty, A.J., Klekociuk, S., Ward, D., Landowksi, L., & McInerney, F. (2015). Empowering non-traditional students: Impact of dementia education on care. 48th Annual Conference of the Australian Association of Gerontology (AAG), Alice Springs, Northern Territory, 4-6 November (accepted). AAG conference abstract

2014

- Goldberg, L.R. & Canty, A. J. (2014). Online learning and asiprations. Aspirations Matter, University of Tasmania, Launceston, November.abstract. showcase presentation.
- Goldberg, L.R. & Canty, A.J. (2014).Evaluation of student learning in an online unit in the BDC using computational linguistics software "Leximancer." Teaching Matters, University of Tasmania, November. abstract. presentation.
- Canty, A.J., King, C. E., Carr, A. R., Kelder, J-A.., Price, A., Gibson, A., Carew, T., O'Reilly, J., O'Mara, C., Kirkcaldie, M., Walls, J., McInerney, F., Robinson, A. & Vickers, J. (2014). The Wicking Dementia Research and Education Centre - paving the way forward in online dementia education. Society for Neuroscience Meeting, Washington D.C., USA, November. abstract.
- Canty, A.J., Carr, A.R., Elliott, K-E., Goldberg, L.R., King, C.E., Kirkcaldie, M., McInerney, F., Price, A., Robinson, A., Tolman, J. & Vickers, J.C. (2014). The Wicking Dementia Research and Education Centre - paving the way forward in online dementia education. Teaching Matters University of Tasmania, November. Poster presentation. abstract.
- Carr, A.R., Grace, A, & Price, A. (2014). Employing targeted skills-based resources to supplement subject material in an online degree. Teaching Matters, University of Tasmania, November. Presentation. abstract.
- Burke, K., Harper, A., Carr, A.R., & Canty, A.J. (2014) The Bachelor of Dementia Care MyLO Common Room initiative. Teaching Matters, University of Tasmania, November. Presentation. abstract.
- Elliott, K-E., Carr, A.R., Robinson, A.L., & Vickers, J.C. (2014). What palliative care means for students int he Bachelor of Dementia Care. 49th APS Annual Conference: Psychology meeting society's challenges, 30th September-3rd October, Hobart, Tasmania.

2013

- Kelder, J-A., Canty, A.J., Carr, A.R., Skalicky, J., Walls, J., Robinson, A., & Vickers, J. (2013). A learning place where a high-risk student cohort can succeed: curriculum, assessment and teacher recruitment. In Frielick, S., Buissink-Smith, N., Wyse, P., Billot, J., Hallas, J. and Whitehead, E. (Eds.) Research and Development in Higher Education: The Place of Learning and Teaching, 36 (pp 253 - 265). Auckland, New Zealand, 1 – 4 July 2013. abstract, full paper.

2012

- Canty, A.J. (2012). The Associate Degree in Dementia Care: An innovative and holistic approach to course design and delivery. Teaching Matters, University oF Tasmania, Launceston, November. Presentation. abstract. showcase presentation.

Data management

- *Collecting* and *organising* your data sets:
  - For each subject: draw down from LMS **after** final grades released (assessment task submitted by students, feedback surveys, final grades, discussion posts …)
  - Organise data sets – how? (an opportunity for STEM!!)

- *Who* will manage the data sets and *how*:
  - Big data set expertise?
  - Ethical requirements
  - Resourcing – minimising manual data handling

Facilitated Practical session

- Introduction

- Workshop Activity 1: develop a research plan

- Workshop Activity 2: write an ethics application (first pass)

Workshop Activity 1: develop a research plan

- Objectives
- Research questions
- Data you will collate (to answer your research questions)
- Analysis methods using your data
- Research Plan (milestones – timelines, outputs and outcomes)

Workshop Activity 1: Objectives

What objectives do you have for your course curriculum? E.g.

- Quality improvement (remedial or innovation)

- Quality assurance (meeting internal and external standards)

- Research goals (Impact and effectiveness; adding to the body of knowledge (literature); good practice dissemination)

Create S.M.A.R.T. Goals

S SPECIFIC

M MEASUREABLE

A ACHIEVABLE

R REALISTIC

T TIMELY

Workshop Activity 1: Research questions

*What is/are the question(s) you need to **formulate** (ask) in order to **evaluate** (measure) or **research** (determine how and to what extent) you have achieved your objectives?*

CHECK:

- Are your objectives and research questions **aligned**
  - with each other?
  - with institutional strategic goals and/or priorities?

Workshop Activity 1: Data collection

What data will you collect to answer your research questions?

CHECK: what data do you already collect as part of your curriculum evaluation (units, course)?

If you have a course evaluation plan, check for alignment and opportunities for additional data collection.

Workshop Activity 1: Analysis

What methods will you use to analyse your data?

CHECK: what do you already analyse as part of your curriculum evaluation process (units and course)?

If you have an evaluation plan, check for alignment and opportunities for additional analysis.

Workshop Activity 1: Research Plan

- *What is the **timeframe** for your research project?*

- *What are the key **milestones*** (tasks completed and time completed)?

- *What are the **outputs*** (things you produce / deliverables)?

- *What are the **outcomes*** (consequences / emergent outcomes of the research you hope for or expect)?

Workshop Activity 2:
Write an ethics application (example)

- **Background and justification** – what is the problem you have identified and wish to investigate or solve; what is the literature you are drawing on to inform your research?

- **Research questions** – do they fit the general overarching questions or do you want additional?

- **Data collection** – any additional ones you can think of? Issues with different kinds of data (e.g. employers? Industry? Pre-entry?)

Workshop Activity 2:
Write an ethics application (example)

- **Analysis methods** – co-investigator skills, knowledge, capabilities?
- *Qualitative data analysis* – software tools e.g. Leximancer, Nvivo
- *Quantitative data analysis* – software tools e.g. SPSS, R, SAS
- *Mixed methods* – triangulate? Quantitative to inform qualitative and vice versa
- **Writing** – author agreement, ethical research management
- **Dissemination** – target journals, conferences
- **Extension** – target funding bodies and grants; target awards

Key success factors

- Collaborative culture
- Distributed leadership model
  - Opportunity for teaching only staff?
- Good research management practice
  - Explicit alignment with institutional policies; ethics approval
- Evaluation Plan
  - Aligned with HESF/University Quality Management Framework/Faculty Quality Framework
- Research Plan
  - Investigating outcomes and impact arising from opportunities for innovation or remediation; publication plan

Challenges

- Leadership
  - Building a team-based approach
  - Planned and consistent attention to evidence-based curriculum improvements (QI) and assurance of standards (QA)
  - Strategic use of natural data from curriculum design and delivery for scholarship (SoTL)
- Students' participation
  - Ethical use of natural data (data management)
  - Building a research culture that includes students in curriculum development, QI and QA
- Institutional support
  - Recognition and reward

Wrap up and questions

Our invitation

KEEP IN TOUCH!

- All our work is under Creative Commons Attribution Share-Alike (CC BY-SA) license
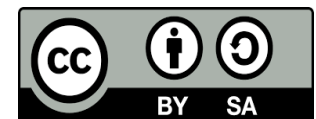- If you decide to use and build on our work, please let us know (fill out the 'further contact' form)

Website:	http://www.acds-tlcc.edu.au/cer-stem/
CER-STEM	cer-stem@utas.edu.au
Tina Acuna	tina.acuna@utas.edu.au
Jo-Anne Kelder	jo.kelder@utas.edu.au

Another invitation

Help us in our evaluation of the Fellowship

The resources we have developed are part of a research project investigating

- How to embed evaluation and research into curriculum design and delivery for quality improvement, quality assurance and scholarship, focused on the teaching team of an award degree curriculum
- The impact and effectiveness of designing quality enhancement using the "teaching team and the award degree curriculum" unit of analysis

Please read the information sheet and fill out an evaluation form

Acknowledgements

- UTAS: George Cunningham, Justin Walls, Andrea Carr, Caroline King, Bethany Lusk, Paula Swatman, Harriet Speed, Jane Skalicky, Sue Jones, Louise Wallis

- ACDS: Cristina Varsavsky, John Rice, Jen Aughterson, Stephanie Beams