

# How Research Informs and Influences Teaching at UNE: A Statement about Aspirations and Realities

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## Executive Summary

This document sets out UNE's goals and aspirations with respect to research-informed teaching. It is intended as a positioning statement as well as a call to action. It is explicitly recognised that, in a number of areas, research-informed teaching already occurs. The purpose of this document is to make a public statement that the University can refer to and work from as it expands the reach of research-informed teaching. What UNE means by research-informed teaching is captured in four distinct but interconnected facets:

- *Research ABOUT Content* - integrating research and knowledge about some aspect of the content of academic study into the teaching of that area of study;
- *Research ON Teaching* - teaching that reflects the impact of research in the higher education context itself as it intersects the university teaching profession in general and within/across specific areas and/or disciplines;
- *Research IN Teaching* - teaching that reflects the impact of research that occurs in the context of teaching practices as they intersect specific discipline/unit/course content, teaching experiences and student experiences;
- *Research Skills & Practices* - where students (and, where appropriate, academic staff) acquiring the skills needed to successfully undertake and complete their own research.

Research-informed teaching, if embedded within a more consistent, systemic and coherent approach, can lead to multiple potential benefits for staff and students as well as for other internal and external stakeholders in UNE's activities. To this end, a series of actions is presented which will help UNE to enhance its achievements in and display the benefits from its research-informed teaching.

## Context

UNE aspires to be a “strong research-based, teaching and learning university” (UNE Long Term Vision, UNE Strategic Plan 2007-2010, p. 6). Furthermore, UNE is committed to developing “an environment and culture of connecting research to all teaching and learning” through ensuring “that all teaching, where relevant, is research-informed” (Strategic Management Research Sub-Plan 2007 TO 2010, p. 8). In order to realise these aspirations, we need to be clear about what UNE means by *research-informed teaching* and what actions will be undertaken to achieve it. This document seeks to accomplish that goal.

Research-informed teaching is a variant within the discourse of ‘the teaching-research nexus’ which includes other constructions such as: research-based teaching/learning, research-led teaching/learning, research-infused teaching/learning, inquiry-based teaching/learning, research-linked teaching, research-enhanced teaching and teaching-research linkages (<http://trnexus.edu.au/index.php?page=definitions-of-the-trn>; retrieved 11/5/09). There is a large body of literature surrounding the concept of the teaching-research nexus and this has been brought together and organised by the Australian Learning & Teaching Council in their website entitled *The Teaching Research Nexus: A Guide for Academics and Policy-Makers in Higher Education* (see <http://www.trnexus.edu.au/>). Different universities implement differing perspectives on what constitutes the teaching-research nexus. Given UNE’s unique history as Australia’s oldest regional university having distance education as a clear strategic focus, we can envisage four dimensions to UNE’s aspirations toward research-informed teaching, with each of these facets already being enacted by academic staff at UNE.

Figure 1 presents a mindmap of these four facets of research-informed teaching and begins to delineate some of the dynamic linkages that can be seen to exist between them: Research **about** Content, Research **on** Teaching, Research **in** Teaching and Research **Skills & Practice**.

### Research *about* Content

This dimension of research-informed teaching represents the more traditional sense in which the nexus between research and teaching is understood. Here we are talking about the integration of research and knowledge about some aspect of the content of academic study into the teaching of that area of study. Currency of knowledge about research as it informs teaching is an obvious and desirable characteristic of this dimension as it acquaints students with the ‘cutting edge’ of knowledge. We can identify several key aspects of this dimension of research-informed teaching albeit that they may be interconnected.

#### *Showcasing research conducted by UNE staff & groups*

It is important for students to see what UNE researchers and research groups do and contribute to the larger landscape in the content areas they are studying. This makes their learning more personal and exposes them to the enacted perspectives of their teachers and, potentially, mentors. As a vehicle for capturing student interest in later years of study, this can be valuable in exciting students and recruiting them into higher degree research programs – keeping students at UNE rather than having them move elsewhere.

### *Current research in disciplines*

Teaching in discipline and subject areas should reflect research knowledge, as it informs the discipline or subject area. Aspects of knowledge that may be important to emphasise include: current knowledge (the current state of play of the discipline or subject area including current debates of contested areas); historical knowledge (how has knowledge in the discipline or subject advanced over a period of time); theoretical knowledge (what is understood to count as knowledge in the discipline or subject area); applied knowledge (how research knowledge in the discipline or subject areas may be useful in solving problems and achieving valued goals).

### *Research across disciplines*

An evolving hallmark of modern day research and a growing emphasis and strength in UNE research, even in the 'hard' sciences, is the emergence of multiple, cross-disciplinary and contextualised perspectives on research problems. By deliberately embedding research from multiple perspectives and cross-disciplinary angles in UNE teaching, we can actively reflect on and encourage students as well as academic staff to engage with valuing diversity in points of view, methodologies, modes of argument and logic and the pivotal role that society, governments, stakeholders and potential benefactors/users of research can play in the unfolding of research agendas within a subject or problem area. Furthermore, this can lead to knowledge that emerges from connections, relationships or creative thinking and actions between discipline areas with respect to the content matter at hand.

### *Intersection with social, environment and economic issues*

There is an increasing focus, both within the UNE Strategic Plan itself and in the wider regional, Australian and global contexts, on the so-called the *triple bottom line* for organisations. The *triple bottom line* refers to pursuing and displaying organisational outcomes and success on three dimensions: *economic* (e.g., financial viability and health; returns to shareholders/stakeholders; success in various markets), *social* (e.g., public value; public good; human and social 'capital'; ethical, legal and cultural values; minimisation of social harm) and *environmental/ecological* (e.g., sustainability, minimisation of ecological impact/harm). The triple bottom line is now embedded in the concept of corporate social responsibility. This has implications for research-informed teaching, especially where multi-disciplinary/inter-disciplinary approaches are undertaken. UNE should aspire to address triple bottom line outcomes through research-informed teaching where thinking about the impacts, benefits and drawbacks of research on all three dimensions are actively engaged by students and academic staff. The goal would be to show/demonstrate where and how research connects with and becomes meaningful for important and larger scale social, legal, cultural and ecological issues, policies and agendas.

### **Research on Teaching**

This dimension of research-informed teaching focuses on teaching that reflects the impact of research in the higher education context itself as it intersects the university teaching profession in general and within/across specific areas and/or disciplines. Here we see the evolution of teaching in action; it is much

less direct in its impact, compared to research about content, working instead behind the scenes to shape experiences and learning systems. Building explicit linkages between research on teaching (e.g., models, methodologies, student support systems, curriculum, assessment practices, quality systems) within and between disciplines and the actual teaching within and between those disciplines is one hallmark of a modern reflective university. It is one manifestation of organisational learning: connecting the research side of our work and the teaching side of our work. Such organisational learning, if effective, would likely result in continuously improved teaching, higher quality teaching and greater levels of student engagement, satisfaction and success. It may also confer a competitive advantage in the sector. This facet of research-informed teaching will likely involve (maybe even demand) more than just the person doing the actual teaching, giving rise to a different way of looking at 'team teaching'. AT UNE, there are staff in the Teaching and Learning Centre, Information Technology Directorate, International Precinct and within the Faculties who are skilled in assisting staff to engage with this particular mode of organisational learning. There are several aspects to this particular facet of research-informed teaching that are potentially meaningful to UNE. However, it is important to realise that all of these aspects are intimately and dynamically intertwined; they are discussed separately simply to make their respective descriptions more transparent.

There are many ways in which research into teaching can be categorised. For example, the Society for Research into Higher Education Abstracts reports under the headings of: national systems and comparative studies; institutional management; curriculum; research; students; staff; finance and physical resources; and contributory studies and research approaches (e.g. history, philosophy etc). Of most immediate relevance to UNE's vision and areas of expertise would be research into:

- *learning theory and practice*, where a large part of the discourse comprises research on learning theory, often testing, applying or interpreting theoretical positions in practical situations.
- *pedagogy*, where research focuses on pedagogy per se (i.e. research on lecturing, small groups, uses of technology, cross-cultural teaching and learning, etc). Much of this can be 'general' in nature but another part of the discourse, although often derivative from the general literature, is discipline specific with journals, networks and conferences for the teaching of subject X or subject Y.

### **Research *in* Teaching**

This facet of research-informed teaching focuses on teaching that reflects the impact of research that occurs in the context of teaching practices as they intersect specific discipline/unit/course content, teaching experiences and student experiences. Such research is much more localised in focus and reflective in nature; captured best in the phrase 'reflective practitioner'. The intention is to highlight the importance of locally-reflective teaching and learning practices such that individual and group reflections on practice result in specific changes and improvements at a local level. Some of the meaning behind research in teaching is embodied in the methodology of action research. It could involve just teachers or, preferably teachers and students as joint participants, in reflecting on, gathering data about and organising changes to practices to

enhance the achievement of specifically desirable goals. Here we can also see the possibilities of teaching-informed research, where the circuit is reversed such that what is learned through teaching works to impact on research agendas (e.g., ideas that emerge through discussions with students may spawn a new research perspective or problem). There are several key aspects to this facet of research-informed teaching that can be identified. It is again important to realise that these aspects are dynamically interconnected and feed into/play off each other.

### *Contextualised research - teaching practices in the discipline*

This aspect of research **in** teaching involves reflecting on one's own teaching and learning practices and those of colleagues within a subject or discipline area with the goal of enhancing learning experiences and outcomes. Such research would ideally be evidence-based rather than simply anecdotal and could involve the gathering and understanding of perspectives from: (1) within contexts involving face-to-face interactions in classrooms, tutorials, laboratories and field contexts; and (2) within contexts involving virtual interactions in simulated classrooms, laboratories, discussion spaces, social networking spaces (e.g., Facebook, MySpace), field settings, access centres, video conferencing settings, and other technology-mediated or facilitated learning contexts. The focus of this particular aspect of research **in** teaching would be on more general teaching and learning experiences across units and programs. There would be obvious cross-links here with the research **on** teaching aspects discussed earlier.

### *The immediate teaching experience*

This aspect of research **in** teaching captures the spirit of the reflective practitioner from the teacher's perspective – enhancing learning to improve practice in one's localised and immediate context. This is the most focused and localised context for research-informed teaching and it is inextricably linked to and dependent upon the *student experience* aspect described below (and vice-versa). It would normally be implemented at the unit or even specific teaching/learning experience level. It is the place where a teacher learns what is and is not working and then intervenes in his or her own practices to improve and change things, perhaps at a very micro-level.

### *The immediate student experience*

This aspect of research **in** teaching captures the spirit of the reflective practitioner from the student's perspective – enhancing/facilitating their learning and engagement in their localised and immediate context. Part of research at this level could include gaining an understanding of student perceptions, issues and learning successes and could incorporate use of student evaluation outcomes and other sources of formative and summative evaluation. The focus here would be on learning about experiences from the perspectives of different on-campus and distance student cohorts, *international* and *domestic*, then working or even negotiating changes, often at a fairly micro-level to improve experiences and outcomes.

### *Effective use of technologies & networks*

Here, the research perspective acquires another dimension embodying reflective practice focused on effective use of technology (learning management systems, virtual networks, multimedia and rich media support systems) to enhance teaching quality and student learning experiences. Research-informed teaching here would focus on evaluating the effectiveness of technology-mediated/facilitated learning and then working to change approaches where needed. There would be a critical interdependency between this aspect of research **in** teaching and both the *immediate teaching experience* and the *immediate student experience*. At a higher level, this aspect would also critically inform and be informed by *Contextualised research - teaching practice in the discipline*. However, this aspect of research **in** teaching, combined with

the other three aspects, also has the potential to influence UNE strategic aspirations at the highest level as rectifying problems and issues at the immediate learning context level may require re-allocation of resources across the institution in order to correct system deficiencies. In other words, learning from highly localised experiences can and should influence institutional learning at the most strategic level.

### **Research Skills & Practices**

This facet of research-informed teaching focuses most directly on students (and, where appropriate, academic staff) acquiring the skills needed to successfully undertake and complete their own research. In this sense, teaching becomes the vehicle for training students to carry out research in various contexts. However, we need to be clear that this teaching may be formalised (as in specific units of study or participation in development workshops) or informal (as often occurs in supervisory relationships or discussions with colleagues). It is this facet of research-informed teaching that can impact most directly upon recruitment and success of higher degree research students. This is also an area where UNE has developed significant strengths in cross-Directorate and even cross-university support skills as the Library, TLC and Research Services are all involved in providing students and staff with skill sets and assistance to develop the requisite skills and practices to support research-informed teaching.

#### *Information search & acquisition*

UNE graduate attributes directly target research skills in information search and acquisition and implicates not only the basic search skills but also the judgment skills needed to critically evaluate what has been acquired and what needs to be/should be acquired. The skills platform for building independent research capability starts at this level and commences at the start of a student's learning journey with UNE.

#### *Critical, analytical & creative thinking & evaluation*

UNE graduate attributes also directly target these research skills which focus on the cognitive skills needed to analyse, appraise, evaluate and generally develop publicly defensible reasoning to support a particular point of view. It also provides the platform of higher level skills where thinking intersects evidence in pursuit of reasoned arguments and stimuli to action. Research can directly inform teaching here through example and practice by mirroring the thought processes that researchers must go through to make a convincing argument to others – a modelling process that can enhance student self-efficacy in research. This aspect of research in teaching enjoys perhaps the greatest opportunity to shape student potential for the future. It is also an essential rite of passage for any student with higher degree research aspirations.

#### *Methodologies & Guiding Assumptions*

Here, we get down to the basics of the doing of research, building on the previous platforms of *information search and acquisition* and *critical, analytical and creative thinking and evaluation*. At first blush, research-informed teaching in this aspect can be seen to involve explicit training and practice in the design, conduct and reporting of research congruent with philosophical, disciplinary, methodological, data analytical and ethical/social responsibility expectations. Explicit skills sets would centre on guiding assumptions, research

planning, data gathering and data analysis and interpretation. However, we can go further in many areas to explore the inter-disciplinary and multi-disciplinary possibilities in research. We can reinforce an emphasis on and respect for a plurality of perspectives, approaches and contexts for appropriately judging and using research, the student's own research as well as the research done by others.

### *Writing & Presenting*

The culmination of research activity at the apex of research **skills and practices** is displayed in the writing up and/or presentation of research proposals and findings to various audiences. Here, we focus on training needed to write and/or present research proposals, findings and implications in ways that are convincing. This is the most palpable manifestation of research quality where research creates meanings for an intended audience. However, these skills are not disconnected from the earlier scaffolding of skills; their effective development and display in part requires early and sustained systematic thinking throughout the research process about the ultimate audiences/stakeholders who will have an interest in the research – they are the ones who must be convinced. There is an important experiential component implied in this aspect of research skills and practice; i.e., the opportunity for students to practice their research skills in meaningful contexts.

### *Ethics & Fair Dealing*

This aspect of research **skills & practices** is also implicated in UNE graduate attributes. However, there are wider considerations and implications relating to dealing with research knowledge in larger contexts and about the researcher's obligations with respect to those issues. Here we see the importance of embedding knowledge about research codes of conduct and fair dealing with data, commercialisation and innovations into research training. Fair dealing issues extend into the realm of intellectual property and its appropriate ownership and usage and it is important that these considerations are embedded in research training as well.

### **Strategic & Stakeholder Advantages**

It is important to reflect upon what UNE gains by reinforcing/supporting research-informed teaching across the four facets described above; these are displayed in Figure 1. Research-informed teaching cannot be an aspiration devoid of concrete action and commitment. Strategic and stakeholder advantages can be realised if such actions and commitment are consistently enacted and demonstrated within Faculties and Schools and draw upon contributions from research Institutes, Centres and CRCs. UNE has a cross-University perspective in the provision of support services to support the research-informed teaching, which means that the academic side of research-informed teaching and the infrastructure needed to support such a model of teaching are becoming more and more congruent. What is still needed are coherent mechanisms, in terms of 'hard' (e.g., such as equipment and technology-enhanced interactive 'spaces') as well as 'soft' infrastructure (such as social networking and virtual learning environment software), through which external stakeholders as well as internal UNE stakeholder can contribute and learn.

*Students learn what we at UNE do in the context of what others do*

Research-informed teaching assists the spread of knowledge amassed by UNE researchers within and between disciplines. It also displays how that knowledge may relate to knowledge amassed by other researchers, in other disciplines, contexts and stakeholder groups. Students become aware of the creative and innovative research that does occur at UNE and this can help build commitment toward longer term commitment to study at UNE.

*Students contribute to what we at UNE do*

Research-informed teaching invites students to become active participants in the UNE research agenda and provide actionable learning input into how UNE can improve what it does. Students can participate creating critical learning and research partnerships. As alumni, students can spread and apply these experiences even further afield. Furthermore, research conducted by students contributes to UNE's research culture in general, may generate and/or enhance connections with key stakeholders and research contexts and may provide grist for research-informed teaching in the future.

*Teaching practice at leading edge*

Research-informed teaching can allow us to position our teaching practices in strategically advantageous ways to the higher education sector, especially in the context of teaching and learning and technological innovations and the e-University identity. Here, research **on** teaching and research **in** teaching become pivotal facets to leverage.

*Unit/Course content at leading edge*

Research-informed teaching ensures currency and relevance of knowledge, coupled with appropriate and flexibly facilitated learning experiences. It can also ensure that students become aware of future directions and pathways for research. Also implicated here is the notion of students becoming critical consumers of research. This can also place us in a position of strategic advantage in the marketplace if our research-informed teaching pushes boundaries and breaks down barriers between the university and its various stakeholders as well as between disciplines themselves.

*Demonstrable connectedness with key stakeholders; 'practising what we preach'*

Research-informed teaching can be used to showcase how research connects with stakeholder groups having diverse and potentially conflicting interests. By using our own research as part of such showcasing, we effectively demonstrate that we practice what we preach by showing how stakeholder interests can be addressed by researchers.

*Continuous focus on improvement*

Research-informed teaching can reinforce the concept of continuous critical reflection and improvement – a mode of behaviour that researchers naturally engage when doing their research. This can be manifested in several ways:

- *Research content & contextualisation* – where research-informed teaching situates research in various contexts so that its meaning and relevance become apparent and actionable, especially as regards research **about** content.
- *Learning experiences* – where research-informed teaching leads to enhanced learning experiences for students, especially if guided by research **on** teaching and research **in** teaching.
- *Teaching experiences* – where research-informed teaching leads to more rewarding teaching experiences for staff, especially if guided by research **on** teaching and research **in** teaching

#### *Forefront positioning for further UNE strategic developments*

Research-informed teaching can facilitate the identification of new frontiers and directions to pursue, especially if stimulated by enhanced learning and teaching experiences and access to more global research networks. This can occur with respect to:

- *New technologies* – where research-informed teaching facilitates the evolution of new directions in technology-supported teaching through enhanced exposure to new research and new research applications, perhaps through regional, national and global relationships built up through e-Research networks.
- *Collaboration opportunities* – where research-informed teaching can stimulate new collaboration opportunities for sharing knowledge across boundaries; again, perhaps through regional, national and global relationships built up through e-Research networks.

### **Systemic Implications of Research-Informed Teaching at UNE**

The mindmap in Figure 1 reflects what can be seen to be dynamic linkages between the four facets of research-informed teaching. Research **about** content shares a dynamic linkage with research **skills & practices** where the bridges between research and content can be constructed. Research **on** teaching can usefully inform the evolution of units and courses in terms of how research **about** content might be woven into the curriculum. Research **on** teaching can also influence (and be influenced by) research **in** teaching where generalised knowledge about teaching in higher education can help shape local teaching practices and what is learned from research **in** teaching can influence more general higher education teaching and research agendas. Research **in** teaching may help to shape learning experiences and teaching practices and to understand their effectiveness with respect to research **about** content. Finally both research **on** teaching and research **in** teaching can influence and be influenced by evidence gathering, contextualisation and reflection on content and practice that can be facilitated by concrete research **skills & practices**.

The mindmap in Figure 1 also shows a direct implication of research-informed teaching for the evolution of the interplay/relationships/synergies between Research, Teaching and Technology at UNE. This evolution will occur in the light of various *contexts of Interest*; two of which are of key strategic interest: the e-Research context embedded within the larger e-University context. There are a range of other contexts that

might be relevant to this evolution as well, including: student contexts, staff contexts, disciplinary and cross-disciplinary contexts, rural/regional contexts, national contexts, global contexts, social contexts, environmental/ecological contexts, policy context, innovation and commercialisation contexts. The shape and extent of this evolution cannot be entirely forecast or anticipated beforehand; it will more likely dynamically emerge as we get better at enacting research-informed teaching across all of the four facets.

### **Policy & Process Implications**

If UNE is to be serious about research-informed teaching, it must be able to display this to internal and external stakeholders. One way to accomplish this on the input side of our teaching is to add a section to new unit/course proposal forms, similar to what we already do for graduate attributes, where the unit/course proposer describes how research will inform the teaching in the unit/course. Figure 1 provides the potential landscape within which such a description could be made (populating a drop-down list, for example). Another strategy, targeting the output side of our teaching, would be to have a section in unit/course review documents that explicitly queries how research has informed the teaching in the unit/course. At this point, indications of how teaching in the unit/course may be influencing research. This would ensure that the relationship between research and teaching is not all one-way.

### **Recommended Actions for Strengthening Research Informed Teaching**

The above discussion signals the need to further develop, embed and reflect research-informed teaching in each of the four major areas in order to achieve strategic and stakeholder benefits. It is recognised that research-informed teaching already occurs at UNE to varying degrees across Faculties and Schools. However, we could benefit from a more consistent, systemic and coherent approach, from both strategic and stakeholder perspectives.

In particular, we should:

- ensure that research-informed teaching achieves prominence in UNE-level strategic planning so as to distinguish UNE's position in its wider strategic contexts;
- embed research-informed teaching in relevant UNE policies (e.g., unit/course approvals, graduate attributes);
- collate concrete practical examples to display to relevant stakeholders and communicating these outcomes widely, both internally and externally (such communication to apply to this statement about Research-Informed Teaching as well);
- enhance the induction of new staff with information on good practices for ensuring research-informed teaching;
- develop a model for managing research-informed teaching in units where the unit developer may not be the unit deliverer;

- incorporate the development of research skills & practices in undergraduate learning experiences and curricula in order to enhance opportunities to attract students into our postgraduate research degrees;
- embed research-informed teaching into professional masters and other postgraduate coursework awards to more clearly convey how research can inform professional practice, policy development, economic development, business practices, community change and so on;
- ensure that the research done in various CRCs, Research Institutes, Centres and Groups is incorporated into research-informed teaching;
- enhance unit and course evaluation systems to better capture and reflect student views on research-informed teaching and how successfully it is being achieved;
- ensure that research-informed teaching is valued and rewarded through integration into our staff recruitment, promotion, performance management, VC Teaching Excellence Awards, and staff development processes; and
- establish a joint working party from the Research and the Teaching and Learning Committees to develop strategies to clearly and fully implement research-informed teaching in all UNE activities, i.e. to work on achieving the above connections and outcomes (a suggestion put forward by Roczniok & Daniel 2008).

### **Summary of Recommended Actions**

The recommended actions are intended to signal areas where we could further develop or enhance our approaches to achieving and displaying research-informed teaching. It is important to acknowledge that we are not starting from a zero-base; there are already many research-informed teaching achievements around UNE. However, UNE and its stakeholders could benefit from wider recording and recognition of these achievements as well as from setting in place processes designed to create opportunities and capacities for extending the reach and depth of our achievements. Research-informed teaching needs greater strategic prominence. Research-informed teaching needs to be reflected more clearly in our policies and procedures as well as in staff development and unit/course evaluation processes. We need to do a better job of linking the research done in various CRCs, Research Institutes, Centres and Groups into our teaching curriculum. We need to enhance opportunities for mentoring students into research-based career paths through modelling provided by our research-informed teaching.

### **An Integrated Set of Web Resources on the Teaching-Research Nexus**

*The Academic's and Policy-Maker's Guides to the Teaching-research Nexus: A suite of resources for enhancing reflective practice*, ALTC Teaching-Research Nexus Project Final Report, web resources and selected bibliography: [www.tnexus.edu.au](http://www.tnexus.edu.au)

<http://www.altcexchange.edu.au/resources/alp/1194> website of resources and papers on the Teaching-Research Nexus

<http://www.altcexchange.edu.au/resources/alp/1343> website of resources and papers on Postgraduate and Research Education

### **Acknowledgement**

The discussion on the teaching-research nexus at UNE was first stimulated by the following document:

Roczniok, A & Daniel, H, 2008, *Teaching Research/Nexus Discussion Paper for Academic Board Research, and Teaching and Learning Committees*, 14 July 2008.

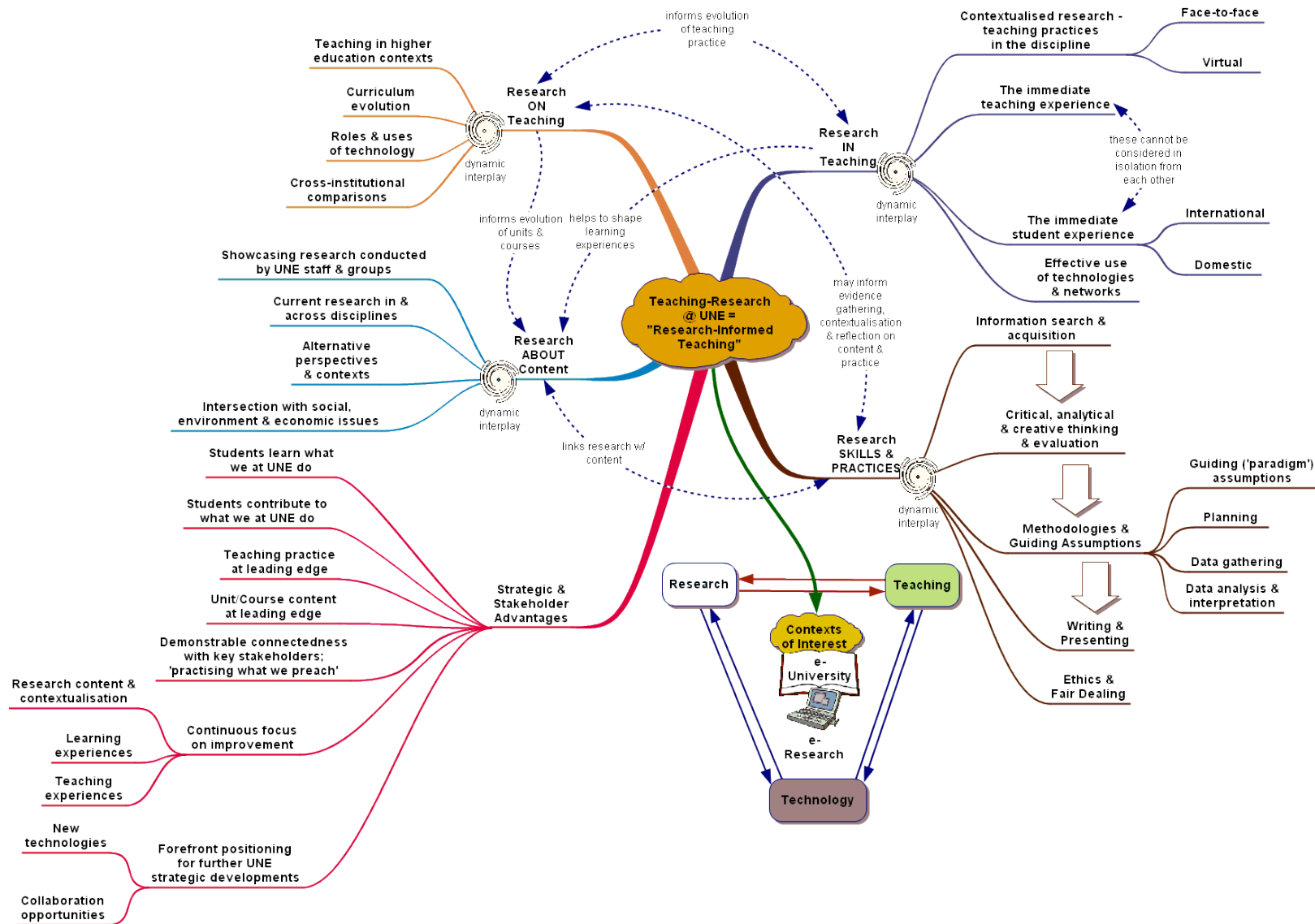


Figure 1. Mindmap of the themes and interplay amongst different manifestations of research-informed teaching at UNE