



Final Report 2016

Valuing student voices when exploring, creating and planning for the future of Australian higher education

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List of acronyms used

ACU	Australian Catholic University
BYOD	Bring Your Own Device
BYOT	Bring Your Own Technology
CALF	Creating Academic Learning Futures
HERDSA	Higher Education Research and Development Society of Australasia
IP	Intellectual Property
MOOCs	Massive Open Online Courses
NMC	New Media Consortium
OLT	Office for Learning and Teaching
OUA	Open Universities Australia
SEYP	Student Edge Youth Panel
Swinburne	Swinburne University of Technology
TAFE	Technical and Further Education
UK	United Kingdom
UTS	University of Technology, Sydney

Executive summary

Just as it is important to realise that the future cannot be ‘predicted’, so also is it important that Alternative Futures can and should be forecasted, and the consequences of alternatives considered before Preferred Futures are envisioned and created (Dator, 2004).

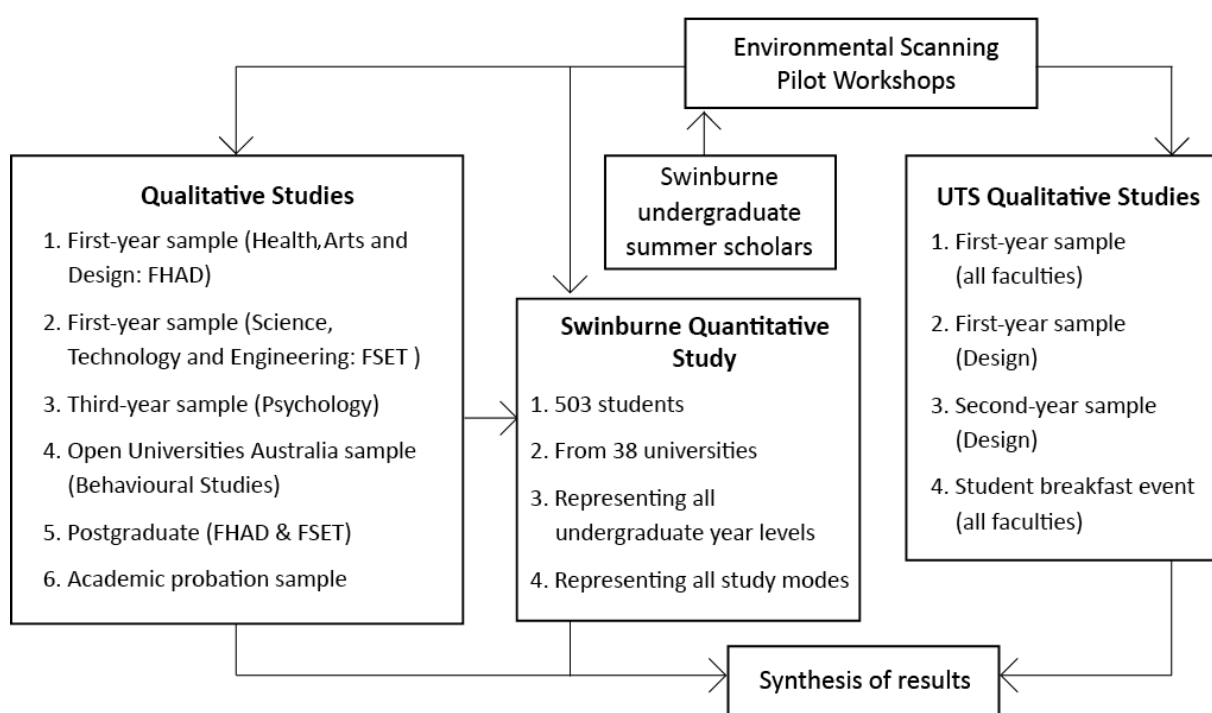
You want me to tell me – to tell you – how I want to learn in the future? Bring it on!
(Student response to an invitation to explore higher education futures)

The principle aim of this project was to explore, create and present for discussion plausible alternative future scenarios for learning and teaching in Australian universities. The need to conduct *futuring* exercises exploring Australian higher education is in response to the rapidly changing higher education milieu, and the desire of universities to react appropriately to meet students’ needs while still being able to support academic staff and plan university directions. To determine what students may endorse amongst the new learning and teaching choices, it was decided to consult a primary stakeholder - the students. As has been found elsewhere (e.g., Romenska et al., 2011), students struggle to construct a vision of the future. To help students explore their preferred learning future, creative events were developed to assist students to consider and create potential learning options. Models of how to conduct such events form an important deliverable of the project. The events were supplemented with a comprehensive quantitative survey to gain the views of a diverse range of students. This mixed methodology assisted in capturing student signals regarding their preferences for their learning future.

Research process

Figure 1 illustrates the data collection stages conducted after the pilot. The boxes titled ‘Qualitative Studies’ outline multiple events in a number of cohorts at each university.

Figure 1: Data collection stages of the project



The research commenced with an environmental scanning of previous work involving the student voice and visions of the future of higher education. This was followed with the development and piloting of the first creative event to ensure the suitability of the methodology.

Key findings

Following the analysis and synthesis of the results (refer to *Appendices B and E*), the key findings of the project, which reflect what students envision higher education to be in the future, were identified. These are presented, in order of appearance within the report, in Table 1.

Table 1: Summary of the key project findings

Australian students' vision of the future of learning and teaching
1. Changing contexts: Changing global and national issues, such as climate change and an ageing population, will impact on student learning, and students will examine how their learning can be applied to tackle pressing social issues.
2. Employability: Learning and teaching will make use of links with employers and provide access to experts in professional fields to enhance real world learning.
3. Civic mindedness: Universities will continue to develop the qualities of civic mindedness and civic responsibility in graduates in line with the traditional values of a university education.
4. Quality: High quality learning environments, learning resources, learning spaces and digital infrastructure will be available to all students to support learning.
5. Socially connected: Students will feel connected to their learning community and have multiple channels to nurture this connectedness.
6. Individualised: Learning will be personalised to meet the needs and preferences of individual students.
7. Tactile: Universities will support the inclusion of sensory, physical and tactile learning options. Online learning will not completely replace these options.
8. Scaffolding: Institutional support and guidance will be provided to assist students in making personal choices for learning.
9. Independence: Universities will encourage and support independent learners.
10. Diversity: There will be diversity in both student demographics and student learning needs, with greater numbers of mature-aged, first in family, part-time, international and other previously underrepresented groups, along with more students in online and blended programs.
11. Authenticity: Learning experiences, particularly assessment, will reflect authentic real world practices, with less reliance on exams as assessments.
12. Academic contact: Universities will support academic workloads to enable responsive student-academic contact in all modes of learning, as students strongly value contact with academic staff.
13. Learning evolution: Universities will continue to improve their learning and teaching strategies as a result of learning innovations, student demand for flexibility and methods of delivery that allow for greater student choice.

Project outputs

Key outputs of the project include:

- project models, tools and techniques that could be easily adopted or adapted by institutions to conduct creative future events exploring a variety of topics;
- processes for including learners in the planning and reshaping of learning and technologies;
- comprehensive quantitative data from more than 500 university students from thirty-eight universities across Australia, together with rich qualitative data from hundreds of students from two universities, regarding preferences for university learning;
- future research questions related to students' learning and the use of new technologies in learning;
- recommendations to inform the higher education sector about directions in learning and teaching and student expectations;
- publications and presentations; and
- a project website.

Recommendations

- It is recommended that universities ensure they include students in the planning for the future direction of their university, and make it apparent to students how their voice has been included in the forecasting.
- Students need assistance to imagine the future. It is suggested that universities clearly articulate for students why they are proceeding in their chosen directions, and continue to explore the student voice in terms of how universities should construct learning futures.
- Students indicated that they believe a primary purpose of their university education was to achieve a desired career; however they frequently had difficulty understanding how their studies helped them to achieve that goal. To assist students' understanding of how their learning will assist them in employment, universities could consider including 'employment outcomes' together with 'learning outcomes' in documentation such as subject outlines, or increase the proportion of learning and assessment experiences that explicitly develop employability skills.
- Students stressed the importance of choice and control over their learning. It is suggested that universities ensure course (program) structures that allow students to make choices in their learning and that they allocate resources to assist students in making choices.
- It is recommended that universities offer professional development to academics to assist them in designing assessments that allow for greater student choice, in terms of areas being examined, as well as how the areas are tackled.

- Students indicated a strong desire for flexibility in their learning. It is recommended that universities explore flexible learning options to accommodate student needs and that students are clearly informed of these options.
- Students want their learning and assessments to reflect the 'real world'. It is recommended that students are offered greater opportunities to experience authentic, real world experiences, especially in terms of assessment.

Conclusion

This project demonstrates the positive outcomes available to universities when they listen to the student voice regarding what they want for the future of learning in higher education. Deliverables from this project include models, tools and techniques available to all universities to adapt if they wish to explore the student voice in their university, together with recommendations for universities to consider when planning their future learning and teaching directions.



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Chapter 1: Project context

Historical background behind the purpose of the university and university learning

Prior to the 21st Century, there was a period of debate as to the purpose of higher education (Goodhart, 1952). The debate centred upon whether universities ought to be regarded primarily as institutions to conduct research, with teaching serving a secondary role, or if the reverse held true with teaching forming the primary function of universities. While both the roles of teaching and research are understood as essential tasks of universities, Goodhart argued that the debate overlooked a vital function, namely to develop the individual, including the capacity for critical thinking, a sense of civic mindedness, and responsibility. Indeed historically, there has been an emphasis on universities developing students' knowledge and skills to be responsible, productive members of society. While preparing students for vocational goals was considered, it was one of many functions of higher education and was not emphasised above the others.

While universities in the 21st Century seek to continue the aims of the past (Bradley, Noonan, Nugent, & Scales, 2008), there have been shifts in the focus of higher education institutions and changes in the way that the purpose of higher education is conceptualised (Clark, 1988). Mintz, Savage and Carter (2010) argue that while universities were once a structure of cultural, social, ethical and economic focus, higher education providers have since shifted towards being entities of political gain and financial interest, with increased pressure to become more entrepreneurial. A suggestion as to why this has occurred is proposed by Larrasquet and Pilnière (2012), who purport that this change is due to higher education management roles becoming more political.

In a recent article, Taylor (2012) explores the entrepreneurialism of universities today. Taylor suggests that this change in the priority of universities need not result in a detrimental impact on the traditional purposes of institutions. An independent university that seeks to retain the value and aims of the past, and a university which seeks greater funding, may not be so different. The distinction lies in the way the institution endeavours to attain additional funds. Taylor refers to this difference as whether the university is one of entrepreneurialism or one of commercialism. As obtaining funds is necessary to the survival of an institution, a shift in marketing towards entrepreneurial ideals is key. According to Taylor, entrepreneurialism refers to possessing self-reliant, positively opportunistic, dynamic and flexible attributions. Further, this is accomplished while still maintaining high standards in academics and in the academic enterprise. The point at which entrepreneurialism becomes commercialism is when the institution decides to engage in additional forms of market activity to simply broaden funding sources without regarding academic standards as important. What has not been extensively explored is how the changing nature of higher education institutions has impacted on students. Specifically, it is not clear if these changes

have impacted student expectations of higher education and their preferences for the future of higher education. In particular, it is not known if this has impacted on how students want to learn.

Higher education in Australia

While the debate regarding the purpose of university continues to evolve, there are additional factors influencing the state of higher education in Australia. The face of Australian higher education was transformed in 2008 with the release of the 'Bradley report' (Bradley et al., 2008) which recognised the need to broaden higher education in Australia to meet the demands of a rapidly moving global economy. In particular, Bradley and her colleagues suggested targets to increase the number of young Australians holding tertiary qualifications and highlighted the need to increase the proportion of students from traditionally underrepresented groups. Following this report, in 2009 the Australian Government announced funds to support higher education and research, and in response, the domestic student population has become more diverse. In more recent times, further radical changes to higher education policy have been proposed by the Federal Government and are being debated, adding to the complexity of the current state of Australian higher education (Norton & Cherastidtham, 2014). Indeed, the release of the 2014 Australian federal budget invigorated public debate about the future of higher education in Australia, and in the media, alternative futures have been raised and debated by notable thinkers such as Stephen Parker (2014) who proposes a variety of ideas for change to Australian universities. Thus, the current higher education policy and funding environment is somewhat unsettled. Further, the media spotlight on higher education since 2014 has meant that students have more reference points from which to consider the possible futures of higher education and are potentially more engaged with the idea of alternative futures.

In addition to the transformation of the domestic student population in response to the Bradley report, the present student population in Australia includes a significant proportion of international students. As indicated by Norton and Cherastidtham (2014), international student numbers were small until the 1990s, and "from 1986, universities were allowed to take international students at fees they set and kept. Double-digit growth rates quickly became the norm, promoted at times by migration policies favouring former international students" (p. 24). Thus, the university classrooms of today – online and face-to-face – contain a diverse cohort of students with various learning needs.

Another factor relevant to the Australian context is that in 2014 almost all of Australia's top universities improved their international ranking (e.g., Times Higher Education Ranking) on the previous year (McNeilage, 2014), with Australian academics increasing their research outputs. It is unknown if this enhanced research focus has a positive, negative, or nil impact on the teaching role of Australian universities. In addition, the students' views in regards to this achievement have not been explored.

A further change to Australian universities, along with universities worldwide, has been the introduction of new technologies into learners' lives, with a proportion of students now conducting their studies entirely online, and new learning technologies influencing the pedagogical approaches of most academics. Students conducting their studies on campus are also incorporating new technologies to benefit their learning, with most courses offering varying degrees of blended learning. In response, universities throughout the world are trying to accommodate these new ways of learning using digital and web-based technologies, while also meeting students' shifting aspirations and expectations (Romenska et al., 2011). It has been found that students generally use and would support more use of established technologies that enable access to content, such as the learning management system and online library resources, but are more divided on the learning potential of social media and content creation tools (Gosper, Malfroy, & McKenzie, 2013). Further, it is unclear which technologies the students endorse and what they think will best support their learning.

The national and international factors considered above are impacting Australian higher education and have resulted in a rapidly changing educational landscape. These factors are likely to affect students' views of what they want and value in their learning and shape the decisions about learning and teaching made by universities.

Overview of learning and teaching innovations

The following sections describe recent learning innovations relevant to this project. These learning innovations were discussed by specific groups of students at qualitative events held at Swinburne University of Technology (Swinburne) and the University of Technology, Sydney (UTS), whilst student attitudes toward these learning innovations were examined with a larger national sample in the Swinburne quantitative study.

Online study

Online learning represents a major change to higher education, with student expectations around the use of online learning challenging pedagogical assumptions. In Australia, decreased funding of universities (Mamun & Rahman, 2015) and the introduction of new technologies has led to a push for the adoption of more flexible online study modes in order to attract higher numbers of students (Bailey, Ifenthaler, Gosper, Kretzschmar, & Ware, 2015). Research on students' attitudes toward online study has tended to focus on exploring differences between cohorts of online students and cohorts of face-to-face students (e.g., see Artino, 2010). While this is important, less emphasis has been placed on exploring the attitude of face-to-face students towards online education. Indeed, investigating how face-to-face students view various features of online and face-to-face education is important, as it provides insight into how universities might better encourage the uptake of online units, Massive Open Online Courses (MOOCs) and entirely online degrees amongst students who might have otherwise studied purely in a face-to-face mode.

Blended learning

In addition to a growing emphasis on courses delivered entirely online, there has been a rapid move toward the uptake of blended courses (Norton & Cherastidtham, 2014). Blended courses involve a combination of 'traditional' face-to-face classroom teaching, and some form of online teaching using asynchronous internet technology (Garrison & Kanuka, 2004; Sharma, 2010). An advantage of blended learning is that it allows learners to learn both together (on campus) and independently (online) or together at any time and place. In addition, students are given the opportunity to communicate in both fast-paced and spontaneous ways (i.e., face-to-face) and in more reflective ways (i.e., via asynchronous internet communication; Garrison & Kanuka, 2004). Robinson and Hullinger (2008) argue that slower paced, online communication allows additional emphasis to be placed on assignments requiring synthesis and/or those which require making complex judgements of course-related material. While the perspectives of higher education staff have been considered in relation to the way that blended learning might take place (e.g., see Bonk, Kim, & Zeng, 2005), student perspectives on how they may take shape are yet to be considered.

Flipped classrooms

Flipping the classroom switches when assignments (e.g., homework) and information provision (e.g., lectures) occur (Amresh, Carberry, & Femiani, 2013). Universities are aware of the cost-effectiveness of the flipped classroom model, as effective class time is maximised (Jacot, Noren, & Berge, 2014), thereby reducing the number of hours students spend in the classroom and the teacher-student contact (Baepler, Walker, & Driessen, 2014). In this model, students have intense class time devoted to their learning from pre-prepared lectures. Teacher time is spent on preparing pre-work materials, facilitating classroom activity and providing feedback rather than on lecturing. In addition, room availability becomes more accessible as fewer lectures require timetabling. Again, these changes provide cost-effectiveness and potential downsizing or alteration of space. Flipped classrooms are also thought to provide outcomes for students that have positive effects on learning and self-esteem, therefore reducing attrition (Missildine, Fountain, Summers, & Gosselin, 2013).

Additionally, flipped classrooms provide the opportunity for individual deep learning. Deep learning goes beyond rote memorising of content, giving students a greater understanding of concepts and providing the student with the ability to implement learning into everyday situations (Mazur, 1997). Deep learning also provides opportunities for students to engage in self-directed research, to teach or share with others, and the ability to be responsible for their own learning (Jarvis, Halvorson, Sadeque, & Johnston, 2014). Students' abilities to access information ahead of time means that they are primed before class, giving them the capacity to move beyond the lower end of Bloom's Taxonomy (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) to pursue high order thinking and critical analysis of class content and self-knowledge (Jacot et al., 2014). Bloom's Taxonomy is hierarchical and the lower order of thinking includes knowledge, comprehension and application. In traditional classrooms this is all that is expected from students, whereas flipped classrooms expect students to move to

Bloom's Taxonomy's higher order of thinking which involves analysis, synthesis and evaluation (See & Conry, 2014) or from the revised version of the taxonomy, creation (Krathwohl, 2002). Due to this, it is presumed that students begin to value learning and often self-confidence increases as they see their knowledge expand and their grades improve (Missildine et al., 2013).

Peer mentoring

Peer mentoring involves students who have actively lived through an experience (mentors) sharing their knowledge/experiences with learners who are relatively new to those topics/experiences (peers) (Bozeman & Feeney, 2007). The benefits of peer mentoring include the building of friendships and networks (e.g., Colvin & Ashman, 2010; Woods et al., 2013) which can lead to a greater sense of belonging, the transmission of useful information about coursework, as well as campus specific knowledge (e.g., financial aid links, Colvin & Ashman, 2010) and reducing student anxiety (Sprengel & Job, 2004). Due to these positive benefits of peer mentoring, in this project, the peers that students would like to be mentored by, the desired availability of peer mentoring, and the perceived impact that students believe peer mentoring would have on their level of engagement, satisfaction and academic outcomes was investigated.

Peer assessment

Peer assessment is a method of assessment where students or their peers mark assignments or exams based upon set benchmarks (Andrade & Du, 2007). Peer assessment has been used pedagogically so that students actively think about what it takes to achieve certain grades and reflect on how much a written answer or oral exam is therefore worth (Sadler & Good, 2006). Sadler and Good also found that peer assessment saved teachers' time and that students' marks were highly positively correlated with teachers' marks (>.91). Peer assessment can also be used in group work where peers' marks are useful for the teacher to understand how assignments are completed by various group members (for a discussion of peer assessment within group work, see Li, 2001). Based on these findings, in this project we explored how students thought peer assessment should be used and whether peer assessments should be included in their final grade.

Recognition of prior learning

Universities routinely enable students to gain credit, recognition or advanced standing in degree courses as a result of previous qualifications or evidence of formal learning; and sometimes recognition of informal learning. The advent of MOOCs and the development of open digital badges have raised new possibilities for students to mix formal higher education with other forms of learning. Nano-degrees, micro-credentials and digital badges (Lemoine & Richardson, 2015) gained through completing MOOCs, or demonstrating capabilities in other ways, are beginning to be recognised for credit in some universities. Students, particularly at postgraduate level, may begin to seek out opportunities for these alternative credentials to be recognised, or may see them as viable alternatives to formal qualifications

if they become recognised by employers. This raises issues for universities about the credentials and evidence that they will accept and the level of flexibility within course structures for credit recognition at the micro level.

Learning technologies and immersive learning

A number of technological innovations give context to this project. In the Horizon Report 2015, six ways of using technologies that have the potential to foster “real change in education” (Johnson, Adams Becker, Estrada, & Freeman, 2015, p. 35) were identified. The present focus is on two which most align with this project: Bring Your Own Device (BYOD) and makerspaces. Bring Your Own Technology or BYOD refers to the addition of mobile devices to classrooms and other learning environments. When students are able to use their own devices, they use technology familiar to them, and customise learning resources for their own needs, for example, using organisational software such as ‘Evernote’, ‘Dropbox’ or ‘Skitch’ to manage, adapt and share resources. This trend has implications for this project because it changes the way universities need to adapt infrastructure as personal technologies are integrated into student learning practices.

Makerspaces, fab labs and hacker spaces can help universities find ways to repurpose learning environments to meet the needs of the future. Makerspaces have been emerging across the world over the last decade and provide a grassroots model of how emerging technologies can be made central to learning. They also provide an example of interdisciplinary learning environments - a challenge within the faculty structures of Australian universities. Examples of makerspace type learning environments include the Swinburne Design Factory and the Interactivation Lab at UTS.

In this report, recent pedagogical innovations and arguments as to why these innovations might be useful to students, together with preliminary evidence supporting their implementation, have been outlined. However, what has not been examined is the extent to which students *want* these innovations to be implemented, and their perception of the importance of these innovations. The importance of focussing on the student perspective – that is, the importance of an emphasis on the student voice in relation to educational innovations – is discussed in the following section.

Importance of the student voice

The student voice is defined as "any expression of any learner regarding anything related to education" (Fletcher, 2014, p. 2) which provides students with the ability to influence their learning, including policies, programs, contexts and principles (Cook-Sather, 2006). In this time of educational change, it seems the perfect moment to listen to this voice to help determine the optional directions.

The introduction of new technologies in learners’ everyday lives offers wonderful opportunities, but it has been challenging to implement appropriate pedagogical and systemic university approaches in response (Salmon, 2009). This educational revolution

(Robb, 2012) is occurring concurrently with changes in the Australian student cohort brought about by the Bradley et al. (2008) report, together with an increase in students conducting their studies entirely online. As the higher education milieu evolves, little is known about how to prepare for changes in these learners' expectations, including what, out of the huge range of technological and face-to-face opportunities, may be of significance (Buzwell, 2013). While there is a focussing of efforts to provide students with the highest quality learning experiences (Office for Learning and Teaching, 2015), it is difficult to get a holistic picture of the best evidence to promote these individual learning experiences and even harder to get realistic visions of forthcoming directions (Buzwell, 2013). Compounding this predicament is that there are few authentic voices from learners in planning for this future (Andrews & Tynan, 2012; Manefield, Collins, Moore, Mahar, & Warne, 2007; Romenska et al., 2011).

Indeed, to determine optimal learning approaches, it seems advisable to consult a primary stakeholder - the students. Involving learners in a dialogue about the future of learning and teaching is essential for ensuring that future higher education strategies respond to changes in learners' expectations and student culture (Buzwell, 2013). Further, the opportunity for student representation in the construction of strategies for the future of learning and teaching will enable greater and more fruitful cooperation between staff and students and will enhance both student engagement (Fielding & Bragg, 2003; Kushman, 1997) and retention (Creanor, Trinder, Gowan, & Howells, 2006; Jackson, 2005; Manefield et al., 2007).

The importance of the student voice is based on well-established cognitive psychological theories. A major theme in constructivist learning (Bruner, 1996) is that learning is an active process in which learners connect new knowledge and skills to existing ones and thus construct new concepts based upon current and past knowledge. Bruner believes learning is best achieved via the engagement of learners and teachers in an active conversation, emphasising the importance of students actively determining what they learn and having a role in the direction of their learning. Further, Dietel, Herman, & Knuth (1991) contend that to become competent thinkers and problem solvers, learners must be active participants in their own learning. Dietel et al.'s research supports the understanding that the student voice is an avenue through which students can explore and construct their own learning, while gaining more control over the content, direction and method of learning and thus develop higher-order thinking skills.

In summary, to maximise the potential for successful learning, the student voice must be included in decision making about preferred and viable educational futures. Discovering what learners expect in this complex environment will help universities plan for the changes ahead, informing the reworking of the curriculum and the revision of learning materials and approaches. Failure to incorporate the student voice in planning puts at risk the current endeavour to increase participation in higher education and may contribute to higher rates of attrition.

Chapter 2: Project approach and methodology

Research which has utilised the present approach

The current project is inspired by the work conducted in the United Kingdom (UK) in the Creating Academic Learning Futures project (Romenska et al., 2011). The CALF project (2008-2011), funded by the UK's Higher Education Academy, was led by the University College Falmouth and the University of Leicester and focussed on developing plausible 'alternative futures' for higher education in the UK (Romenska et al., 2011). The creation, exploration and presentation of alternative futures in the CALF project was achieved by capturing emerging issues which may influence the future of students' learning and by engaging the student voice (Romenska et al., 2011). Overall, it was found that there were mismatches between government policy directions, strategising by individual institutions, students' views on what was truly important in their future learning and the ways in which preferred and viable futures may be achieved.

In the CALF project, the future vision of higher education learning and teaching in the UK was developed via creative methods which produced what was named the 'Learning Futures Foresight' model (Romenska et al., 2011; Salmon, 2009). This model, developed by Professor Salmon, explores a process for the application of creative skills for envisioning the future of higher education. This model has been used in UK institutions to shape learning and teaching strategies, in the UK higher education strategy (e.g., Online Learning Task Force, 2011; Browne, 2010) and across European countries for further research (e.g., European Commission, 2009; Redecker, Ala-Mutka, & Punie, 2009). The data collected to develop this model utilised three research methods: scenario building, short surveys and cognitive mapping interviews. These methods formed the basis for the selection of methodologies for this project.

Literature review/environmental scanning method

To inform the creation of both the qualitative and quantitative events, a systematic review of the literature was conducted at Swinburne. Relevant peer reviewed literature was identified using Scopus (<http://www.scopus.com/>). General search terms were first entered, resulting in a large number of results. Following this, the search was narrowed by using specific exclusion criteria. This resulted in a broad reference database which could be used to find references relevant to developing the qualitative and quantitative studies. The full list of search terms are presented in *Appendix F: Swinburne systematic review*.

Qualitative research method at Swinburne University of Technology: Creative workshops

Events held at Swinburne to collect qualitative data involved several activities designed to encourage students to think about the future of Australian higher education. Within each workshop, a variety of activities were run instead of relying on the same methodology at each data collection event. The following sections describe various activities run at the Swinburne qualitative events. Overall, approximately 215 students participated in the Swinburne qualitative events.

Group discussion

In order to introduce the students to the workshops, the sessions began with a broad discussion. The focus of the discussion in the first qualitative sessions (see project website: <http://www.studentvoicesproject.com.au/olt-report-appendices/>) encouraged students to consider times when they had felt particularly engaged in their study, and what had prompted this. This led students to reflect on what currently works in higher education, why this worked, and how this could be improved in the future. In later workshops, to complement data collected in the first studies, students were asked to consider what motivates them in their studies. As with the earlier version of the group discussion run in the first sessions, the rationale was to encourage students to think about what currently motivates them (that is, what is working in higher education) and how higher education could be improved to motivate them more effectively. For a full overview of questions, see <http://www.studentvoicesproject.com.au/olt-report-appendices/>. Thus, the purpose of the initial group discussion was to focus students' reflections on the current state of higher education and to consider what higher education might look like in the future.

Sculpting workshop

Students were asked to participate in a creative task designed with the dual purpose of providing them with a method of exploring possible futures of higher education, while encouraging them to think about learning from a different perspective. Students were placed into groups of four to five and were provided with a range of craft materials (including pipe cleaners, modelling clay, blocks, etc.). Each group was asked to nominate a sculptor to physically create the sculpture, with the remaining group members offering advice. The topic of the sculpture was "The learning environment now and where the best learning can be found in the future". After spending 10 minutes designing the sculpture, the group was asked to spend 10 minutes reflecting on it and answer questions developed by Dr Sean Tinker (team member at Swinburne) using the sculpture as a lens through which they considered changes to higher education. Students were asked to view the sculpture from the North, followed by South, West and East. At each point there was a different set of questions regarding university learning:

North: What do you love about this scenario? What is energised here? What is emerging?

South: What is ending in this situation? What becomes extinct? Obsolete? What is replaced? How?

East: What are the key conflicts and hard truths that higher education institutions (universities) will face going forward? What needs to happen to reach this future?

West: What is the result of this learning environment? What is the ideal student in this scenario? What kind of graduate does it produce? What kind of individuals?

For a full overview of the sculpting workshop materials, see <http://www.studentvoicesproject.com.au/wp-content/uploads/2014/05/Sculpting-Workshop-Postgrad.pdf>.

World Café

Students were engaged in a modified World Café (Slocum, 2005) task. A number of tables were set up within a room, with each table having a set host who guided the conversation. The task comprised three rounds, each with a different discussion question. At the end of each round, the participants at each table, with the exception of the host, switched tables. Participants were instructed not to move to different tables as a group, but to split up to allow for the cross-pollination of ideas. The first time the World Café was utilised, the three discussion questions were: “What is the future of learning that is most desired?”, “What needs to change and what needs to stay the same about learning in the future?” and “How will this future happen?” A second version of the World Café questions were formulated for future events, which explicitly focussed on exploring the past, present and future of higher education.

Scenario building task

Students were engaged in a scenario building task designed to encourage participants to create an ideal university. This involved running a modified World Café task in which students were given broad topic areas (e.g., pedagogy and learning) and asked to describe their ideal university in this domain (i.e., how learning should take place at the ideal university). Students were presented with a series of prompts within each broad area (on A3 paper) and were encouraged to make any notes or comments that they felt were relevant. The broad topic areas and prompting questions were based upon questions developed by Davidson (2013). The task was split into four rounds with each round covering a different topic area (see project website: <http://www.studentvoicesproject.com.au/olt-report-appendices/>). Students sat at tables, each with one host, who directed and focussed the conversation. As with the standard World Café task, participants were asked to switch tables at the end of the round, but not move as a group, to allow for cross-pollination of ideas.

Online workshop

Approximately 30 students enrolled in an online program were invited to an online discussion group to explore learning online and on campus, of which 12 students provided responses. The students also considered the ideal methodologies to explore these questions in an online context.

Embedded projects: Group work

In order to obtain richer, longitudinal data from a specific group of students, a decision was made to embed aspects of the qualitative study into a third-year group work unit. A disadvantage identified in previous qualitative workshops was that student ideas about potential changes to higher education were limited based on what they had experienced in their degree. Therefore, in order to access a group of students who were currently using innovative pedagogical methods (e.g., intensive group based work, peer mentoring and peer assessment), the convenor of a third-year Capstone unit was approached. Data collection involved running three sessions at the start of semester and three at the end of semester. Students were also invited to contact the project leader should any issues about group work arise.

Embedded projects: Innovations in peer mentoring, peer assessment and group work

In the first series of workshops, in addition to the sculpting task, students were asked to consider how group work had been ineffective and effective in the past. They were also asked to consider how group work might be beneficial (e.g., from an employment perspective) and how it might be enhanced. Between the first and second series of events, students were given experience with a specific model of peer mentoring and a specific model of peer assessment. In the second series of workshops, students were asked to discuss their experience of the three innovative pedagogical methods (i.e., intensive, applied group work projects, peer mentoring and peer assessment). They were asked to consider how these could be improved and what the perceived pedagogical value of these methods was. Therefore, the impact that exposure to innovative pedagogical methods had on student preferences was able to be determined, relative to cohorts of first-year students who had not had these experiences.

Analysis of qualitative data

Following the completion of the qualitative events, all written materials produced by students were collected and themes were manually developed. Next, the data were entered into NVivo for thematic analysis. NVivo was chosen as it allows for a robust and objective way of coding and organising qualitative data, especially when used in combination with manual coding (Welsh, 2002). The results are presented later in the report.

Qualitative research method at the University of Technology, Sydney: Collaborative scenario design

The focus of data collection at UTS was qualitative. The first stage of the UTS data collection replicated the Swinburne events using the World Café and sculpting activities. Following the Swinburne protocol, in the debriefing students were asked to reflect on what was emerging, disappearing and challenging about the scenarios and what it would take to thrive in them. Further insights were gained from written evaluations, vox pops and regular conversations at a weekly free breakfast organised by the representative Student Association at UTS. Overall, around 120 undergraduate students participated in these processes.

Data were collected through observations by the workshop facilitator, audio recording of group discussions and models, drawings and debriefing notes generated by students during the workshops. Each group in the workshop recorded their discussions using an iPad, on which they controlled the recording, took notes and circulated around their table. The use of analogue and digital technologies within the workshops helped open discussions about the future uses of learning technologies.

The data were then analysed thematically (manually), comparing and contrasting statements made about the future of learning in higher education in relation to the students' scenarios and grouping them under common themes. The second stage focused on integrating the workshops into existing curricula and refining the collaborative scenario design workshop for easy repetition. A refined iteration was developed specifically for design students which is detailed in *Appendix E: University of Technology, Sydney qualitative results*.

Quantitative research method at Swinburne University of Technology: Survey participants

The participants in the project's quantitative sample were sourced through the Student Edge Youth Panel (SEYP). The SEYP includes high school and tertiary students and has Australia's highest student membership of any research panel, with approximately 335,000 members of which 50% are of tertiary age. The present sample consisted of 503 randomly selected current university undergraduate students from the SEYP. The sample comprised 266 females (52.9%), 236 males (46.9%) and one person who identified as 'Other' and the age of participants ranged between 18 and 55 years, with an average age of 21.6 years. Of these, 145 students (28.8%) were the first students in their family to enrol in higher education. The range of universities (n=38) represented was very broad, with students from nearly every Australian university, barring only three - Bond University, Charles Darwin University, and the University of Wollongong. The universities with the greatest representation in the sample were Monash University, The University of Melbourne, the University of New South Wales, Curtin University of Technology, the University of Western Sydney, Deakin University, La Trobe University, The University of Western Australia, the University of Sydney, University

of Technology, Sydney, RMIT University, Murdoch University, Swinburne University of Technology and Edith Cowan University.

The sample consisted of students from across Australia, with 166 from Victoria (33%), 164 from New South Wales (32.6%), 86 from Western Australia (17.1%), 46 from Queensland (9.1%), 29 from South Australia (5.8%), eight from the Australian Capital Territory (1.6%) and four from Tasmania (0.8%). The highest level of education completed by the students was high school (71.6%), an undergraduate degree (10.3%), or a Technical and Further Education (TAFE) qualification (8.9%), with the remaining 6.4% of students selecting ‘other’ as their highest level of education. With respect to employment, 211 students were engaged in casual work (41.9%), 188 were unemployed (37.4%), 78 were working part-time (15.5%), 17 were working full-time (3.4%) and nine were self-employed (1.8%).

In terms of students’ enrolment status, 461 (91.7%) were enrolled full-time and 42 (8.3%) were enrolled part-time. Additionally, 441 students (87.7%) studied on campus, 39 (7.8%) studied a mix of on campus and online units (blended mode) and 23 students (4.6%) studied exclusively online.

Materials

Table 2 presents information sought within the survey. The full questionnaire is located in *Appendix D: Swinburne University of Technology quantitative questionnaire* and includes the following sets of items.

Table 2: Overview of quantitative questions

Question categories	Description of questions
Demographic factors (Appendix D, p. 59)	<ul style="list-style-type: none"> - Gender - Age - Ethnic/cultural Background - Aboriginal/Torres Strait Islander - Postcode - University - Degree enrolled in, and Major - Enrolment status, start year, estimated end year - Highest level of education completed - First in family - Mode of study - Employment details - Living arrangements - Household income
Flipped classroom vs traditional classroom (Appendix D, p. 63)	Image of two blind class method scenarios - one detailing a traditional classroom model and the other detailing a flipped classroom model.

Question categories	Description of questions
Flipped classrooms (Appendix D, p. 64)	<ul style="list-style-type: none"> - Number of marks that should be allocated to in-class quizzes, testing information learnt out-of-class. - Likelihood of engaging with learning outside of class time.
Peer mentoring (Appendix D, p. 65)	<ul style="list-style-type: none"> - Preferred mentors. - Duration of mentoring. - Frequency of mentoring. - Cost of mentoring. - Impacts of peer mentoring.
Online learning (Appendix D, p. 66)	<ul style="list-style-type: none"> - Willingness to study online. - Willingness to complete half of course units online. - Willingness to complete entire degree online.
Characteristics of online study (Appendix D, p. 67)	<p>Students were asked to “Consider the following characteristics of online delivery of units. Please indicate how important each of these is for you personally”. There were six questions, all answered on a scale from -100 (not at all important) to +100 (very important). An example item is “flexibility to study from home”.</p>
Characteristics of on campus study (Appendix D, p. 67)	<p>Students were asked to “Consider the following characteristics of on campus (face-to-face) delivery of units. Please indicate how important each of these are for you personally”. There were six questions, all answered on a scale from -100 (not at all important) to +100 (very important). An example item is “Access to university libraries (including use of library computers and study spaces, as well as book borrowing)”.</p>
Textbook characteristics (Appendix D, p. 68)	<p>Students were asked to rank four characteristics of textbooks from most important (1) to least important (4). Items ranked were: comes with e-text which is accessible on portable devices (e.g., iPad); recent (published within the past 12 months); website support; and practice exam questions.</p>
Assessment (Appendix D, p. 68)	<p>Students were asked to allocate 100 marks to three different arrangements of assessments for one subject within one semester. The arrangements were:</p> <ol style="list-style-type: none"> 1) Minor assignment (less than 1,000 words) Major assignment (greater than 3,000 word) Exam 2) Weekly tests Exam Major assignment (greater than 3,000 word) 3) Weekly tests Exam Minor assignment
Group work (Appendix D, p. 69)	<ul style="list-style-type: none"> - Preference of group work in either minor or major assignment.

Question categories	Description of questions
Assignment feedback (Appendix D, p. 69)	<ul style="list-style-type: none"> - Two questions: do you read feedback; and do you ever refer to feedback from previous assignments. - Marks bonus for responding to feedback question.
Peer assessment (Appendix D, p. 69)	<ul style="list-style-type: none"> - When it should be used. - How it should be used. - Whether it should be used in group work.
Technology - Tablet (e.g., iPad) - Smartphone - Wearable technology (e.g., Apple Watch) - Laptop (Appendix D, p. 70)	<ul style="list-style-type: none"> - The different educational functions the technological devices are used for (email, reading textbooks, interacting in lectures, watching lectures, posting in a forum). - Usefulness of the technological devices within students' university subjects.

Procedure

The questionnaire was completed online at a time and place of participants' choosing between the 3rd of November, 2014 and the 10th of December, 2014. The questionnaire was designed and hosted on Qualtrics (<https://asia.qualtrics.com>) and took between 15 and 20 minutes to complete for the majority of respondents. Data was analysed using IBM SPSS Statistics version 22.

Chapter 3: Project outputs and findings

University of Technology, Sydney: Qualitative results

The following sections provide an overview of the results of the UTS qualitative events. Emerging themes from the scenarios related to students' perceptions of the future contexts in which higher education is situated, as well as the perceived features of the learning environment. After coding, students' comments were organised into three general themes: social, personal and connected. These comments and themes were connected with how UTS articulates the future of learning – changing contexts, learning environments, and independent learning – and are discussed below.

Changing contexts

As summarised in Table 1, a key finding of the project was changing contexts (*key finding 1*). Students were concerned about broad global issues, such as climate change and an ageing population, that might affect what is taught in higher education, as well as effecting the learning experience. One student commented, *“If there is significant global warming - there will be education focused on the environment”*. Many of the scenarios generated pointed to future learning having more focus on local community needs in order to be relevant to changing contexts. One group proposed an ‘eco campus’ as part of their preferred future with no lecture halls, only community learning spaces. They wrote that *“climate change will mean that the focus of all education will change”*. In this scenario, students from a range of disciplines would work with agriculture professionals to grow their own food and learn how to support their community. Communities would select students according to their needs, and would be globally connected to best practice design and have *“access to experts in every field”* and learn practical ‘down to earth’ skills that suit ‘tactile learners’. While this model may seem far-fetched, it resonated with many others, who wanted *“more focus on community”* and *“learning environments where more senses are used”*.

Students were concerned about increasing urbanisation and in their scenarios they questioned the need for cities to be student bases. They pointed to the financial pressures on families, the limits of transport infrastructure and the ‘brain drain’ of rural areas as concerns in the planning of city-based campuses. For example: *“Improving the accessibility of higher education by offering online courses for rural, long-distance and part-time students to enrol in”*. Related to this, in some scenarios, students felt that the university would become *“a set of ‘learning hubs’ that consisted of a ‘main hub’ and then little hubs. So you don’t commute every day, but you could come in for specific purposes. And there is staff there. It is the place of connection”*.

Another key finding of the project was employability (*key finding 2*). Students were concerned about their own futures, particularly in the context of employment, with industry links and engagement with professionals being seen as key features of the higher education

learning experience. A preferred future scenario noted by a student *“would be beneficial in its focus on industry experience and skills, a cross between an internship and apprenticeship”*. All groups talked about skill-based study and some distinguished between ‘marketable skills’ and general learning skills. However, many students imagined a future that required more than skills determined by the job market. Students also emphasised that higher education would need to continue to develop civic minded, socially responsible individuals (*key finding 3*). Students felt that in the future desired capabilities of graduates would include a focus on student attitudes that are desirable in a future world. For example: *“We are not learning just for technical skills. We are being moulded and shaped for a particular way of thinking”*. Such comments were elaborated to express the responsibility of graduates to become *“well rounded, passionate”* citizens and to *“show the ability to care about the things that they have come across, a more empathetic human”*.

To develop these ‘well-rounded’ graduates, ideal university courses would become broader and more flexible, enabling greater choice. For example: *“Our scenario involved more flexibility in university courses – more unstructured course program which results in graduates who are ... less specialised”*.

Learning environments

A number of key themes in the UTS qualitative data emerged that related to learning environments, as captured in *key finding 4*. Students talked about the design of classrooms, lab rooms and studios as being specific to their chosen field. For example: *“Classrooms will stay in some form, a common space, there has always been a social space for learning”*. Interestingly, although many scenarios discussed removing lecture theatres, students were broadly positive about the pedagogical value of lectures and believed that universities would provide students with lectures in the future, albeit through different formats, such as recorded public lectures. For example: universities will provide access to *“lectures from experts in their field... using technologies”*. Students did not want the feeling of being one student in five hundred and stated *“it’s different being part of large audience online”*. Other students insisted that *“Tutorials will remain an essential part in interactive learning”* and that although *“There wouldn’t be lecture halls, there would be lectures online”*.

Students also discussed the importance of the social aspects to learning (*key finding 5*). Specially, in their scenarios most students talked about the social aspect of learning, whether face-to-face or online. Interestingly, many identified social connectedness as a motivator as well as a support mechanism. For example: *“Learning from home is one idea. But I like to come into uni. I need to see other people. We are social beings. And we are competitive”*. Students drew from specific experiences during which they had felt connected through technology and discussed how these experiences were different from disconnected learning experiences. One group talked about having participated in a gallery tour with iPads during which the curator was on ‘Facetime’ (i.e. a video conferencing app) to discuss the art. Learners explained that they needed to see the artworks in ‘the flesh’ but not the curator.

The interaction with the curator was adequate as a mediated experience. *“We can have a sense of community through internet, so why can’t interaction happen with learning.... it’s possible”*.

Another aspect of social connectedness valued by students in learning environments was being globally connected. For example: *“I want to learn directly from people all over the world”*. Students saw this as a way universities could be more equitable as well as provide opportunities for them as individuals, stating that *“All students will have the access to the same information around the world”*.

Students concurred that working in groups was very important to their preferred learning futures and supported social connectedness. Some commented that they did the best learning in ‘group discussions’, ‘learning together’ and when they were ‘teaching one another’. They talked a great deal about the necessity of considering a global scale of group work, stating that *“I want to learn directly from people all over the world, it’s interdisciplinary, connecting with people from other faculties”*.

To summarise, the preferred future learning environments of students who participated in the UTS qualitative events are personal, social and connected, with technology used by choice rather than assumed. They seek personal learning experiences (*key finding 6*) that are customised, immersive, diverse, sensory and independent, but also seek social engagement in a face-to-face environment on campus, in teams, through networks and with the community. Connectedness is important, with students seeking global, interdisciplinary and experiential connections, along with connections with industry and professions.

While generally supporting the idea of active learning spaces in line with the new UTS campus, students who attended the qualitative data collection events raised concerns about practices that required ‘disappearing’ technologies, such as filmmaking, woodworking and analogue printing. They stressed the importance of learning spaces that suited tactile learners (*key finding 7*). Many students, particularly those enrolled in design and communication, were concerned that the focus on digital and online learning spaces in the future would mean a loss of sensory experience which they felt is important to their creative practices. They emphasised the need for physical workshops to encourage material experimentation on campus, creative collaboration and serendipitous learning. They noted the challenge of residing in Sydney due to highly priced real estate which generally limited their access to studio and exhibition spaces outside of campus.

Independent learning

Student futurists at UTS had much to say about how they wanted to learn in the future. They wanted institutional support and choices for how they completed a degree with a range of *“options, so you choose your path. Lessons are based on what kind of learner you are. You can mix and match”* (*key finding 8*). Students also recognised that their desired futures would require them to be particular kinds of students, for example, *“the ideal student has to*

be mature, independent and motivated". They seemed to accept their own responsibility in shaping a learning future that was led by them. For example: *"Students need to be able to seek out opportunities themselves and shape their own education. Uni should be encouraging independent learning rather than training us"*. This student preference is captured in *key finding 9*. Other groups agreed, stating *"It's all going to be on your own. Independent study"*. They identified different learning styles within the workshops, and discussed futures that could accommodate diversity, such as *"Personalised learning streams according to the way you learn and what you do"* (*key finding 10*). They were concerned with the 'traditional' ways learning is assessed, raising negative high school experiences: *"It's not just one kind of learning, it is visual and experiential"*. Most groups presented a future in which rote learning was extinct (*key finding 11*), along with *"pens, paper and books which becomes all digital in the future"*. They saw no place for closed book exams in their preferred learning future and raised the necessity of assessment that was authentic and close to professional contexts (*key finding 11*).

Students talked about the possibility of valuing sensory experience through emerging technologies (*key finding 4*). For instance, if students do not sit in a chair for a lecture, they could learn by using their whole bodies, *"It will suit tactile learners"*. This appealed to many groups who discussed a future in which learning technologies were not solely *"through your laptop"*. For instance, a fashion student may be using a smart sewing machine and working with fabrics during the lecture. In activating their senses, students wanted *"real world situations"* in which academics gave them *"simulations of real world problems in teams"*, as reflected in *key finding 11*. But they also raised the need for university learning to work outside of reality. They talked about the value of working with 'fantasy' and 'made up scenarios'. One student said that *"real world scenarios might be really boring"* and pointed to the need for 'play' to do the best learning.

Swinburne University of Technology results

This section provides a brief overview of the Swinburne qualitative and quantitative data collection results. A more complete overview of the results, including quotes from students to support conclusions, can be found in *Appendix B: Swinburne University of Technology qualitative results* and *Appendix C: Swinburne University of Technology quantitative results*.

Qualitative results

Purpose of university

Throughout the sessions, students discussed what they felt the purpose of university is, or should be, and what macro pressures prevent universities from focussing on these areas. Overall, students believed there were three main purposes of higher education. Students reported that they were of the opinion that the purpose of university is to help students progress towards their future careers and enhance their employability (*key finding 2*).

Students also indicated that they believed that an important function of universities is to assist in the development of civic minded individuals (*key finding 3*). It is interesting that students were not solely focussed on employment related outcomes, and that the historical purpose of higher education (see introduction) still resonates with students today. Students also displayed some resistance to the idea of universities as a 'businesses' and saw the perceived rise of the commercialisation of universities as contributing to an assumed lowering of academic standards.

Assessment

In discussing current assessment practices at university, students were broadly dissatisfied. Specifically, students were dissatisfied with what they perceived as an overemphasis and reliance on exams, which they felt tested their memory for content rather than their *understanding* of content. This consensus is captured in *key finding 11*. While students were able to comment on forms of assessment in which they had limited experience (e.g., self-assessment and peer assessment), their discussions on more innovative methods of assessment (e.g., assessments to mirror the 'real world') were less detailed. Specifically, while they endorsed the idea of 'real world' assessments, they could not articulate what form such assessment would take or how it would differ from current assessments.

Learning and teaching innovations

While student discussions of learning and teaching innovations were interesting, discussions were limited by what students had experienced at university. Despite this, the discussions around this topic provided valuable insight into the way students think about current pedagogical innovations and which areas, at least from the perspective of the students who took part in the Swinburne qualitative events, should be focussed on.

Overall, students indicated a desire to have more control over their own learning, with a preference for flipped classrooms and self-directed learning (*key finding 9*). They also reported a preference for a stronger emphasis on authentic, experiential, real world learning (*key finding 11*). Students also expressed a desire for greater use of peer mentoring to provide an additional learning resource. Interestingly, while students were broadly positive about the use of MOOCs as an *additional* resource within a traditional face-to-face course, they were not positive about the exclusive use of MOOCs, with students reporting isolation and perceived lack of access to services as disadvantages of exclusively online subjects and courses, cited as arguments against exclusive use of MOOCs. This attitude was evident amongst both face-to-face *and* entirely online students indicating that these disadvantages were not a result of inexperience with studying online.

Quantitative results

Mode of study

When rating features of online learning, students reported that factors associated with study flexibility (time/location) and the perceived decreased costs attributed to online learning were the most important factors. Asked to rate aspects of face-to-face learning, students reported that contact with other students and tutors (*key finding 12*) and access to university libraries and computers (i.e., software) are most important. Therefore, in promoting the option of taking some subjects online, emphasis could be placed on the increased flexibility of online study (i.e., units available all year, tutorials held after hours), and the range of library resources available online, as reflected in *key finding 13*. The desire for online students to have face-to-face contact with students and tutors is more difficult to address and an area to be explored.

Peer mentoring and peer assessment

Students indicated a strong preference for the use of peer assessment for group assessments (not individual assessments) and for peer mentoring overall. In relation to peer mentoring, students reported that they felt the implementation of peer mentoring programs would result in positive and improved academic outcomes. When asked if peer assessment should be used across different forms of assessments, endorsement rates were low for individual assignments, however, the rate of endorsement was higher for group assignments. Interestingly, after being presented with an overview of the advantages of using peer assessment in group assignments, the rate of endorsement increased from 64% to nearly 80%. Thus, when students are made aware of advantages they are more willing to consider peer assessment for group assessments.

Learning and teaching innovations: Assignment feedback

The vast majority of students reported that they 'usually' read the assignment feedback they received. They also reported that they refer to previous assignment feedback to help with a current assessment.

Students were informed of a hypothetical teaching innovation which involved earning an extra 10% on top of their original mark if they read their assignment feedback and responded with a short, specific summary of each error and how they could fix it. The majority of students indicated that they would support the implementation of the program and also indicated they would do the extra work after they received their assignment feedback if this was implemented. This suggests that such a program could re-engage students who achieve lower than expected results and potentially prevent students dropping out. Additionally, this innovation gives good students the opportunity to improve their marks, potentially increasing their course satisfaction.

Learning and teaching innovations: Group work

When given the choice to complete a minor assignment (less than 1,000 words), either individually or in a group, the vast majority selected individual work. When given the same choice for a major assignment (more than 3,000 words), almost two thirds of students would still prefer to submit individual work, whilst just over a third would choose group work. Of note is that the preference for group work significantly increased for major assignments when compared to the result for minor assignments.

Assessment

In order to understand student preferences for the weighting of assessments, students were presented with three hypothetical scenarios – for example, allocate 100 marks between an exam, a major assignment, and a minor assignment. Each scenario gave students three assessment types (an exam, a major assignment and a minor assignment) and asked them to allocate what they felt was the ideal weighting for each out of a total score of 100. In all of the scenarios, exams were weighted heaviest, ranging from 42% to 46%, whilst major assignments were weighted as 35%, and minor assignments were rated equivalently to weekly tests, with weightings ranging between 22% and 26%. This suggests that students may be amenable to the implementation of flipped classrooms which potentially place a greater emphasis on weekly assessments over the course of a semester. However, an issue with these weightings is that the preferences of students might be limited by what they have already experienced at university. Therefore, they may not have considered less traditional weightings of assessment types, despite this direction within the instructions.

Policy implications of results

The previous sections described the Swinburne and UTS results. This section describes the policy implications of these results. The perspectives gained from students in this project have potential implications for a range of learning and teaching policy areas. Interestingly, the student views are strongly aligned with many of the partners' policy principles and strategic initiatives, while offering some alternative perspectives.

Course and curriculum design

Students at both Swinburne and UTS described their desire for university experiences that are authentic and real world oriented, connect them globally with industry professionals and others, foster critical thinking and creativity and help them to gain employment (*key findings 2 & 11*). They also sought experiences that reflected a sense of civic consciousness, social justice, and those that tackle broad global issues such as climate change and sustainability (*key finding 1*). These perspectives are consistent with many current university graduate attribute statements, and reinforce that such statements should not become solely focused on employment skills.

Students' ideal course structures would afford the flexibility to personalise their subject choices and be more independent in their learning; to reflect their interests and learning preferences (*key findings 6, 8 & 9*). Some learners were concerned that choices are limited by budget constraints, or might be in the future. These views clearly offer challenges for universities to design courses in ways that can offer student choice while addressing cost considerations and administrative efficiency (*key finding 12*). These challenges are recognised in policies that consider both the educational design and resourcing of courses put forward for approval and are not inconsistent with the Australian Government's Higher Education Standards Framework (Tertiary Education Quality and Standards Agency, 2012).

Blended, flipped, online and traditional learning approaches

Students, whether enrolled primarily in a face-to-face or online mode, described preferences for a blend of online and face-to-face experiences (*key finding 13*). While there was an assumption that lectures would continue, they were assumed to be available online at any time and possibly given by academics or professionals from any institution or industry around the world. There was a clear valuing of some element of face-to-face interaction, with the idea of flipped classes being perceived favourably if this meant fewer passive classes and more interactive and immersive learning experiences. Students recognised the benefits of online learning as providing flexibility and experiences that were connected with the world outside the campus, but they did not want experiences that were isolating or lacking in responsiveness. For students which had heard of them, MOOCs were seen as possible adjuncts to, or components of, courses that still had face-to-face opportunities.

Students' preferred learning preferences could be seen as reasonably aligned with the blended learning priorities of many universities and, where flexibility is a priority, with online learning offerings that are well resourced and offer engagement and interaction with peers and teachers. However, students' preferences may align more strongly with policies or guidelines that require minimum standards of online presence and resourcing, or at least set clear expectations of staff responsiveness. Students also acknowledged that they also would need to be more self-directed and independent as learners and might require assistance to do this (*key finding 9*).

Technology

Students assumed a university environment in which technology was ubiquitous and enabled them to be connected to anywhere at any time and place (*key finding 4*). However, at the same time, students did not want to lose physical spaces and hands-on practical and sensory experiences (*key finding 7*). Consistent with an earlier large-scale student survey (Russell, Malfroy, Gosper, & McKenzie, 2014), students prefer access to more of everything, so universities need to make strategic choices.

Assessment

Students had a strong preference for assessment that was ‘real world’ and ‘hands on’, with less emphasis on exams and rote learning which they felt would not prepare them for the future (*key finding 11*). They had mixed views on the value of group work and peer assessment, with some not seeing the value of developing ‘soft’ skills and others strongly in favour. Given the critical importance of assessment in shaping what students focus on in their learning, the learning approaches they adopt (Biggs & Tang, 2011), and the prevalence of traditional forms of university assessment, assessment policy is one area which may benefit from students’ perspectives.

Resources or outputs for the higher education sector

As a result of the project’s activities, a number of resources have been produced to assist others who wish to explore the student voice in their planning, curriculum or research. These include suggested workshop plans for World Café, sculpting and scenario design, as well as suggested evaluation forms and questions that could be used to generate discussions. We have made these related resources available for course coordinators, researchers and others, along with our reflections on their usefulness to this project. All workshop materials are available on the project website (<http://www.studentvoicesproject.com.au/tag/materials/>).

How the project builds on existing knowledge

As noted previously, this project focused on contributing the student voice to the existing perspectives on the future of learning in higher education, with the aim of informing strategic change and improvements in learning and teaching. The predecessor CALF project’s horizon scanning (Cane, 2011) focused on future influences, noting the increasing influence of the internet and technologies, growing student diversity, potential diversification of university functions, constrained funding and the opportunity to innovate in learning and teaching. While the annual New Media Consortium (NMC) Horizon Report draws on expert voices, the 2015 report (Johnson et al., 2015) pre-empts short-term trends and developments in the increased use of blended learning, redesigned learning spaces, flipped learning and BYOD, all of which are reflected in the student voice within this project.

The student voice has been sought through a range of surveys, including the Educause Centre for Analysis and Research studies (e.g., Dahlstrom & Bichsel, 2014), which focused on uses of technologies and, not surprisingly, found increasing levels of experience of online and blended learning environments over time. The Australian Learning and Teaching Council project “Educating the net generation” (Kennedy et al., 2009) used surveys and interviews, including seeking students’ views on technologies they preferred. Both this survey and later ones on students’ technology uses and preferences (e.g., Gosper et al., 2013; Russell et al., 2014) found students’ preferences were diverse; however, there was considerably more use

of traditional technologies that provided information or enabled communication than of Web 2.0 technologies.

The Office for Learning and Teaching (OLT) project “Quality, learning spaces, social networking, connectedness and mobile learning: exploring the student voice in online education” ID11-2077 (Andrews & DuToit, 2014) explored the student voice using a phenomenological approach. The project explored the existing experience of online learners, particularly mature-age distance learners, and produced resources to support the student experience. Some themes in their online learners’ experiences had similarities with themes in this project, with their students experiencing learning as taking place in a diversity of life spaces, and emphasising that connectedness with peers and teachers and through technologies was important, along with preferences for engaging in formal and informal learning environments of their own choosing. Time management and motivation were also important for their students, similar to the perspectives of some students in this project, in that they would need to be more self-directed and manage their own learning.

By using a range of creative processes as well as surveys, this project contributes some broader, more holistic perspectives, as well as demonstrating some consistencies with previous studies. One finding that this study and previous surveys (Kennedy et al., 2009; Russell et al., 2014) have in common is the sense that while technologies are near ubiquitous, students prefer them to be used as a purposeful part of the learning experience and not for their own sake or in situations where more personal, experiential or sensory experiences might be better for learning. Interestingly, some of the students’ voices in this study reflected the medium and longer term trends noted by Johnson et al. (2015), such as makerspaces and cultures of change, innovation and creativity, with a student desire for more immersive, transdisciplinary and socially meaningful learning experiences.

Disciplinary and interdisciplinary linkages emerging from the project

Within the participating universities

Swinburne University of Technology group work

As is the case in many educational institutions, Swinburne has a mandatory group work subject as part of every undergraduate degree. As is also frequently the case, group work subjects generate considerable angst amongst students and staff (Hall & Buzwell, 2013). Thus, as part of this project, a creative event was held to explore how students wanted group work projects to run in the future and from this, a number of recommendations were developed and piloted within one discipline. These recommendations have now been implemented university wide and are part of every group work subject in every discipline at Swinburne.

Swinburne Graduate Employment Taskforce

The Swinburne project leader, Dr Simone Buzwell, was made a member of the Swinburne Graduate Employment Taskforce which developed strategies to enhance the employment of Swinburne graduates. The role of the project leader was to indicate if the student voice was in line with the proposed strategies and to suggest further strategies that emerged from this project.

Swinburne student consultation

Consultation across Swinburne, driven by Professor Glen Bates, Pro Vice-Chancellor Student Advancement, was implemented to determine how the student voice could be better integrated into university policy, procedures and practices (<http://www.swinburne.edu.au/stuserv/scc/>). Following student feedback, four proposals to enhance the student voice were incorporated into policy in May, 2014 (<http://www.swinburne.edu.au/policies/governance/index.html#student>) to enhance the student voice in: (1) Faculties; (2) Swinburne's Governing Council; (3) Academic Senate; and (4) Swinburne Student Amenities Association.

Swinburne Graduate Outcomes Taskforce

In 2014-2015, the student voice data was utilised in a special project by the Swinburne Vice President (Engagement) to refresh and enhance the Swinburne Graduate Outcomes.

Swinburne commencing students

Events were run during orientation with students in two of the three Swinburne faculties. These events revealed how different the 'starting place' was in terms of the learning expectations and desires of these two cohorts.

Swinburne probationary students

Creative events were run with students on academic probation in all disciplines.

Swinburne Student Union

Inspired by the use of the student voice in this project, Swinburne's Student Union has instituted its own student voice survey in late 2015 to determine future campaign strategies in the learning and teaching space. In addition, the Swinburne Student Union has run 'Student Voice' events to explore desired service needs.

University of Technology, Sydney - University governance

Project team member Associate Professor Jo McKenzie utilised the creative processes developed in this project to examine with staff the student and staff supports needed to support the ideal learning and teaching future envisioned by students at UTS. The themes developed included: the learning and teaching smorgasbord, representing the ability of

students to have more choice and flexibility; the technology train, involving students learning at any time and place, independently or collaboratively; and the transparent stable base, representing the provision of digital infrastructure and physical spaces that were transparent to users, reliable and seamlessly connected.

University of Technology, Sydney - Information Technology Division

The concepts incorporated in the themes developed with UTS staff are being used to inform the Information Technology Division's planning at UTS.

University of Technology, Sydney - School of Design, Faculty of Design Architecture and Building

The current methods have been integrated into the second-year core interdisciplinary design studies subject 'Interdisciplinary Lab A'. This subject runs annually with around 300 students from three degree programs. Students now complete a scenario design as an assessment. Teaching staff now use the materials from this project to explain higher education as a case study for collaborative futuring. This study has generated interdisciplinary linkages about how design thinking and participatory design methods can be used to consult with unlikely stakeholders. In this way, the collaborative scenario design method developed through this project can be used to explore alternative futures in a range of sectors.

University of Technology, Sydney - learning.futures

The key findings of the project are well aligned with the UTS learning.futures strategy. Part of the learning.futures strategy at UTS involves peer review of subject and course designs. Team member Dr Alexandra Crosby, project officer at UTS, was nominated by the Dean of her Faculty to be a learning.futures peer reviewer. As this strategy includes redesigning courses and subjects to enable students to achieve future-focused graduate capabilities, Dr Crosby has been able to introduce the results from this project into this forum.

External to the participating universities

Higher Education Research Group Adelaide - The University of Adelaide

The project leader, Dr Simone Buzwell, was approached by a group at the University of Adelaide who were interested in the techniques and concepts utilised in this project. In response to their invitation, project managers Mr James Williams and Mr Matthew Farrugia at Swinburne, travelled to the University of Adelaide and held a creative event to demonstrate and train the group in the project's creative techniques. As an outcome of this event, the Higher Education Research Group Adelaide (HERGA) group issued a call for a publication exploring responses to the student voice.

Higher Education Research and Development Society of Australasia - Australian Catholic University

As part of a Higher Education Research and Development Society of Australasia (HERDSA) event held at the Australian Catholic University (ACU), Dr Buzwell conducted a workshop with individuals from six external higher education institutions.

Deakin University - University of Southern Queensland

An academic from Deakin University attended one of this project's data collection events and subsequently used these techniques at his university to enhance student engagement. The academic has since moved to the University of Southern Queensland and is exploring opportunities to implement the activities there.

Online Students - Open Universities Australia and Swinburne Online

Open Universities Australia (OUA) students were involved in the project to provide the online student voice. Students from Swinburne Online, a joint venture between SEEK and Swinburne University of Technology, also participated. Information and results are being provided to both bodies to assist in understanding students preferred directions for learning and teaching.

Factors that impacted the success of the project

A factor critical to the success of this project has been that the stakeholders – universities, staff and students – have resonated with the concept of the 'importance of the student voice'. A frequent response from students after the projects' creative events has been to say "Thank you!" for simply asking them for their input on how university programs should run and for acknowledging their responses. Many might consider that the current common practice of asking students for feedback on subjects and activities, such as administering the course experience questionnaire, might provide adequate opportunity for student feedback. However, students in this project indicated little faith in subject feedback leading to positive change that might assist *them*. In particular, students valued the opportunity to *explore* the issues and appreciated the university's interest in examining the issues with them and their acknowledgement of their perspectives. Indeed the students indicated that this practice resonated with their need for the personalisation of their learning - one of the findings in this project. Students, however, were not they only ones who evidenced they understood the importance of recognising the student voice; as academics at a variety of institutions demonstrated a similar response when presented with this project. Further, people in senior management roles contacted project team members to find out more about the project findings. University staff and students value the importance of the student voice and appreciate the need to integrate it into the activities of the institution.

A quite different aspect which was critical to the success of this project was the adaptability of this project's creative events for use by other groups and in other situations. The project's creative events were successfully adapted by two universities external to this project. Also, the UTS project lead, Associate Professor Jo McKenzie, made an important leap and used the creative events designed for students, for staff, finding that they worked equally well with that cohort. Further, data from the creative events formed the basis for the quantitative tool developed in response to finding that the planned cognitive mapping technique was unsuitable. Indeed, an important outcome of this project includes the tools and methodologies designed to explore the student voice, and the extent to which they can be used and modified to suit the needs of others.

The project's outcomes were enhanced by the strength of its quantitative research component due to the participation of over 500 students engaged in 250 different courses from 38 different universities. This allowed a greater understanding of the generalisability of the results and their applicability beyond the current grant. This feature of the current project also differentiated it from its precursor (CALF) which utilised the view of students from only two institutions.

Staffing constitutes an important factor that assisted the smooth running of this project, in particular, the diverse talents of all three project managers: Mr James Williams, Mr Matthew Farrugia and Dr Alexandra Crosby. Further, all three project managers demonstrated the ability to adapt quickly and overcome barriers that arose during the course of the project. Projects run in the contemporary dynamic environment that constitutes Australian higher education require project managers who display broad aptitudes and a range of skills.

Another factor critical to the success of this project was support provided by the external evaluator, Associate Professor Kym Fraser, who, six months into the project, reminded the project team of the importance of ensuring the sustainability of the project. This resulted in a renewed emphasis to incorporate the current findings into university policy, procedures and practices. As a result, many of the project findings have influenced university business and will continue to positively impact Swinburne and UTS. This project was very fortunate in having an external evaluator who was generous with offering constructive feedback and suggestions to the project leader. Having such an individual, or alternatively a critical friend, provides an important external viewpoint and is an essential aspect for inclusion in future OLT grants.

The mobility of university staff, including those engaged on the project, had an unexpected consequence in regards to the clarification of Intellectual Property (IP). The OLT's assistance to address this matter was extremely helpful. It is suggested that OLT projects elucidate IP issues at the commencement of projects and give consideration to the consequences if a team member leaves the project. It is also suggested that the OLT issues a position on this matter, as their assistance was extremely helpful to all the members of the current project.

A factor that impeded this project is also a factor integral to why this project is necessary. That is, the changing nature of universities, and university learning and teaching, results in a critical need to examine how universities should respond to these changes in order to best support both students and staff. However, this state of transformation has contributed to universities modifying their staff and structures. For example, both universities during the course of this project have changed Vice-Chancellors, Pro Vice-Chancellors and/or Deputy Vice-Chancellors, which resulted in modifications of university directions and impacted on how this project could be conducted. In addition, the majority of project team members felt the impact of this state of flux on their role and a number had to leave the project or had their university roles altered. Further, as all universities appear to be experiencing this state of change and corresponding levels of uncertainty, it has been challenging to develop ongoing relationships with external groups as positions and priorities alter. As it appears that the level of uncertainty in the sector will remain in the foreseeable future – with the restructure of higher education currently being discussed in the Senate – it is apparent that future OLT projects should consider how their project corresponds with the current direction for Australian higher education and how they will manage change.

Similarly, as mentioned in the introduction, considerable change is occurring to the student cohort which became more diverse following the introduction of the Bradley report (Bradley et al., 2008) and other governmental changes. As with the previous point, this is a rationale for why this project is important, but it also requires that considerable efforts be made to explore the relevant issues with a wide variety of students across many different study modes, disciplines and demographic factors. It is easy to underestimate the time required to ensure that a wide variety of students are consulted, so it is important that projects allow for this in their proposed timelines.

Despite the diversity in the current student cohort, a consistent finding was that all students want increased personalisation and choice in their learning. This could be viewed as an impediment to clear and simple outcomes of the project, as this finding lends itself to further questions of how universities may implement unrestricted choice for students while containing costs. A direction for tackling this issue, which came out of this project, is that students, while wanting unfettered choice, also want personalisation and assistance with making their choices. This highlights that some outlay of costs in providing assistance to students in their initial stages to make correct choices and to learn how to manage their own learning may save money overall by increasing retention and progression rates. Applying developmental (psychological) theories [e.g., the Zone of Proximal Development (Vygotsky, 1978)], it seems that students would benefit from ‘scaffolded choice’ and that greater efforts are needed to support students in making their learning decisions. The findings from this project can be seen as the first step in determining what areas will benefit from this scaffolding based on what students indicate they want for their learning.

An additional student-related factor, also noted in the UK CALF project final report (Romenska et al., 2011), is that students struggle with conceptualising options for what they want in the future and determining what might be realistic. Thanks to the CALF project, these difficulties were anticipated in this project and were the reason for holding creative events to assist students in exploring future possibilities. Thus, it was confirmed that it is necessary to assist students to explore the future of learning.

A further factor relating to the current state of change which impacted on the project was that resources required for certain project outcomes became unavailable. It is recommended that future projects in which learning technologies play a significant role have positions and funding specifically tied to this aspect of their project.

The current project had an impact on a number of processes and practices at both institutions, and having project members in senior management roles was integral to the quick adoption of project findings and ensuring that individuals able to make changes were aware of the project. While team members with responsibilities at the Pro Vice-Chancellor level and above extraordinary demands on their time, which made the establishment of meetings and timelines challenging, the benefits of having staff involved who are able to quickly institute change resulted in greater project impacts.

Implementation of the approach and outcomes in other institutions

The quantitative survey was a broad sampling of Australian higher education undergraduate students and measured students' attitudes towards a variety of pedagogical innovations and current practices. In addition, students' attitudes before and after innovations were assessed in order to explore the impact of the delivery of those innovations. The focus of the study was necessarily broad, which allowed wide-ranging conclusions about these topics to be made, yet the methodology is also extremely malleable to a single university's needs. The ideas tested can be refined to reflect localised issues, as well as those for one or two specific groups of students (e.g., first in family, part-time).

An example of a specific outcome that is commensurately useful to multiple Australian universities is the finding that peer assessment can be used for group work assignments to increase the perceived fairness of distributing marks (see also Willey & Gardner, 2008). This is useful because both peer assessment and group work are often designed to give a workplace like experience to students.

The qualitative studies can be viewed as valuable; both because they provide information on the attitudes and preferences of specific groups of students, and in the sense that the qualitative sessions provide a useful methodology for other institutions to use to explore their own student preferences. While the results of both the Swinburne and UTS qualitative events are potentially interesting to institutions other than Swinburne and UTS, it must be borne in mind that, unlike the quantitative results which involved a large, national sample

across many universities, the qualitative results focussed on a less heterogeneous group of students. Thus, while the qualitative results are interesting to the participating institutions – in particular, the participating faculties from within each institution – the results may not always be able to be applied by other institutions or faculties. For this reason, while the qualitative results are interesting to all, the methodology may be even more useful.

As noted earlier, the methodology employed in the qualitative events is flexible and can be changed to suit the needs of an institution. That is, the focus could be shifted to explore either more specific cohorts (e.g., just Business students) or more specific attitudes (e.g., attitudes towards a specific type of assessment). In this way, a limitation of the qualitative events, that is, that the participants tended to be homogeneous, need not be problematic because the institution would have a specific question they wish to ask of a particular cohort (e.g., how do design students feel about use of badging).

Project impact, dissemination and evaluation

Dissemination activities to support the project's impact

The project undertook a number of dissemination activities to support the project's impact. Events were held in the early stages to raise awareness of the project and the data collection processes; whilst later events informed the analysis of data and project outcomes and enhanced awareness of the project models, tools and techniques available for adoption by institutions. As of October 2015, the project had delivered six workshops, twelve conference presentations, and had two articles accepted for publication. The project team developed a Word Press project website (<http://www.studentvoicesproject.com.au/>) which included a blog and resource library, and created a Diigo site (<https://groups.diigo.com/group/student-voices>) to collect project information and disseminate it to the community. The project team are also editing a special edition of the journal 'Sensoria' with the theme of 'The Student Voice', due to be released late 2015. *Appendix H* provides a comprehensive list of publications, conference presentations and workshops arising from the project.

How evaluation contributed to impact

The current project benefited from a highly productive relationship between the project leader and the project evaluator. As a part of regular meetings to monitor the project, the project evaluator was able to offer constructive suggestions to enhance the dissemination of the project, including the provision of contact details for both individuals and groups. The regular evaluation reports also provided the opportunity to regularly review how the project was progressing in the dissemination space and to confer with the evaluator to ensure if more needed to be done in this domain.

Independent external evaluator report

Following the first project team meeting, Associate Professor Kym Fraser, who worked at Victoria University at the time, was recruited as an independent external evaluator for the project. The project evaluator led the development of a project evaluation plan in the first few months of the project which provided both formative and summative feedback. Associate Professor Fraser provided three reports to the project team during the project. A copy of the final report is located in *Appendix G: External evaluator's report*.

Conclusion

This project demonstrates constructive outcomes available to institutions when they pay attention to the student voice in regards to what they want for the future of learning and teaching in higher education. Deliverables from this project include adaptable models, tools and techniques available to all universities to explore the student voice within their institutions, together with recommendations for universities to consider when planning their future learning and teaching directions.

Overall, students expressed a need for learning that could be tailored in all domains to suit both their future directions both post-university and their current life situation. While students want the freedom to choose the pedagogy that they feel might best serve their individual needs, they also want their choices to be scaffolded and for universities to provide advice and personalised support to ensure they are making suitable decisions. Further, students wish to partake in this learning with involved and engaged academics, their current peers, and with more experienced colleagues who will offer guidance and personal perspectives.

In all modes of learning, students expect this learning and teaching to be of excellent quality and to continually evolve to ensamresh

ure it remains relevant to the changing contexts students face in the world today. Students feel that a high quality university education is valuable in terms of both employment and personal outcomes and that it has an important contribution to make to both individuals and society at large. To continue to improve learning and teaching in Australian higher education, the views of our most important stakeholder – the students – requires ongoing consultation when determining future higher education directions.

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Appendix A: Certification of final report

Certification by Deputy Vice-Chancellor (or equivalent)

I certify that all parts of the final report for this OLT grant provide an accurate representation of the implementation, impact and findings of the project, and that the report is of publishable quality.



Name: JANELLE KYE Date: 3/9/15

Appendix B: Swinburne University of Technology qualitative results

In this section, a summary of the Swinburne qualitative results from the workshops is presented. Given that the focus of the project was on the student voice, the decision was made to analyse the qualitative results in a systematic, objective manner using NVivo. This was done in order to avoid focussing on the researchers' interpretation of what students want. Instead, the focus was on objectivity and the student voice. The following sections present a write up derived from this NVivo analysis. Quotes from students are provided to support these discussions.

Purpose of university

Throughout the sessions, students' discussions touched on what they felt the purpose of university is, or should be, and what macro pressures prevented universities from focussing on important areas. Key themes that emerged during these discussions centred upon the idea that an important function of a university was to help the students' careers, and to enhance their employability.

“(the purpose of university is to)...get people high profile jobs”

“(an ideal university should)....provide a good education that helps to provide the assets you need to take into employment”

However, while the theme of employment was discussed most frequently, there were other dominant themes. A second theme which emerged was the idea that the purpose of a university was to assist in the development of civic minded individuals.

“(the purpose of university is to teach) one how to better engage with the world (people)”

“(we know students have succeeded at university when)...they become productive citizens, (and are) able to contribute to society with what they learned”

Interestingly, students also discussed macro-pressures which prevented this focus on creating civic minded individuals. Specifically, funding uncertainty “(*factors which prevent a greater focus on creating civic minded individuals include) reduced tertiary funding*”, budget related issues, perceived lowering of educational standards and rigidity in terms of how teaching happens at higher education.

In addition to discussing what the purpose of university *should* be, students also discussed problems with the current model of higher education. Here, students' discussions centred upon two key themes. First, students had problems with higher education operating as a

'business', in which higher numbers of students are 'pushed through, with more emphasis on quantity, and less focus on maintaining educational standards (e.g., *"University acts like a business. Mainly getting students to finish their course regardless of quality."*). What also emerged was broad dissatisfaction with the way learning and teaching is currently conducted in higher education.

"Frustration at the current learning paradigm and the fact that there are ways to learn more effectively"

"(what should end in the current system is) the chaos and structure of the learning paradigm in which students feel forced to fit in"

However, students were less clear on what alternative model universities ought to adopt, and how learning and teaching could be done better. There was a focus on ending what students described as 'hierarchical learning paradigms', and instead, focussing more on developing creative and critical thinking in students (e.g., *"(the deeper meaning of learning is) the ability to use your creativity and imagination. Encouragement to look at different perspectives and enhance the ability to perceive creativity in different ways"*).

Thus, from the perspective of the students who participated, the purpose of a university is primarily centred on the two goals of assisting students with future careers and creating civic minded individuals. This is important, as subsequent discussions need to be interpreted through this lens, given that student ideas about the purpose of higher education may colour their preferences for the way learning and teaching ought to happen in the future.

Assessment

The second major focus of discussions was on how assessment ought to happen at university. Here, student discussions centred on possible alternative methods of assessment, and the merits of innovative approaches to assessment. The following sections describe the methods discussed by the students.

Innovative assessment

In terms of innovative assessment, the area which received the most attention was on assessments which are designed to mirror the real world. Here, students demonstrated a strong preference for 'real world' assessment, with students indicating, for example: *"People like more hands on learning styles where you're ability in a subject can be improved and easily gauged. This contrasts the exam style teaching/ assessment of today"*. Students indicated that one of the requirements necessary for this shift of focus to occur was a fundamental change in the nature of learning environments. Noting, for example, that *"(the university should provide)... hands on and practical learning environments (to support the use of more 'real world' assessment)"*. Unlike with discussions on self- and peer assessment where students were not able to articulate the rationale for their preference, in relation to

'real world' assessment, students reported that their preference for real world learning stemmed from an assumption that 'real world' assessment will better prepare them for future careers, noting for example that 'real world' assessment provided them with "...a clearer picture of where the learning will take us i.e., career options, pathways to achieving goals".

Self and peer assessment

A second major focus of discussions was on self-assessment and peer assessment. Broadly, students' attitudes towards self- and peer assessment were mixed. In conversations on self-assessment, approximately equal numbers of students supported it as opposed it. Interestingly, none of the conversations centred on the rationale for this attitude and it is possible that one of the limitations of having students engage in discussions of innovative learning and teaching methods is that, unless they are familiar with the method, they are often unable to articulate a position on it. Furthermore, it is possible that if provided with specific frameworks (e.g., self-assessment for major assignments versus minor assignments; and self-assessment as being factored in to a student's mark versus being included purely for self-reflective purposes) that students would have been able to better articulate the rationale for their support or opposition to this method of assessment.

The attitude toward peer assessment was more positive, with approximately two thirds of conversations centred on peer assessment being broadly positive and about one third broadly negative. In one session, during the debriefing, students indicated their opposition to the idea of peer-assessment centred on the concept that it ought to be done by experts. Students believed that peers were sufficiently qualified to make useful judgements on the quality of another student's work, particularly given that typical student cohorts contain students with a wide range of academic aptitudes.

Exams

The final major topic of assessment related to discussions centred on exams. Specifically, most students argued for less emphasis on exams. In terms of justifying this stance, two main arguments were presented. First, some students argued it was that the intense pressure of an exam situation that lead to a preference for other forms of assessment, stating that "*(The general theme emerging from these discussions is that) there is a great dislike of high pressure, final exam style assessments*". The remaining arguments centred on what is being assessed by exams. Consistent with increased preference for 'real world' assessments, students indicated that they did not feel exams suitably prepared students for employment. For example:

"Less exams, more interaction and experiences as close as possible to real world work to better prepare students"

"There should be more emphasis on what you know and have learnt than what you can remember"

“(a pattern emerging in the group discussion is that) people like more hands on learning styles where you're ability in a subject can be improved and easily gauged. This contrasts the exam style teaching/assessment of today”

Summary

Overall, there was dissatisfaction with how assessment is currently managed in some disciplines at university. Specifically, there was dissatisfaction with a strong focus on exams. While students were able to comment on forms of assessment in which they had limited experience (e.g., self-assessment and peer assessment), their discussions on more innovative methods of assessment (e.g., assessments to mirror the real world) were less detailed. Specifically, while they endorsed the idea of ‘real world’ assessment, they could not articulate what form such assessment should take, or how it would be different to current assessments. The exception to this was that they felt exams, with a focus on memory, were not the most effective way to assess student progress.

Accounting for differing learning styles

While discussing learning and teaching styles, students demonstrated an appreciation that not all students have the same learning style. Specifically, they indicated that they felt that current learning and teaching paradigms worked with some, but not all students for this reason. Discussions centred on the need for universities to be more aware of multiple learning styles. Some students argued that because of different learning styles, that universities should be more flexible. For example:

“Everything should be flexible, allowing for everyone to learn through their own style. Everyone is different in their learning methods”

“Students should be free to learn in a manner that suites them”

Other students argued that rather than accommodating specific student needs, universities should focus on providing a balance in terms of learning and assessment. For example: *“(universities should employ) a balance of assessments and teaching styles to encompass everyone's learning style”*. However, in contrast to these two positions, some students argued that universities should not be required to change to accommodate the learning styles of what they argued were small groups of students. For example: *“(students who do not fit with the current model) should adapt and conform to the academic standard and learning style of the majority”*. Overall, there was no clear consensus. Again, as was the case with methods of assessment, while some students advocated a more ‘individual’ learning experience, they were not able to clearly articulate how this could be done.

Learning innovations

The following sections describe student discussions around learning innovations. Students tended to focus on learning and teaching methods with which they had some experience, rather than discussing alternative methods of learning which they did not yet have experience of.

Group work/group assessment

Rather than being centred on a preference for group assessment over individual assessments, student discussions focussed on what the purpose of group work was, and what it was trying to teach them. Students did perceive that group assessment was advantageous in that it facilitated development of interpersonal and communication skills. Interestingly, however, the main criticism of group assessment was that some students did not see value in a focus on teaching or assessing soft skills, or felt that the assessment of soft skills was problematic. For example:

“The ability to assess or teach "soft skills" seems unreliable. We also wonder how shy or introverted people will cope with learning that is increasingly focused on group work and discussion”

Thus, while some students reported that they valued group work/group assessment in terms of teaching important soft skills, this support was often conditional. For example, students reported concern when group work formed part of units which determined their likelihood of being accepted into postgraduate study. In addition, students felt that if a major assignment in a unit was going to be based on group work, that there needed to be a focus on teaching students *how* to work in groups, and that some part of the assessment ought to be based on relative contribution of individuals to avoid the possibility of social loafing.

Flipped classroom

To facilitate discussion of the possibility of flipped classrooms, students were presented with a description of one method of approaching flipped classrooms, and were asked to discuss their perception of flipped versus ‘traditional’ classrooms. Overall, student attitudes towards the model of flipped classrooms were positive, with students suggesting that this learning style would allow for *“more engagement in learning and (for) class discussions (to) become more involved and detailed”*. Discussions of the advantages of flipped classrooms centred upon two key strengths. First, that flipped classrooms do not tie students to studying at specific times, or in specific places; and second, that flipped classrooms facilitate self-directed learning and encourage students to take a broader view of learning. For example: *“Learning in the classroom should only provide the foundation of their learning. The specifics and deeper understanding should come from their experience, their own research and through peers”*.

Students also discussed weaknesses of 'traditional' classrooms, arguing that a flipped classroom model which de-emphasized these aspects would be preferable. Specifically, many students indicated dissatisfaction with lectures, suggesting that either fewer lecturers or no lecturers would be ideal. This preference seemed to be tied up with a broader dissatisfaction with current hierarchical learning paradigms. For example: *"(what is changing is) current hierarchical learning paradigm that does not focus on student's individual needs"*. This was mirrored in students' suggestions that ideally, along the lines of flipped classrooms, that learning would involve seminars in place of lectures and lab-based experiential learning where the student is an active contributor in the process of knowledge creation.

Peer mentoring

Extending on the idea of breaking down hierarchical learning structures, students discussed the place of peer mentoring in higher education. Overall, attitudes toward peer mentoring were positive, with students noting that peer mentoring would allow greater attention to be paid to individual learning styles. One of the major advantages students reported about peer mentoring was that peers understood the experiences of students better, and could more effectively communicate with students. For example:

"Peers possess knowledge specific to what students are experiencing. Hence they can present information in such a way that it is relatable to students. Further, peers can understand the difficulties that students are potentially going through"

"(the advantage of peers is that) you are able to relate to them, therefore you feel relaxed with them and (thus, learning) may be more effective (in addition) peers can explain... ideas that are understandable and relatable to the current generation"

A range of other advantages were discussed, centring on the differences peer mentoring would make to engagement in their course and satisfaction with their university experience. While students were positive about the use of peer mentoring, they were less clear about the optimum method of how this should be conducted.

Real world learning

Unsurprisingly, given that student discussions on assessment revealed endorsement of assessment to match the 'real world', there was an emphasis on 'real world' or 'authentic' learning, with students either suggesting that some or all of their classes incorporate experiential learning. No student indicated they did not want experiential learning in their course. There were two main arguments which students presented to justify their preference for experiential learning. First, students argued that experiential learning better prepared students for the 'real world', and enhanced their employability. For example: *"(what is emerging from our conversations is a preference for) experiences as close as possible to real world work to better prepare students"*. Second, students argued that experiential learning was more engaging and enjoyable for students. For example: *"People*

like practical work and social settings for both learning and assessment". While the exact form that experiential learning would take was not extensively discussed, and may differ as a function of discipline, some students' interpretation of experiential learning included a broader global experience. For example: *"(the most desired future of learning is one which includes) real world experience... (providing students the chance to) interact with people we normally don't (such as) different cultures"*.

Study mode: Blended, online and face-to-face

Given the increase in online subjects and degrees taught entirely online, face-to-face students were asked to discuss their thoughts on blended learning involving the use MOOCs and other online teaching tools as a part of their face-to-face degree. Student attitudes towards MOOCs and online teaching were mixed. Face-to-face students who were largely against the idea of MOOCs being used in their degree argued that they felt MOOCs would be less engaging and less useful than traditional face-to-face classes. Many students noted that the benefits of peer-based learning would not translate to an online environment. For example: *"online students don't have the same benefit of being able to discuss concepts with other students like on campus students and can feel a little distanced..."*. Students also reported that some types of assessment would be much more difficult in an online unit, for example: *"Also group work is a bit of a nightmare online, trying to coordinate a very complicated project is incredibly difficult through discussion boards and collaborate"*. Therefore, student concerns centred on online learning being less engaging and less collaborative than face-to-face learning.

However, among students who were opposed to the idea of doing a unit entirely online, there was some support for the use of MOOCs and other online tools as an extra resource for face-to-face units, rather than as a replacement. For example: *"(while face-to-face contact with teachers is important) access to online resources is still acceptable to aid in the (face-to-face) classroom"*.

Students who were positive about blended learning cited convenience as the primary advantage in terms of the ability to study in different locations, at times which suited them. They also indicated that they felt the (perceived) cheaper cost of online subjects was an advantage, although it is not clear if students were referring to the cost of the actual unit, or costs associated with studying on campus (e.g., travel, parking, etc.).

As a contrast to the views of face-to-face students, a sample of students enrolled in an entirely online course with OUA were asked to discuss their perception of the strengths and weaknesses of online and face-to-face learning. Interestingly, there was some consistency in the responses of face-to-face and online students. Online students reported that they felt that there was some value in having face-to-face contact with tutors and lecturers. Another commented that, *"(as an online student, I) miss the camaraderie of on campus learning, and participation in actual face-to-face and in-person lectures and tutorials"*. For some students,

this stemmed from delays in receiving replies from staff in online units, and the frustration of not being able to drop in to ask questions. For example:

“although for the most part, lecturers and tutors respond to queries in a relatively timely manner, there are times when emails or posts to Blackboard go unanswered – I can only imagine the volume of queries that each lecturer or tutor receives during a week, however from the students’ perspective it can be frustrating”

Thus, for online students, one of the major advantages to studying on campus was seen to be face-to-face contact with lecturers, tutors and other students, and live lectures. For online students, as with face-to-face students, the key advantage of online learning was flexibility, with one student stating, *“I really embrace the flexibility of online learning and being able to study as much as I can throughout the year”*.

Learning and teaching innovation (summary)

Overall, students indicated a desire to have more control over their own learning, with a preference for flipped classrooms, and self-directed learning with an emphasis on experiential, real world learning. Students also expressed a desire for greater use of peer mentoring to provide an additional learning resource for students. Interestingly, while students were broadly positive about the use of MOOCs as an additional resource within a traditional face-to-face course, they were not positive about the exclusive use of MOOCs, with isolation and perceived lack of access to services discussed as disadvantages of exclusively online subjects and courses. This attitude was evident among both face-to-face students and online only students, indicating that perceived isolation and perceived lack of resources associated with online study was not a result of lack of experience with online study.

Appendix C: Swinburne University of Technology quantitative results

Table C1: Demographic findings

General demographics		Total sample
Mean age (in years)		21.6
Gender	Female	52.9%
	Male	46.9%
Highest level of education	High school	74.8%
	Undergrad degree	10.8%
	TAFE	8.9%
	Honours degree	1.9%
Living arrangements	Family home, with both parents	54.7%
	Family home, with one parent	14.3%
	Share House	12.1%
	With Partner	6.8%
	With one or more of your extended family members	3.4%
	With partner and child/children	2.6%
	On Campus	1.8%
Aboriginal or Torres Strait Islander	Yes	1.8%
	No	98.2%
First in family (higher education)	Yes	28.8%
	No	71.2%
Higher education demographics		Total sample
Enrolment status	Full-time	91.7%
	Part-time	8.3%
Mode of Study	On campus	87.7%
	Online	4.6%
	Blended	7.8%
Ever enrolled in an online university course?	Yes	18.7%
	No	81.3%
Financial and employment demographics		Total sample
Centrelink benefits	Yes	43.5%
	No	56.5%
Employment status	Full-time	3.4%
	Part-time	15.5%

General demographics		Total sample
	Casual	41.9%
	Self employed	1.8%
	Unemployed	37.4%
Occupation (cumulative % of those employed)	Sales workers	46.9%
	Community and personal	14.4%
	Professionals	12.4%
	Clerical and administrative	12.4%
	Labourers	6.2%
	Technicians and trades workers	4.2%
	Managers	2.9%
	Machinery operators and drivers	1.0%
Income		Total sample
Household income	\$0 - \$24,999	24.5%
	\$25,000 – \$49,999	16.9%
	\$50,000 – \$74,999	17.5%
	\$75,000 – \$99,999	12.3%
	\$100,000 – \$124,999	11.3%
	\$125,000 – \$149,999	4.0%
	\$150,000 – \$174,999	3.6%
	\$175,000 – \$199,999	3.2%
	\$200,000 – \$499,999	5.6%
	\$500,000 and up	1.2%

Table C2: Mode of study

Mode of study: On campus, online, and blended		Total sample
a) Mode of study	On campus	87.7%
	Online	4.6%
	Blended	7.8%
b) Have you ever enrolled in an online course?	Yes	18.7%
	No	81.3%

a) Mode of study

The majority of students in the sample were currently on campus students. Only 4.6% were entirely online students, with a slightly larger cohort of blended online and on campus students.

b) Enrolled in online course

Nearly one fifth of the sample had enrolled in an online course at some point in their university experience.

Table C3: Features of online study

Features of online study 1. Not important, 2. Slight, 3. Medium, 4. Very, 5. Extremely important					
"How important are the following to you?"	1	2	3	4	5
	%	%	%	%	%
a) Flexibility to study from home	11.9	17.5	19.1	22.1	29.4
b) Flexibility to balance work/family commitments with study commitments	6.6	13.3	15.9	25.8	38.4
c) Decreased costs (i.e., generally courses cost less, no parking fees/hassle)	8.9	16.1	15.5	21.3	38.2
d) Flexibility to study across the whole year	11.5	17.7	19.5	20.5	30.8
e) Flexibility to study any time of day	7.2	16.1	19.9	23.7	33.2

Features of online study

All of the features of online learning were classified as moderately to extremely important. The flexibility to balance work and family with study commitments, as well as online courses costing less than on campus courses, were the two most heavily supported features of online learning.

Table C4: Features of on campus study

Features of studying on campus 1. Not important, 2. Slight, 3. Medium, 4. Very, 5. Extremely important					
"How important are the following to you?"	1	2	3	4	5
	%	%	%	%	%
8. Access to academic advisors	8.2	20.1	23.7	22.7	25.4
9. Face-to-face contact with other students	10.5	13.1	20.3	21.7	34.4
10. Live lectures	10.9	19.3	19.9	20.5	29.4
11. Access to university computers and software	14.9	14.3	21.3	21.3	28.2
12. Access to university libraries (including use of library computers and study spaces, and borrowing books)	9.5	12.1	16.1	26.2	36
13. Face-to-face contact with lecturers	9.5	14.5	20.9	23.3	31.8
14. Access to peer-mentors	22.7	29	17.5	15.7	15.7
15. Face-to-face contact with tutors	7	11.3	21.7	22.9	37.2
16. University clubs and societies	30.6	26	17.5	13.1	12.7

Features of studying on campus

Students considered most of the features of studying on campus to be important. Face-to-face contact with tutors and other students, in addition to access to library services, were the most important features. Access to university clubs and societies was considered the least important, with over half rating this as either slightly or not important to them.

Table C5: Peer mentoring

Peer mentoring		Total sample
1. Peer mentoring should be:	Optional	89.1%
	Compulsory	10.9%
2. The peer mentors should be:	The year above your students	54.9%
	Final-year undergraduate students	66.8%
	Honours students	47.1%
	Post-graduate students	40.2%
3. What impact would peer mentoring have on your <u>engagement</u> with your course?	More engaged with my course	78.5%
	No Difference	18.7%
	Less engaged with my course	2.8%
4. What impact would peer mentoring have on your <u>satisfaction</u> with your course?	More satisfied with my course	75.3%
	No Difference	21.3%
	Less satisfied with my course	3.4%
5. What impact would peer mentoring have on your <u>academic outcomes</u> ?	Positive effect on academic outcomes	82.1%
	No effect	1.8%
	Negative effect on academic outcomes	16.1%
6. How often should peer mentoring session be held?	Weekly	21.5%
	Fortnightly	42.5%
	Monthly	20.7%
	One-off session	15.3%
7. Would you be prepared to pay for peer mentoring?	Yes	23.7%
	No	76.3%

- Peer mentoring was explored by first asking students whether it should be optional or compulsory. An overwhelming majority of students want an optional choice of peer mentoring, meaning that they could participate in peer mentoring, or not participate at all, if given a choice.
- Most students indicated that they would prefer to be peer mentored by final-year undergraduate students from within their courses, i.e., wanting to be peer mentored by students who have 'been there and done that'. This was exemplified by over half of the students also indicating that they would like peer mentors from the year level above them (within their course). There was less preference for peer mentors being Honours students, and even less preference for them being postgraduate students.
- With respect to engagement with their course, the vast majority of students indicated that peer mentoring would lead to them being *more* engaged with their course.
- Similarly, the vast majority of students indicated that being peer mentored would lead to them being more satisfied with their course.
- Again, the vast majority of students indicated that being peer mentored would have a positive effect on their academic outcomes.
- With regards to the frequency of the peer mentoring sessions, fortnightly sessions were the most popular choice, with weekly, monthly and one off sessions being quite unpopular.
- Lastly, slightly less than a quarter of students would be willing to pay for peer mentoring.

Peer assessment results

Students were questioned about their preferences for peer assessment. First, they were asked specifically what work they would accept peer assessment to be a part of. They were given the following information before being asked:

Peer assessment is the assessment of students' work by other students of equal status. Peer assessment is done alongside formal assessment by tutors and staff.

Table C6: Peer assessment

Peer assessment		Total sample
Peer assessment should be used:	for minor assignments	36.2%
	for major assignments	26.6%
	for group work	64.0%
	not at all	20.1%

Students were then given the following information about using peer assessment specifically within group work:

1.1. In group work, group members often complain about one or two group members not 'pulling their weight' (i.e., not contributing fairly to the outcomes of the group work), which is a problem when marks are allocated per group, and not individually. Peer assessment can be used in group work to help fairly distribute marks. Group members each give a mark to their fellow members, which is used in combination with the overall group mark for the individual in question. Thus, students are less likely to not fairly contribute to the group work as it could directly impact their own mark for the assignment.

Students were then asked how much they would support peer assessment being used in group work.

Table C7: Peer assessment for groups

Peer assessment in group work		
Peer assessment should be used in group work?	Yes	78.1%
	No	21.9%

Peer assessment results description

Over a third of the students selected that peer assessment should be used for minor assignments, where as a quarter selected that it should be used for major assignments. Just under two thirds of the students selected that peer assessment should be used for group work, and only a fifth said it should not be used at all.

The students were then given the boxed information opposite (1.1) and asked how much (or how little) they supported peer assessment within group work.

The vast majority of students now supported using peer assessment for their group work assignments (compared to under two thirds prior to the information in 1.1 being presented) as something that could help with the fairness of group marks.

Table C8: Assignment feedback

Assignment feedback, group work, and peer assessment			Total sample
1. Do you generally read the assignment feedback you receive?	Yes		95.8%
	No		4.2%
2. Do you ever refer to previous assignment feedback you received to help with a current assignment?	Yes		77.3%
	No		22.7%
3. Would you prefer individual or group work for the following assignment types:	Minor assignment (less than 1000 words)	Individual work	80.5%
		Group work	19.5%
	Major assignment (more than 3000 words)	Individual work	63.4%
		Group work	36.6%
4. Peer assessment should be used for:	Minor assignments		36.2%
	Major assignments		26.6%
	Group work		64.0%
	Not at all		20.1%

Assignment feedback

The vast majority of students reported that they generally read the assignment feedback they receive. The majority of students also reported that they refer to previous assignment feedback to help them with a current assignment.

Group work

When given the choice to complete a minor assignment (less than 1,000 words) either individually or in a group, the vast majority selected individual work. When given the same choice for a major assignment (more than 3,000 words), almost two thirds of students would still prefer to submit individual work, whilst just over a third would choose group work. Of note, is that the preference for group work increased for a major assignment when compared to the result for the minor assignment.

Peer assessment

Peer assessment was supported by significant portions of students across all assignment formats, however nearly two thirds of students indicated that peer assessment should be used in group work.

Table C9: Bonus marks scenario

Hypothetical: Imagine you could earn a 10% marks bonus for reading assignment feedback carefully, and then writing a short, specific summary of each error and how you would fix it 1. No support at all, 2. Slight, 3. Medium, 4. Strong, 5. Definite support					
	1	2	3	4	5
	%	%	%	%	%
How likely is it that you would support the introduction of this program?	22.9	9.1	14.1	16.7	37.2
How likely would you be to participate in this if implemented?	11.5	7.0	10.3	18.3	52.9

Bonus marks for responding to assignment feedback

Students were informed of a hypothetical teaching innovation, which involved them earning an extra 10% on top of their original mark (e.g., a 40/50 could become a 44/50) if they read their assignment feedback and then responded with a short, specific summary of each error and how they would fix it.

Just over a fifth of students said they would not support this, with the majority indicating at least some support and over half of the students indicating strong to total support.

An overwhelming majority of the students indicated that they would do the extra work after they received their assignment feedback if this program was implemented.

Table C10: Assessment weighting

Assessment weighting The weighting of marks per subject assessment		Average semester weighting
Assessment type	Exam	43.22%
	Major assignment	35%
	Minor assignment	23.48%
	Weekly tests (weekly marks combined)	24.12%

Assessment weighting

In order to understand student preferences for the weighting of assessment marks, students were presented with three hypothetical scenarios. Each scenario gave them three assessment types (an exam, a major assignment, and a minor assignment) and asked them to allocate what they felt was the ideal weighting for each out of a total score of 100. In all of the scenarios, exams were weighted heaviest, ranging from 42% to 46% of the subject marks, major assignments were weighted as 35%, and the minor assignments were rated equivalently to weekly tests with weights ranging between 22% and 26%.

Table C11: Use of technology

Do you use the following devices for educational purposes?		How useful are the following devices? (For those students who nominated their use of each device for educational purposes?) 1. Not at all useful, 2. Slightly useful, 3. Moderately useful, 4. Very useful, 5. Vital				
Device and sample use percentage		1	2	3	4	5
Device	Use %	%	%	%	%	%
Tablet	54.1	1.5	7.7	25.0	52.2	13.6
Smart phone	49.9	2.8	23.1	35.9	26.3	12.0
Wearable technology	3.6	38.9	27.8	22.2	11.1	0
Laptop	90.5	0.2	1.3	4.8	25.5	68.1

Table C11 displays the results where students were asked whether they *used* the following devices for educational purposes (i.e., email, reading textbooks, interacting in lectures, watching lectures, and posting in discussion boards/forums):

- Tablet (e.g., iPad)
- Smart phone (e.g., iPhone, Samsung Galaxy)
- Wearable technology (e.g., Apple Watch)
- Laptops

Students were also asked how *useful* they found the different technologies for their education.

The most widely used technological devices (by over 90% of students) for university educational purposes were laptops. The next most widely used being tablets and then smart phones were used by around half of the students. Wearable technologies were only used by a very small percentage of students.

Table C12: Educational use of technology

Device	What educational purposes do you use the following devices for? (For those students who nominated their use of each device for educational purposes)				
	Email	Read text-books	Interact with lecture	Watch lecture	Post on forum
Device	%	%	%	%	%
Tablet	89.7	85.7	55.9	62.9	55.9
Smart phone	95.2	46.6	60.6	27.5	55.4
Wearable technology	66.7	16.7	77.8	27.8	33.3
Laptop	95.8	82.2	69	92.1	81.1

In the same order of use, the majority of students rated that laptops were vitally useful, tablets as very useful and smart phones as moderately useful. Lastly, wearable technologies were mostly rated as not at all useful.

Table C12 reveals that Tablets and Laptops are generally used for all educational purposes measured (by those that owned them). Smart phones were used less for reading textbooks, watching lectures and posting on forums. Wearable technologies were really only used for reading emails and interacting with lectures.

Appendix D: Swinburne University of Technology quantitative questionnaire

1. Demographic factors

What is your gender?

- Male
- Female
- Other _____

What is your age?

Which ethnic/cultural group do you identify with? (e.g., Australian)

Do you identify as an Aboriginal or Torres Strait Islander?

- Yes
- No

What is your postcode?

What university do you currently attend?

- Australian Catholic University
- Batchelor Institute of Indigenous Tertiary Education
- Bond University
- Central Queensland University
- Charles Darwin University
- Charles Sturt University
- Curtin University of Technology
- Deakin University
- Edith Cowan University
- Federation University Australia
- Flinders University
- Griffith University
- James Cook University
- La Trobe University
- Macquarie University
- Monash University
- Murdoch University
- Queensland University of Technology
- RMIT University
- Southern Cross University
- Swinburne University of Technology
- The Australian National University

- The University of Adelaide
- The University of Melbourne
- The University of New England
- The University of Newcastle
- The University of Notre Dame Australia
- The University of Queensland
- The University of Western Australia
- The University of Wollongong
- University of Canberra
- University of Divinity
- University of New South Wales
- University of South Australia
- University of Southern Queensland
- University of Sydney
- University of Tasmania
- University of Technology, Sydney
- University of the Sunshine Coast
- University of Western Sydney
- Victoria University
- Other

If other, please specify:

What degree are you currently enrolled in (e.g., Bachelor of Social Science)?

What is your major? (please separate multiple majors with a comma)

What is your enrollment status?		Start Year	Approx. End Year
Full-time (1)	Part-time (2)	(yyyy) (1)	(yyyy) (1)
<input type="radio"/>	<input type="radio"/>		

Have you been enrolled previously in a higher education degree?

- Yes
- No

What was your previous major? (please separate multiple majors with a comma)

What is the highest level of education you have completed?

- Less than High School
- High School
- TAFE
- Undergraduate Degree
- Undergraduate Degree (Honours)

- Masters Degree
- Doctoral Degree
- Professional Degree (JD, MD)
- If other, please specify _____

Are you the first person in your family to enrol in higher education?

- Yes
- No

What is your mode of study?			Have you ever been enrolled in an online university course?	
On campus <input type="radio"/>	Online <input type="radio"/>	Some units on campus and some online <input type="radio"/>	Yes <input type="radio"/>	No <input type="radio"/>

What is your employment status?

- Full-time
- Part-time
- Casual
- Self employed
- Unemployed
- Retired

In what industry is your main job?

- Accommodation and food services
- Administrative and support services
- Agriculture, forestry and fishing
- Arts and recreation services
- Construction
- Education and training
- Electricity, gas, water and waste services
- Financial and insurance services
- Health care and social assistance
- Information media and telecommunications
- Manufacturing
- Mining
- Professional, scientific and technical services
- Public administration and safety
- Rental, hiring and real estate services
- Retail trade

- Transport, postal and warehousing
- Wholesale trade
- Other services

What is the occupation of your main job?

- Clerical and administrative workers
- Community and personal service workers
- Labourers
- Machinery operators and drivers
- Managers
- Professionals
- Sales workers
- Technicians and trades workers

How many hours per week do you work in paid work?

Approximately how much do you earn per week from your paid work (after tax)?

What is your current living arrangement?

- At your family home, with both parents
- At your family home, with one parent
- In a share house
- Alone
- With your partner
- With one or more of your extended family members
- Living with partner and a child/children
- Living alone with a child/children
- Other (please specify) _____

What is your approximate annual household income?

- \$0-\$24,999
- \$25,000-\$49,999
- \$50,000-\$74,999
- \$75,000-\$99,999
- \$100,000-\$124,999
- \$125,000-\$149,999
- \$150,000-\$174,999
- \$175,000-\$199,999
- \$200,000-\$499,000
- \$500,000 and up

2. Flipped classroom vs traditional classroom

Please consider the following example of how university classes could operate. Consider the way that teaching and learning happens at this university and imagine how you would feel about attending this university, and how you feel about the way teaching and learning happens at this university, as described in the following 2 scenarios. Important note: please read the following 2 scenarios carefully before answering the question.

Method <u>A</u>		Method <u>B</u>	
A: Lecture - 2 hour lecture held during the week before the tutorial		B: Independent Learning - 1 hour video and 1 hour's worth of readings to be watched/read at a time and place of convenience to the student prior to the tutorial.	
A: Tutorial activity - Students arrive and settle - Review the weeks suggested reading - Lecture new content - Guided/independent learning	Time taken 0- 5 minutes 0 - 10 minutes 30 - 45 minutes 10 - 20 minutes	B: Tutorial activity - Students arrive and settle - Questioning for understanding around video/reading that was done prior to the tutorial - Guided / Independent / Cooperative Learning	Time taken 0- 5 minutes 10 minutes 35 - 45 minutes

Which teaching method do you prefer, METHOD A or METHOD B? Please indicate your preference using the scale below.

- 1. I totally prefer Method A
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10. I totally prefer Method B

3. Flipped classrooms

Now, thinking only about Method B, please answer the following questions.

<h1>Method <u>B</u></h1>	
<u>B</u>: Independent Learning - 1 hour video and 1 hour's worth of readings to be watched/read at a time and place of convenience to the student prior to the tutorial.	
<u>B</u>: Tutorial activity - Students arrive and settle - Questioning for understanding around video/reading that was done prior to the tutorial - Guided / Independent / Cooperative Learning	Time taken 0- 5 minutes 10 minutes 35 - 45 minutes

How likely would you be to watch the video and read the required reading each week?

- Very unlikely
- Moderately unlikely
- Somewhat unlikely
- Somewhat likely
- Moderately likely
- Very likely

Imagine that there was a quiz at the start of your class which tested your understanding of the video and reading that was set for you to watch and read the previous week - all of these quizzes are marked and in total they are worth 25% of the subject mark. How likely would you be to watch the video and read the required reading each week?

- Very unlikely
- Moderately unlikely
- Somewhat unlikely
- Somewhat likely
- Moderately likely
- Very likely

Important - please read The reasoning behind allocating marks based on quizzes is that doing so provides motivation to students to actually watch the video and read the assigned readings. The reason that it's important for students to watch the video and do the readings, is that there is evidence that students who stay engaged with the material each week learn more, and perform better in end of semester exams, than students who do all their study at the end of the semester. Consider the above argument, and answer the following question about quizzes

How many marks (out of 100) should be assigned to quizzes?

- None - I don't believe the quizzes should be marked
- 5 marks
- 10 marks
- 15 marks
- 20 marks
- 25 marks
- 30 marks
- 35 marks
- 40 marks
- 45 marks
- 50 marks
- 55 marks
- 60 marks

4. Peer mentoring

Definition: Peer mentoring involves a form of mentorship between a more experienced student and a less experienced student. This might involve a one off meeting, or more regular (e.g., weekly) meetings.

Benefits: Many students believe peer mentors are better than staff at understanding their problems. Students find that peer mentors are easier to relate to and are more interested in their personal lives. Peer mentoring might provide students with:

1. Emotional and psychological support
2. Direct assistance with academic and professional development
3. Role modelling.

Peer mentors should be: Please note: you can choose multiple options

- The year above you students
- Final year undergraduate students
- Honours students
- Post-graduate students

Peer mentoring should be Optional or Compulsory?

- Optional
- Compulsory

Should peer mentoring involve a one off or ongoing sessions?

- Yes
- No

If ongoing, how often should peer mentoring sessions be held?

- Weekly
- Fortnightly
- Monthly

Would you be prepared to pay for peer mentoring?

- Yes
- No

Please indicate the effect you feel peer mentoring will have on the following

Engagement

- Less engaged with my course
- No difference in engagement with my course
- More engaged with my course

Satisfaction

- Less satisfied with my course
- No difference in satisfaction with my course
- More satisfied with my course

Academic Outcomes

- Negative effect on my academic outcomes (i.e., results)
- No difference in satisfaction with my course
- Positive effect on my academic outcomes (i.e., results)

5. Online learning

Advantages to studying online:

- Increased flexibility: You can study when you want to, how you want to, where you want to. This does not mean that the workload is less for a student studying online, only that they have more flexibility in when, how and where they study.

Disadvantages to studying online:

- Ease of procrastination: It's easier when you are at home to do something fun like participate on social media than do your online university work.
- Lack of social interaction: The usual social aspects of university are missing in online learning.

Although students may engage in detailed discussions on the forums available with many online classes, this is different from the face-to-face contact that comes from a class in a physical environment. It's not nearly as easy to make friends within ones geographical proximity, especially if your classmates are thousands of kilometres away.

Please answer the following questions about your willingness to study online:

Would you consider taking any of your individual units online?

- Yes
- No

Would you consider enrolling in up to half of your units online?

- Yes
- No

Would you consider enrolling in a degree which was offered entirely online?

- Yes
- No

6. Characteristics of online study

Consider the following characteristics of online delivery of units. Please indicate how important each of these is for you personally.

- _____ Flexibility to study from home
- _____ Flexibility to balance work/family commitments with study commitments
- _____ Decreased costs (i.e., generally courses cost less, no parking fees/hassle)
- _____ Flexibility to study across the whole year
- _____ Flexibility to study any time of day

7. Characteristics of on campus study

Consider the following characteristics of on campus (face-to-face) delivery of units. Please indicate how important each of these is for you personally.

- _____ Access to academic advisors
- _____ Face-to-face contact with other students
- _____ Live lectures
- _____ Access to university computers and software
- _____ Access to university libraries (including use of library computers and study spaces, as well as book borrowing)
- _____ Face-to-face contact with lecturers
- _____ Access to peer-mentors

- _____ Face-to-face contact with tutors
- _____ University clubs and societies

8. Textbook characteristics

Textbooks should be:

- Optional (e.g., exam material sourced from lectures and tutorials, but textbook chapters can be used to help students to better understand concepts in stated in the lecture)
- Compulsory (e.g., exam material may be directly derived from weekly textbook chapters, even if that material was not mentioned in a lecture or tutorial)

In relation to textbooks, please rank the following in terms of importance from most important (first) to least important (last). Please drag options to rearrange them

- _____ Comes with e-text which is accessible on portable devices (e.g., iPad)
- _____ Recent (published within the past 12 months)
- _____ Website support
- _____ Practice exam questions

9. Assessment

The next 3 questions will offer 3 different arrangements of assessments for a course within one semester. You are required to allocate the marks each should be worth out of 100 as you see fit.

Please allocate a weighting to each of the following assessment methods, so it adds up to 100%.

- _____ Minor assignment (less than 1000 words)
- _____ Major assignment (greater than 3000 word)
- _____ Exam

Please allocate a weighting to each of the following assessment methods, so it adds up to 100%.

- _____ Weekly tests
- _____ Exam
- _____ Major assignment (greater than 3000 words)

Please allocate a weighting to each of the following assessment methods, so it adds up to 100%.

- _____ Weekly tests
- _____ Exam
- _____ Minor assignment (less than 1000 words)

10. Group work

Would you prefer individual work or group work for these assignments?

	Individual assignment	Group assignment
Minor assignment (less than 1000 words)	<input type="radio"/>	<input type="radio"/>
Major assignment (greater than 3000 words)	<input type="radio"/>	<input type="radio"/>

11. Assignment feedback

Do you generally read the assignment feedback you receive?

	Yes	No
Do you generally read the assignment feedback you receive?	<input type="radio"/>	<input type="radio"/>
Do you ever refer to feedback from previous assignments to help you with current assignments?	<input type="radio"/>	<input type="radio"/>

Currently, there is a program being discussed which would offer students an extra 10% marks bonus for carefully reading their assignment feedback and writing a short and specific summary of each error, and then fixing them. This would be entirely voluntary.

_____ How likely is it that you would support the introduction of this?

_____ If this was implemented, how likely would you be to do this?

12. Peer assessment

Peer assessment is the assessment of students' work by other students of equal status. Peer assessment is done alongside formal assessment by tutors and staff. It's been argued that peer assessment helps students to develop the capacity to reflect on and critically evaluate their own learning. In relation to peer assessment, please consider the following questions.

Peer assessment should be used:

- For major assignments
- For minor assignments
- For group work
- Not at all

Peer assessment should be included as part of a student's grade (i.e., 5% of the mark for an assignment determined by peers)

- Yes
- No

Peer Assessment in Group Work In group work, group members often complain about one or two group members not pulling their weight (not contributing fairly to the goal of the group work), which is a problem when marks are allocated per group, and not individually. Peer assessment can be used in group work to help fairly distribute marks. Group members each give a mark to their fellow members, which is used in combination with the overall group mark for the individual in question. Thus, students are less likely to not let other group members down because it could directly impact their own mark for the assignment.

_____ Please indicate your preference regarding peer assessment in group work

13. Technology

The next questions ask your thoughts on the following devices:

- Tablet (e.g., iPad)
- Smartphone (e.g., iPhone, Samsung Galaxy)
- Wearable technology (e.g., Apple Watch)
- Laptops

Please select all the educational functions you have used each device for.

	Email	Reading textbooks	Interacting in lectures (e.g., answering polls)	Watching lectures	Posting on a subject discussion board/forum
Tablet (e.g., iPad)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smart phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wearable technology (e.g., Apple Watch)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laptop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions address your feelings about each device

	How useful would the following technologies be to use within your university subjects generally?				
	Not at all useful	Slightly useful	Moderately useful	Very useful	Vital
Tablet (e.g., iPad)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart phone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wearable technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Laptop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix E: University of Technology, Sydney qualitative results

Design students

After analysing results from the pilot studies at Swinburne, and trailing the same workshop at UTS, it was decided that richer data could be collected if the methods were tailored to specific cohorts of students by discipline area, and even better, embedded into their curriculum. The decision was made to focus on undergraduate design students at UTS. The workshops developed for UTS students used design language and methods, with which students were already familiar, to help open up alternatives for design education at universities that were most relevant to the students themselves. The focus was on thinking through alternative futures because it “reminds us that while we cannot predict a particular future always accurately, by focusing on a range of alternatives, we can better prepare for uncertainty, indeed, to some extent embrace uncertainty” (Inayatullah, 2008, p. 6). In order to instil a sense of urgency and openness, students were invited to participate in a ‘futures hothouse’ in which fast-paced collaborative scenario designs demonstrate how designers might work with policy makers and industry on very open briefs about future challenges.

Participants

The UTS research team created a method specifically for Design students who were in their second year of study. These students had some prior experience of university, had begun to develop their professional identities as designers, and had been introduced to the concept of futuring. Around 60 Design students participated in the project’s workshops at UTS. They were divided into four workshop sessions run over two months mid semester, with approximately fifteen students in each session. The students were all enrolled in a compulsory core interdisciplinary Design Studies subject focusing on design futures. As the students were already exploring futuring methods within their curriculum – with particular reference to human-technology relationships, the anthropocene and big data – we offered the workshop outside class as a way to supplement their learning and experiment with collaborative scenario design using higher education as a case study. While this shifted the central focus of the workshop from higher education to futuring methods, it made the workshop much more attractive to students by providing a direct benefit to their studies.

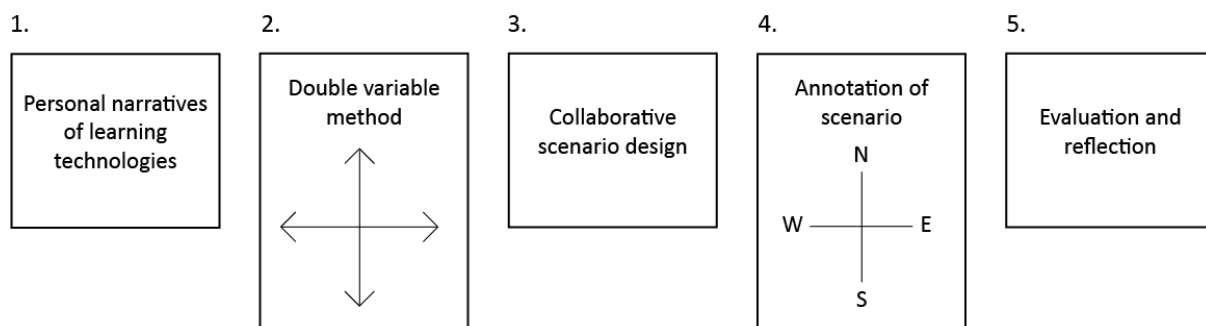
A robust framing discussion opened the workshop which was important in a number of ways. Firstly, it was useful for unpacking the current public discourse on Australian higher education, being in the midst of deregulation and funding cuts proposed by the conservative federal government, which a number of students in each workshop identified as ‘confusing’. Secondly, it gave the facilitators the opportunity to explain the value of the student voice in planning the future of higher education. As was revealed in the workshops and later

reflections, many students had not previously considered that there was a range of possible futures for higher education, that the methods they were learning in their design degree had such diverse applications, nor that they had any agency in shaping these futures. Indeed, some students began the workshop by describing the future of universities as ‘inevitable’, ‘doomed’ and ‘out of their control’, demonstrating their self-perception as passive recipients of the singular learning future on offer. In short, the discussion gave two frames to the research results: firstly, as demonstrating a method relevant to the students as developing designers; and secondly, as relevant to a broader set of stakeholders involved in the planning of higher education.

Staged scenario design

Students were asked to think of the workshop stages as iterations of a scenario design. Scenarios in this sense were explained as a picture of a given group (design students at university) developed within the framework of a set of specified instructions (MacNulty, 1977). Scenarios come between deterministic quantitative models of the future and purely narrative descriptions (Nakicenovic & Swart, 2000) leading to a richer, more accessible approach to future studies (Wildman & Inayatullah, 1996). Students developed their scenarios in a workshop guided by a facilitator, who acted as a provocateur to stimulate more open thinking around time, technology and learning. The method was guided to ensure students’ future ideas were captured, analysed and reported without a loss of richness and authenticity.

Figure E1: Staged scenario design



The first stage in the workshop, as shown in Figure E1, was to propose an evolutionary relationship between technology and learning. In groups, students were asked to draw and discuss how technologies have changed over their lifetimes, dividing their learning lives into three periods: pre- and primary school, high school, university, or other tertiary education or training. This initial process helped students to place their university learning within a trajectory of change, and begin to become comfortable sharing their experiences with their peers in preparation for the collaborative scenario design. On reflection, students noted that learning technologies had become more ‘invisible’, ‘branded’, and ‘digital’ over their

lives and that learning technologies at university were more difficult to identify because they were 'part of everything' and 'integrated on campus'.

The second stage of the workshop involved using the double variable method developed by Galtung (1998) to identify two major uncertainties and develop scenarios based on these. Students were asked to think of forces of change at this stage, rather than within a finite time span, and identify and graphically represent (using two axis) some of the factors that are influencing the future of higher education. This method was accessible in part because it had already been raised in class with the design-focused example of Anthony Dunne and Fiona Raby's 'United Micro Kingdoms' project (<http://www.unitedmicrokingdoms.org>). In their book *Speculative Everything: Design, Fiction and Social Dreaming*, the designers explain how the four scenarios (communo-nuclearists, digitalians, anarcho-evolutionists, and bioliberalists) were generated using a similar political chart to map alternative ideological systems (Dunne & Raby, 2013).

As well as using the quadrant method to map the kinds of universities that would exist in different futures, as shown in Figure E1, students also used the axis they generated in groups to think through the factors that affect the state of education and its place in society.

Thirdly, using a range of materials, including paper, clay, markers, fabric and wire, students collaborated on designs that illustrated the best possible future for higher education in twenty years' time. Through this process, students generated and articulated their ideas about the future by designing classrooms, campuses, information and transport systems, interfaces, and alternative forms of assessment. This stage was explained to the students as a form of collaborative scenario design in which the previous stages culminated in a visual story describing the preferred future of learning. As Jonas (2001) asserts, scenario is a 'design itself', informed by reflective process and describing 'possible, preferable or avoidable futures'. In post-workshop evaluation, students indicated that they felt most comfortable and most stimulated within this stage, using their 'design skills to communicate ideas'.

Next, following the process designed at Swinburne, students were asked to annotate their scenarios by physically orienting their designs in four different directions and responding to questions designed by Swinburne's Dr Sean Tinker. At each direction (North, South, East and West), they were asked the following questions:

East: What do you love about this scenario? What is energised here? What is emerging?

West: What is ending in this situation? What becomes extinct? Obsolete? What is replaced? How?

South: What are the key conflicts and hard truths that higher education institutions (universities) will face going forward? What needs to happen to reach this future?

Consider STEEP: Social/Technological/ Economic/ Environmental/Political Dimensions to these changes.

North: What is the result of this learning environment? What is the ideal student in this scenario? What kind of graduate does it produce? What kind of individuals/citizens?

These questions were posed as provocations. The students used them for discussion, referring at each direction to their design choices in their scenarios. Each group documented their discussion through annotations. The purpose of this stage was to begin an interrogation of the collaborative scenario so that it could act as more than a wild proposition. As explained by Tony Fry (2009), “the basis of futuring scenarios is not ‘what will be’ or even ‘what might be’ but ‘what potentialities beg interrogation” (p. 147). In this sense the students were asked, through the above set of questions, to interrogate potentialities of higher education.

These annotations were used as cues for group presentations to the rest of the class, which concluded the staged scenario design. Lastly, students individually completed an evaluation form after the workshop, and a portion of them wrote short reflections on the research in the following weeks. These reflections were on their participation in the hothouse and their thoughts on collaborative scenario design as a form of primary research.

Data was collected by the researchers through observation, video and photography, as well as by recording audio of group discussion during the scenario development. The recordings were then transcribed and analysed. Transcripts were thematically coded to identify key categories and themes within the data.

Appendix F: Swinburne systematic review

The Initial search term used in Scopus was:

(student voice*) or (student perception*) or (student value*) or (student opinion*) or (what students want*) or (student need*) or (student idea*)) AND ((higher education) or (university) or (college) or (post secondary) or (post grad*)) AND ((flipped learning) or (technology) or (info* tech*) or (on campus) or (online) or (purpose*) or (peer assess*) or (assess*) or (mentor*) or (ideal student*) (ideal teacher) or (exam) or (major*) or (assignment) or (paper) or (self assessment) or (group*) or (reward) or (badging) or (mooc*) or (blended learning) or (face) or (resource*) or (engagement) or (retention) or (probation) or (first in family))

This search resulted in 291,721 journal results

Following this, results were limited to: University, higher education, College Students

This resulted in 10,937 journal results

The second search term used in Scopus (after exclusions) was:

(student voice*) OR (student perception*) OR (student value*) OR (student opinion*) OR (what students want*) OR (student need*) OR (student idea*)) AND ((higher education) OR (university) OR (college) OR (post secondary) OR (post grad*)) AND ((flipped learning) OR (technology) OR (info* tech*) OR (on campus) OR (online) OR (purpose*) OR (peer assess*) OR (assess*) OR (mentor*) OR (ideal student*) (ideal teacher) OR (exam) OR (major*) OR (assignment) OR (paper) OR (self assessment) OR (group*) OR (reward) OR (badging) OR (mooc*) OR (blended learning) OR (face) OR (resource*) OR (engagement) OR (retention) OR (probation) OR (first in family)) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (EXACTKEYWORD , "Universities") OR LIMIT-TO (EXACTKEYWORD , "Higher education") OR LIMIT-TO (EXACTKEYWORD , "College student")) AND (EXCLUDE (EXACTKEYWORD , "Major clinical study") OR EXCLUDE (EXACTKEYWORD , "Smoking") OR EXCLUDE (EXACTKEYWORD , "Body mass") OR EXCLUDE (EXACTKEYWORD , "Exercise") OR EXCLUDE (EXACTKEYWORD , "Randomized controlled trial") OR EXCLUDE (EXACTKEYWORD , "Body image") OR EXCLUDE (EXACTKEYWORD , "Clinical trial") OR EXCLUDE (EXACTKEYWORD , "Body Mass Index") OR EXCLUDE (EXACTKEYWORD , "Controlled clinical trial"))

After we excluded the following: Major clinical study, Smoking, Body mass, Exercise, randomised control trial, body image, body mass index, clinical trial, controlled clinical trial, this reduced results to 8,726 journal articles

After we limited the results by year, in order to ensure that publications were recent (2004-2015), this resulted in 7,325 journal results

((student voice*) OR (student perception*) OR (student value*) OR (student opinion*) OR (what students want*) OR (student need*) OR (student idea*)) AND ((higher education) OR (university) OR (college) OR (post secondary) OR (post grad*)) AND ((flipped learning) OR (technology) OR (info* tech*) OR (on campus) OR (online) OR (purpose*) OR (peer assess*) OR (assess*) OR (mentor*) OR (ideal student*) (ideal teacher) OR (exam) OR (major*) OR (assignment) OR (paper) OR (self assessment) OR (group*) OR (reward) OR (badging) OR (mooc*) OR (blended learning) OR (face) OR (resource*) OR (engagement) OR (retention) OR (probation) OR (first in family)) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (EXACTKEYWORD , "Universities") OR LIMIT-TO (EXACTKEYWORD , "Higher education") OR LIMIT-TO (EXACTKEYWORD , "College student")) AND (EXCLUDE (EXACTKEYWORD , "Major clinical study") OR EXCLUDE (EXACTKEYWORD , "Smoking") OR EXCLUDE (EXACTKEYWORD , "Body mass") OR EXCLUDE (EXACTKEYWORD , "Exercise") OR EXCLUDE (EXACTKEYWORD , "Randomized controlled trial") OR EXCLUDE (EXACTKEYWORD , "Body image") OR EXCLUDE (EXACTKEYWORD , "Clinical trial") OR EXCLUDE (EXACTKEYWORD , "Body Mass Index") OR EXCLUDE (EXACTKEYWORD , "Controlled clinical trial")) AND (LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2010) OR LIMIT-TO (PUBYEAR , 2009) OR LIMIT-TO (PUBYEAR , 2008) OR LIMIT-TO (PUBYEAR , 2007) OR LIMIT-TO (PUBYEAR , 2006) OR LIMIT-TO (PUBYEAR , 2005))

After we limited the results to “Limited: ENGLISH”, this resulted in 7,081 journal results

Appendix G: External evaluator's report

Final Evaluation Report – September, 2015

Associate Professor Kym Fraser¹, Swinburne University

Project team members

Dr. Simone Buzwell	Co. Project Leader & Project Manager, Swinburne University
Professor Glen Bates	Co. Project Leader, Swinburne University
Assoc. Professor Jo McKenzie UTS	Project Leader, University of Technology Sydney
Professor Gilly Salmon	Key team member, University of Western Australia (previously Swinburne University - retired from project December, 2013)
Professor Shirley Alexander	Key team member, University of Technology Sydney
James Williams	Project Manager, Swinburne University
Matthew Farrugia	Project Manager, Swinburne University
Dr. Alexandra Crosby	Project Manager, University of Technology Sydney

Project Context

Introduction

The 'Valuing Student Voices' project (S-VOLT) aims to "use innovative techniques to explore students' preferred and viable learning and teaching futures. The project outcomes are expected to contribute to recommendations for university policies and strategies, as well as developing guidelines and frameworks to support students' use of new technologies, their approaches towards their learning and how to engage them in their learning. Further, an ongoing community of practice in the future of learning in Higher Education will be established to ensure the continuation of the understanding of the need to include our students in discussions of the future of learning in Higher Education in Australia" (from the original application).

Project outcomes

1. Provision of a new Learning and Teaching and Technology strategy for Swinburne University of Technology.
2. Contribution to the Learning 2014 and Learning 2020 strategies and a review of learning technologies at the University of Technology, Sydney.

¹ When Associate Professor Fraser commenced as the evaluator for this project she worked at Victoria University. At SUT she works in a different area from those of the project team.

3. A report incorporating practical recommendations to inform HE policy and strategy around the use of learning technologies, student engagement with learning, learning experiences and expectations, offering avenues for further exploration.
4. Development of 'thought leadership' and establishment of an ongoing community of practice/expertise/interest in the future for learning in HE.
5. Defining future research questions regarding the impact of new technologies on student learning.
6. A project website.
7. Guidelines, frameworks, models of events & tools for involving learners in the planning, re-shaping and assessment of their Learning Futures, customised for the Australian context.

Project stages

Stage 1 Scanning the environment and project start up (staff appointed plus research methods and materials piloted). October 2013 – March 2014.

Stage 2 Engaging students in the exploration of possible & preferred futures (data collection). Nov 2013 - October 2014.

Stage 3 Interpreting, synthesizing, analysing and modeling, together with report write up. June 2014 – August 2015.

Stage 4 Sharing and sector engagement. Ongoing across the project and beyond

Evaluation Context

Following the first meeting of the project team an evaluation plan providing both formative and summative feedback was finalised by the external evaluator, Associate Professor Kym Fraser who started as the evaluator when working at Victoria University. This plan was approved early in 2014. This is the final of three reports that the evaluator has provided to the project team.

The purpose of this report is to provide summative feedback on the project. The report draws from a range of sources to provide feedback in three areas:

- extent of the achievement of the intended outcomes;
- strengths of and challenges to the project management processes; and
- project dissemination.

The sources for this evaluation include: meeting agendas and minutes; project emails; the project application; the ethics application; project progress reports and OLT responses; interviews with project team members; and the project website.

Evaluator Comments

Extent of the achievement of intended activities and outcomes

This section reviews the extent of achievement for each activity and outcome proposed in the project application. Tables 1 and 2 respectively list the project activities and project outcomes recorded in the grant application. Next to each activity the evaluator has made a statement about the extent of the achievement of the activity/outcome. Each activity/outcome is assessed as being either fully completed (✓✓), discontinued (x) or replaced with an equivalent activity/outcome (≈).

Table 1 illustrates that of the original thirteen activities, one activity was discontinued and twelve were completed. Of the twelve activities that were completed, three were replaced, at least in part, with an alternative activity. Table 2 illustrates that the project completed all seven of the intended outcomes, one of which was replaced with an alternative outcome.

Table G1: Extent of achievement of intended activities and outcomes

Stage 1 Scanning the environment and project start up		
Intended activities	Extent of achievement	
Recruitment and Staffing	<p>Recruitment of the Swinburne University of Technology (SUT) project manager had been difficult, with the original project manager leaving the project shortly after being appointed. The full time position was then split into two in order to fill the position, but it took until June 2014 for the second position to be filled. The project managers did not have access to desks and computers for the project until very late in 2014. The University of Technology Sydney (UTS) project manager commenced five months after the project commenced. She left her position at the end of February 2015 however continued collaborating on research outcomes associated with the project. Dr Buzwell successfully applied for internal SUT support and over the 2014 summer period had the support of two Summer Scholars (undergraduate students) who were engaged for 80 hours to enter the project qualitative data into NVIVO and to assist with the development of themes, by supplying the student perspective.</p> <p>Co-project leader, Dr Buzwell, changed roles within SUT just prior to the commencement of the project. The workload allocation that had been agreed for her to do the project was not forthcoming.</p> <p>In spite of the recruitment difficulties, the project team completed all but one of the project activities and all of the project outcomes.</p>	✓✓

Project team and reference group meetings	<p>In the first 16 months of the project the team met as an entire group only twice. Meetings were regularly cancelled when either or both of the key team members of the project were unable to attend. On the advice of the evaluator, late in 2014 the project team agreed to meet even when some team members could not attend. Prior to this, sub groups of the team met regularly. The project manager and supervisor met monthly at UTS and more often at SUT.</p> <p>The reference group was not convened. The evaluator recommended that the team invite a ‘critical friend’ for each university to provide input in the second half of the project. A critical friend was invited to contribute to the work done at SUT. That input was primarily about project management.</p>	✓✓ ≈
Project planning	<p>In the first face-to-face team meeting, planning for the project along with the development of a shared understanding in the team about the processes and outcomes of the project was achieved. As the project progressed, plans were altered to address changing circumstances – for example incorporating a quantitative data collection element which wasn’t in the original plan (see ‘Collection of knowledge stream -quantitative data’ below).</p>	✓✓
Evaluation process established	<p>Evaluation processes including the appointment of the evaluator, the development and agreement of the evaluation plan and the implementation of the plan were completed in the first few months of the project.</p>	✓✓
Cognitive mapping	<p>Originally the cognitive mapping tool was going to be used to determine which of the ‘learning futures’ students most preferred and therefore which were best to be explored by universities. While there was some disagreement within the team, the team decided that the tool was too time consuming to use and it did not assist them to determine which of the many ‘learning futures’ students preferred. In response to this challenge, the project team agreed to construct, (from the analysis of the qualitative data), a survey which undergraduate students from across the Australian higher education sector could complete. Methodologically the use of the survey was sound and not only provided a clear picture of student preference, but also added rigour and reliability to the findings of the project.</p>	≈ ✓✓
Research and	<p>The team used the SCOPUS database and Appendix 1 indicates</p>	✓✓

analysis stream	<p>the search terms used. The team conducted a research synthesis as per <i>Synthesizing Research: A Guide for Literature Reviews Applied Social Research Methods Series</i> (Cooper, H. M).</p> <p>The research design was confirmed by the project team and the creative event approach was piloted and modified in light of the outcomes of that pilot.</p>	
Stage 2 Engaging students in exploration of possible & preferred futures		
Intended activities	Extent of achievement	
Collection of knowledge stream – qualitative data	<p>Qualitative data was collected from 17 events conducted with undergraduate students at SUT and UTS. Over 500 students participated in the events. The project team sampled different disciplines (primarily engineering, design and psychology), different undergraduate levels, and students studying in different modes (on campus, fully online and blended learning mode). The project team had difficulty accessing students from more than three disciplines. Some team members expressed concern that the sample was biased towards better performing students although one event was conducted with probationary students. Team members also expressed concern that the data was collected primarily from students in two discipline areas, and not a broad range of disciplines. Staff changes (not within the team) resulted in originally arranged access to more disciplines not eventuating. The team’s thoughts about how to improve access to students includes: trying to encourage more unit conveners to include the workshops within the program of face to face classes at a stage when academics hadn’t finalised their teaching plans; and having enough funding to pay students to participate. Team members also expressed concern that at the two universities the qualitative data was collected and analysed using different methods, so reducing the ability of the team to compare the two sets of data. Team members reported that having more funding for project team members from the two universities to travel to work with each other as the project unfolded might have resulted in a more consistent approach being taken.</p>	✓✓
Collection of knowledge stream – quantitative data	<p>This activity <i>was not included in the original application</i> and was developed in place of the cognitive mapping technique as explained above. The project team confirmed the change in direction with the OLT at the time. The online survey was developed from the themes elucidated from the qualitative data collection. A team member expressed concern that some of the themes included in the survey would have been better placed in</p>	≈ ✓✓

	a student focus group, and while the project co-leaders agreed focus groups could be included, the team member felt that there wasn't time to run them and the themes were included in the survey. Approximately 100 SUT students doing fully online courses completed the survey. Student Edge, the organisation employed to implement the survey, collected data from 524 students from 37 Australian universities, studying in over 250 different courses. The survey data was therefore more representative of students than the qualitative data and it improved the reliability of the themes and the recommendations that the project team have made.	
Stage 3 Interpreting, synthesizing, analysing and modeling plus report write up		
Intended outcome	Extent of achievement	
Data analysis, interpretation and synthesis	Completed and the data has been used in dissemination activities.	✓✓
Model building	Model building was an expected outcome of the proposed cognitive mapping exercise. However the cognitive mapping exercise was replaced by the quantitative survey. The outcome of the survey instead provided information on the impact of various demographic factors on student preferred learning futures.	≈ ✓✓
OLT Reporting	The project team submitted all required reports both during and at the end of the project.	✓✓
Stage 4 Sharing and sector engagement		
Intended outcome	Extent of achievement	
Online dissemination	A Word Press project website was developed which included information about the project and resources from the project. The associated blog was used to a limited extent throughout the life of the project. The team use a dedicated Flickr site to share and organise data between the UTS and SUT groups.	✓✓
Workshops and conferences	The team developed and conducted five workshops and seven conference presentations. The project team is editing a special issue of Sensoria and two articles from the project have been accepted for publication in that special issue. Dissemination about the project through conferences, workshop and publications has been excellent.	✓✓
Podcasts	The resourcing originally slated for the development of podcasts did not eventuate. A restructure at SUT resulted in staff leaving positions and not being replaced.	x

Table G2: Extent of achievement against intended project outcomes

Intended outcome	Extent of achievement	
<p>1. Provision of a new Learning and Teaching and Technology strategy for Swinburne University of Technology.</p>	<p>All but one SUT team member reported that the project findings influenced the SUT “Learning and Teaching Strategy: 2013 to 2020”. Those SUT project team members reported that the project findings contributed to the strategy focus on the use of technology to engage students in personalized learning, often at a distance. They argued that the project was one approach which facilitated the input of the student voice into the development of the strategy, and influenced, for example, the increased peer support for first year students.</p> <p>Team members reported that the project outcomes have influenced the University’s Peer Mentoring Strategy, the University’s student consultation strategy and the University’s governance. Professor Bates, the Pro Vice Chancellor (Student Advancement), who is also an SUT project co-leader, initiated a university wide consultation to determine how the students’ voice could better be integrated into university policy, procedures and practices. The University’s student consultation strategy was broadened to include more meetings between student representatives and the Executive Deans.</p> <p>Dr Buzwell, the other SUT project co-leader was appointed to the SUT Employability Task Force in order for the SVOLT findings to contribute to the University’s strategic plans for enhancing students’ employment outcomes. This focus includes work on recognising co-curricular student experiences.</p> <p>An unexpected outcome of the project is that the SUT Student Union, which was consulted early in the project about the project ‘Student Voice’ survey and activities, is instituting its own student voice survey in 2015 to determine future campaign strategies and activities.</p>	<p>✓✓</p>
<p>2. Contribution to the Learning 2014 and Learning 2020 strategies and a review of learning technologies at the University of Technology,</p>	<p>The UTS student data from the project confirmed the UTS Learning 2014 Strategy. The students’ preferred HE future was well aligned with UTS’s planning for UTS learning futures (a renamed strategy that includes learning2014 and further initiatives) and related policies. It is being used as a source to inform reviews of</p>	<p>✓✓</p>

Sydney.	<p>policies related to graduate attributes and assessment.</p> <p>An unexpected outcome of the project has been the trial of the creative event methodology in professional learning activities for teaching staff at UTS. The data generated from the professional learning activities has informed the UTS Information Technology Division's planning. The UTS project coordinator, Associate Professor Jo McKenzie, heads up the UTS Institute for Interactive Media and Learning and expects to continue to use the approach in the work of the institute.</p>	
3. A report incorporating practical recommendations to inform HE policy and strategy around the use of learning technologies, student engagement with learning, learning experiences and expectations, offering avenues for further exploration.	Recommendations have been made in the project final report.	✓✓
4. Development of 'thought leadership' and establishment of an ongoing community of practice/expertise/interest in the future for learning in HE.	The project leaders originally had an undertaking that the support of a learning technologist would be provided to the project to assist them to achieve this outcome. Changes at SUT resulted in these resources not being available and this outcome was not achieved through the use of social media. The project team has disseminated information about the project through the Vic/Tas Promoting Excellence Initiative network and plans to disseminate information about the project to other existing communities such as the Deputy Vice Chancellor network and the NSW Promoting Excellence Initiative network.	≈ ✓✓
5. Defining future research questions regarding the impact of new technologies on student learning.	These questions are incorporated in the final report.	✓✓
6. A project website.	The Word Press website (http://www.studentvoicesproject.com.au/) is in place.	✓✓
7. Guidelines, frameworks, models of events and tools for involving learners in the	These materials are located in the website.	✓✓

planning, re-shaping and assessment of their Learning Futures- customised for the Australian context.		
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Project Management

The management of the project was shared between the three project managers, Crosby, Williams and Farugia. Overall the project has been well managed and the three project managers have been in close communication throughout the project, ensuring that timelines have been met. A clear and detailed position description was provided to ensure overall management and project oversight.

The project team held a healthy diversity of opinions on various aspects of the project, including the value of using the cognitive mapping approach. This diversity of opinions was effectively managed in that the project was completed and equivalent activities replaced originally planned activities.

The SUT project co-leader, Dr Buzwell was responsible for the project budget and submission of OLT reports. The project was completed on time (with an extension) and within the budget envelope. OLT progress reports were submitted on time and the OLT has accepted the reports. The final report was submitted on time. Below is a table indicating project management effectiveness and evaluator comments.

Table G3: Project management measures of effectiveness

Measure of effectiveness	Evaluator Comment
Meetings	Twelve full team meetings were held during the course of the project and a majority of team members attended each meeting. Agenda papers were distributed prior to meetings. Actions from each meeting were allocated and followed up in subsequent meetings. The meeting atmosphere encouraged constructive interaction. There were numerous meetings between sub groups within the duration of the project.
Reference group	The reference group was not constituted. In light of this, the evaluator suggested that the project team appoint two critical friends to the project. One critical friend was appointed.
Ethics approval	Ethics approval was gained in a timely manner for the progress of data collection.
Timelines	The timelines of the project were met with an extension of six months.
Creative problem solving	When the cognitive mapping approach did not provide insights into student preferences, the project team developed a quantitative survey to provide the data and to add rigour to the

	data collection.
Dissemination	As discussed below, during the project there have been five dissemination workshops and seven conference presentations plus two articles accepted for publication. This represents excellent dissemination in these different formats. As indicated earlier in the report, the support to develop an online dissemination strategy did not eventuate.

Project

Many dissemination activities were undertaken during the project. Initially the focus of dissemination was on the provision of information about the project, about data collection processes and subsequently, on the analysis of data that was collected.

The project team has developed the following sites:

- A Word Press site (<http://www.studentvoicesproject.com.au/>) provides information about the project and occasional posts to the associated blog were made throughout the project. The website includes a resource library.
- A Diigo site (<https://groups.diigo.com/group/student-voices>) was used to collect project information and disseminate it to the broader community.
- A Drop box was used to share project documents by project team members, including the evaluator.
- Flickr – was used as a storage site for photos taken of the creative events and will likely be used in the forthcoming Sensoria publication.

Below is a list of dissemination activities to date.

Presentations

This section has been excluded as this information appears in Appendix H of this report.

Concluding thoughts

This final section concludes the report with comments celebrating noteworthy achievements and recommendations to the Office for Learning and Teaching.

Achievements

At project completion six of the seven project outcomes were achieved and twelve of the thirteen project activities were completed. The project has been effectively managed and effectively led.

1. The project outcomes have influenced or confirmed policies and strategies at both partner universities.

2. Guidelines, frameworks, models of events and tools for involving learners in the planning, re-shaping and assessment of their Learning Futures have been developed, documented and made available to the sector.
3. Practical recommendations to inform Higher Education policy and strategy about the use of learning technologies, student engagement with learning, learning experiences and expectations, have been provided in the final report.
4. Research questions regarding the impact of new technologies on student learning have been delineated by the project team, so guiding future research in this area.

The following quote from one of the team members reflects the perceptions of the vast majority of the project team members:

Despite its little issues, it's still been a really interesting project to be involved with.

Recommendations to the Office for Learning and Teaching

That the Office for Learning and Teaching consider:

1. allowing projects to start three to six months after project teams have been told that their applications are successful. This would allow time for staffing to be in place for project commencement and possibly provide time for ethics applications to be approved as well.
2. investigating ways in which they can support project teams that are not provided with the work allocation to do the project that the university agreed to in the original application.

Appendix 1: Search terms

This section has been excluded as this information appears in Appendix F of this report.

Appendix H: Publications and presentations arising from the project

Presentations

- Broomhall, J., Govinden, L., Williams, J., Farrugia, M., & Buzwell, S. (2015, March). *Examining the Student Voice in Australian Higher Education*. The Inaugural Swinburne University of technology Faculty of Health, Arts and Design Summer Scholar Conference, Melbourne.
- Burn, C., & McKenzie, J. (2014, May). *UTS learning and teaching technologies planning workshop*, Sydney.
- Buzwell, S. (2013, November). *Valuing student voices when exploring, creating and planning for the future of Australian higher education*. HERDSA/ACU, Melbourne.
- Buzwell, S. (2014, February). *Inside story of the good, the bad and the ugly*. HERDSA/ACU workshop, Melbourne.
- Buzwell, S., & Williams, J. S. (2014, July). *Preventing probation: Disengaged students' visions for the future of Australian higher education*. Seventeenth International First Year in Higher Education Conference, Darwin.
- Buzwell, S., & Williams, J. S. (2014, July). *Valuing student voices when exploring, creating and planning for the future of Australian higher education: Results from a sample of first year students*. Poster session presented at the Seventeenth International First Year in Higher Education Conference, Darwin. Retrieved from http://fyhe.com.au/past_papers/papers14/P16_POSTER.pdf
- Buzwell, S., Farrugia, M., & Williams, J. S. (2014, September) *Student preferences for the future of Australian higher education*. Poster session presented at Swinburne University of Technology's 7th Wave Conference, Melbourne.
- Buzwell, S., Farrugia, M., & Williams, J. S. (2015, September). *Listening to the students' voice regarding the best of the online and f2f world for the purposes of learning*. Paper presentation at Swinburne University of Technology's Transforming Learning Conference, Melbourne.
- Buzwell, S., Williams, J. S., & Farrugia, M. (2014, July). *Valuing student voices when exploring, creating and planning for the future of Australian higher education: Results from a sample of first year students*. Seventeenth International First Year in Higher Education Conference, Darwin.
- Crosby, A. (2014, November). *Valuing student voices: Exploring preferred futures of higher education*. University of Technology, Sydney Teaching and Learning Forum, Sydney.

- Crosby, A., & McKenzie, J. (2015, June). *Student voices, student scenarios: Preferred learning futures for design education*. Cumulus Milan 2015: The Virtuous Circle Conference, Milan.
- Farrugia, M., & Williams, J. S. (2014, October). *Discovering students' preferences for the future of Australian higher education*. Higher Education Research Group of Adelaide, University of Adelaide, Adelaide.
- McKenzie, J. (2015, July). *Student voices and the future of higher education*. Keynote presentation for the Society for Health Administration Programs in Education International Symposium, Adelaide.
- McKenzie, J. (2015, November). *Engaging students in creating learning futures*. ACOE 69 workshop in collaboration with CADAD. Learning ecology: Ecosystems, Sydney.
- McKenzie, J., & Crosby, A. (2015, October). *Engaging students in creating learning futures*. International Society for the Scholarship of Teaching and Learning Conference, Melbourne.
- Williams, J. S. (2013, December). *Utilising innovative techniques to capture student voices in the creation of viable learning and teaching futures*. Inaugural Informa Student Experience Conference, Sydney.
- Williams, J. S., & Buzwell, S. (2013, December). *Valuing student voices when exploring, creating and planning for the future of Australian higher education*. Inaugural Informa Student Experience Conference, Sydney.
- Williams, J. S. & Farrugia, M., & (2014, October). *Tools and techniques for discovering students' preferences for the future of Australian higher education*. Higher Education Research Group of Adelaide, University of Adelaide, Adelaide.

Required reports

- Buzwell, S., Bates, G., Alexander, S., Salmon, G., McKenzie, J., Williams, J., Farrugia, M., & Crosby, A. (2013). *Valuing student voices when exploring, creating and planning for the future of Australian higher education*. Unpublished OLT Progress Report.
- Buzwell, S., Bates, G. A., Alexander, S., Salmon, G., McKenzie, J., Williams, J., Farrugia, M., & Crosby, A. (2014). *Valuing student voices when exploring, creating and planning for the future of Australian higher education*. Unpublished OLT Progress Report.

Future dissemination

The project team successfully applied to edit a special edition of a journal *Sensoria* with the theme of "The Student Voice". The issue is due to be released in December 2015.