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Not a waste of space – professional development for staff teaching in New Generation Learning Spaces

Final Report 2014

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youTube video: http://www.youtube.com/watch?v=U2nPUTMu0p4&feature=youtu.be

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RMIT UNIVERSITY | THE UNIVERSITY OF MELBOURNE

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- recognises that learning is continuous and part of work
- wants immediate access to solutions to enhance performance
- is happy to share knowledge
- relies on a trusted network of friends and colleagues
- learns best independently and from others
- keeps up to date with industry and the profession
- constantly strives to improve productivity
- thrives on autonomy

(Hart, 2013)

List of acronyms used

CPD	Continuous professional development
Curtin	Curtin University
HE	Higher Education
L&T	Learning and Teaching
NAWOS	Not a Waste of Space
NGLS	Next Generation Learning Space
PD	Professional development
PL	Professional learning
PVC	Pro-Vice Chancellor
QUT	Queensland University of Technology
RMIT	RMIT University
TPB	Theory of planned behaviour
UoM	The University of Melbourne
VU	Victoria University

Executive Summary

Students double their learning when university teachers are trained in interactive, evidence-based teaching methods (Deslauriers, Schelew & Wieman, 2011)

The aims of the Not a Waste of Space – professional development for staff teaching in Next Generation Learning Spaces project were to develop a professional learning approach aimed at supporting academic staff teaching in Next Generation Learning Spaces.

Next Generation Learning Spaces are specifically designed to increase active learning and to support a more student-centred approach to teaching and learning. While next generation learning spaces vary in their exact characteristics, they typically are:

- carefully planned to facilitate interactions between students and promote active learning;
- designed to allow for flexible use and arrangement of furniture;
- constructed without a lectern or single whiteboard/screen at the front of the space to enable teaching from anywhere in the room; and
- technology-enabled to encourage active, connected and collaborative learning.

The project responded to the critical need to focus on improving teaching in Next Generation Learning Spaces, since billions of dollars have spent on designing or retrofitting these spaces. Despite considerable investment, there is evidence that their full potential has not yet been fully realised. Additionally, there is limited evidence that current approaches to professional development for academic staff teaching in these spaces are effective.

This project supported academic staff to adopt contemporary learning and teaching approaches when teaching in Next Generation Learning Spaces. The project was underpinned by a belief that staff engaging in effective professional learning impacts positively on student learning outcomes. The project believed that more exciting and sophisticated ways to support teachers to maximise the use of Next Generation Learning Spaces should take centre stage.

The project developed a flexible continuous professional learning approach with activities to support and enhance new ways of learning. Innovative professional learning activities were ‘flexible’, ‘bite-sized’, ‘just-in-time’, and ‘just-for-me’. The professional learning was ‘individualised’ and able to be customised by providing choices for teacher specific needs with access to further specific and specialised knowledge, available online. The approach was underpinned by a strong theoretical framework and used strategies that have been shown empirically to be effective.

In line with this, a ‘pull’ rather than a ‘push’ philosophy was adopted, with academic staff themselves driving their own professional learning within a rigorous, organisational accountability and workplan framework. Systems thinking and theories of contemporary learning (including constructivism, social constructivism, social learning and the theory of planned behaviour), behavioural economics (including choice architecture and gamification), were used to influence behaviour in positive ways. The approach was designed to be interactive, adaptable and support institutions in the challenge of bringing about a paradigm shift in the philosophy and practice of learning and teaching. An eGuide < http://bit.ly/JJieSi>was designed so that the approach could be adopted and adapted by institutions across the higher education sector.

All of the project deliverables were achieved as follows:

- ✓ An innovative flexible, ‘bite sized’, ‘just-in time’ and ‘just-for-me’ professional learning approach, with activities and resources specifically focused on helping staff maximise their teaching in Next Generation Learning Spaces

- ✓ An adaptable step-by-step online institutional implementation "*e*Guide" for the sector
- ✓ A website that documents and showcases the project including a youTube video
- ✓ Increased knowledge of innovative ways to support staff teaching in NGLSs
- ✓ A number of Scholarship of Learning and Teaching (SoLT) papers for publication in ERA ranked journals that document innovation and excellence in professional learning

Deliverables are available to view, download and/or subscribe at <http://www.rmit.edu.au /browse;ID=xnbgfx4a17h3> and include a video about the professional learning approach, online resources, email strategy and the eGuide < http://bit.ly/JJieSi>.

The professional learning approach included **six elements**, a workplan strategy, email strategy, online resources, tear-off guides, bookmarks, posters and local network meetings.

- **Work plans** agreed with line-managers including mid and annual review feedback are the vehicle to agree and anchor professional learning for teaching in Next Generation Learning Spaces in the university system, whilst giving staff choice over their professional learning (Constructivist Learning, Behavioural Economics, Systems Thinking).
- **Online resources** which are relevant, up-to-date, informative, immediately applicable and varied and flexible are available on demand for staff to build their capabilities, 'just-in-time' and 'just-for-them' (Constructivist Learning).
- **Emails** and **quests** are 'push' strategies involving the use of choice architecture and the theory of planned behaviour to keep staff engaged, make it easier for them to stay involved and 'nudge' them to do the 'right' thing. Including badges and a certificate awarded to academics on achieving activities and completing the "Crack the Code" game provide evidence for use in teaching awards and/or promotions (Behavioural Economics, Gamification, Theory of planned behaviour).
- **Tear-off guides** and **bookmarks** using the principles of choice architecture prompt staff in their local contexts to think about their teaching in Next Generation Learning Space and its impact on student learning (Behavioural Economics).
- **Posters** using the principle of loss aversion encourage staff to engage in professional learning activities for teaching in Next Generation Learning Spaces (Behavioural Economics).
- **Network meetings** provide local and social networking opportunities for discussion, exploration and sharing approaches (Constructivist Learning). (See Figure 1.)

The project has made a difference in a number of ways. It has contributed to the substantive body of literature on how to engage academic staff in professional learning to enhance their teaching. It has identified why current practice is not working and proposed a way forward. Over 200 academic staff at RMIT found the professional learning activities useful and indicated that they would trial a change to their teaching as a result. The project has supported a change in the way universities involved in the trials will provide professional learning for academic staff teaching in Next Generation Learning Spaces using the innovative and an alternative approach to traditional professional development.

At the heart of the ongoing success of this professional learning approach will be institutions adopting a systems approach to its implementation, aligning all components. As Senge (1990, p.6) points out, organisations need to,

> …engage in systems thinking...to make the full patterns clearer and to help...to see how to change them effectively.

Integrated Organisational, Cognitive and Behavioural Economic Approach to Professional Learning

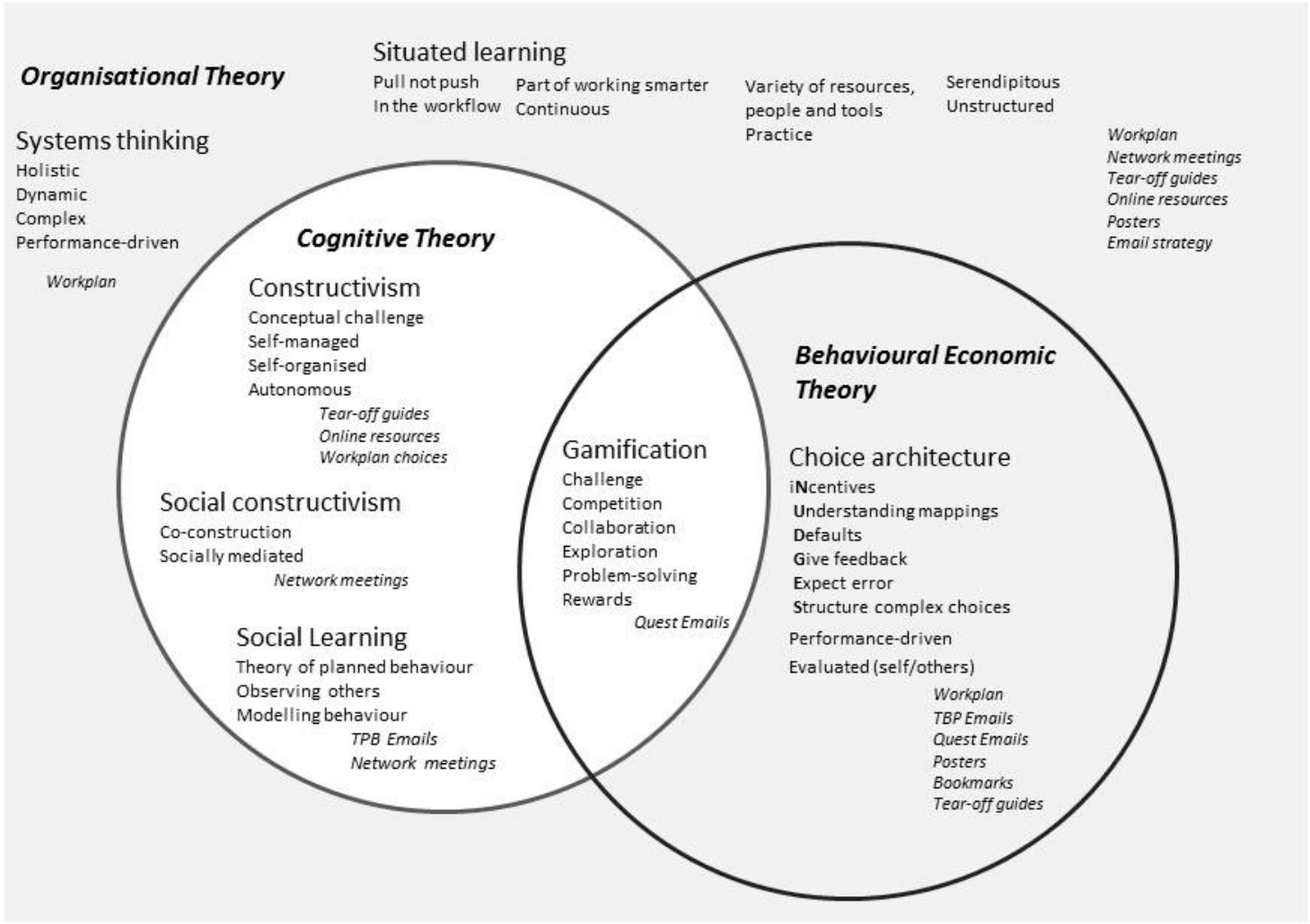

Figure 1. Professional learning approach for teaching in Next Generation Learning Spaces

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Chapter 1 – Introduction

Australian universities have spent millions of dollars transforming teaching spaces into next generation learning environments. As reported by Minister Evans in 2012 "[m]any classrooms and buildings have had much-needed facelifts and many new facilities have been built" (DIISRT, 2012, p.1). Given this significant investment and "[w]ith all the tools now available to us, a failure to create expansive, inclusive, and active learning environments would dishonor the mission of higher education…" (EDUCAUSE, 2009, p. 63).

In this chapter, we outline the context in which the project is situated and the aims and drivers for its development. The overarching goal of the project is discussed and the deliverables outlined.

Context

The trend in funding for Next Generation Learning Spaces appears set to continue into the future. For example, the US planned to spend around US$50 billion between 2004 and 2007 on university physical facilities (Oblinger, 2005). The Australian Government "... infrastructure injection of more than $5 billion is transforming Australia's tertiary landscape – with universities, TAFEs and training centres as well as science and research facilities getting a much needed makeover…This investment was long overdue, serving to address decades of neglect and bring campuses across the country into the 21st century"(DIISRT, 2012, p.3-4). In the UK, £902 million went towards university capital grants in 2008 (HEFCE, 2008) and £562 million has been set aside for 2010-2011 initiatives (HEFCE, 2010). Despite this considerable investment there is evidence that the full potential of these spaces is not yet being fully realised.

The inclusion of Learning Spaces as a strategic priority for Australian Learning and Teaching Council (ALTC) projects has resulted in a number of excellent projects on learning spaces being funded in the area of design and evaluation. Projects have included 'Retrofitting university learning spaces: From teaching spaces to learning spaces' by Mitchell and White in 2010, 'Designing Next Generation Places of Learning: Collaboration at the Pedagogy-Space-Technology Nexus' by Radcliffe and others, in 2008 and 'Spaces for knowledge generation: a framework for designing student learning environments for the future' by Souter and Riddle in 2008. There is also 'A comprehensive learning space evaluation model' (Lee & Tan, 2008), and 'A protocol for developing curriculum-led human-centred next generation learning environments in higher education' (Sherringham, 2008). In contrast, little work has focused on the immediate and ongoing longer term learning and teaching needs of staff teaching in Next Generation Learning Spaces despite the emerging evidence of the benefits to student learning that effective teaching in Next Generation Learning Spaces promote.

It is now well accepted that the approach to teaching that teachers adopt has a profound and lasting impact on student learning. In fact, results of a recent analysis of over 800 meta-analyses (Hattie, 2009) has confirmed that after student factors (which contribute 50% of variation in student learning outcomes) teachers exert the second largest influence on student learning (30%). Thus, the role of the teacher is significant to student learning and achievement. In addition, the effective use of space has been shown to play an important and significant role in learning.

Extensive research focusing on student learning outcomes at North Carolina State University has shown that students (16,000) in the 'SCALE-UP' project (Student-Centered Activities for Large-Enrollment University Physics classes), when compared to 'traditional' classes, experienced significant improvements in their learning outcomes. The primary goal of the SCALE-UP Project [was] to establish a highly collaborative, hands-on, computer-rich, interactive learning environment in large-enrollment physics courses. The spaces were transformed by redesigning the spaces to enable the traditional stand-alone lecture to be integrated with the laboratory (see Figure 2.), with multiple instructors and new curricular

materials. This resulted in a more effective and economical alternative to the traditional transmissive lecture (Beichner, 2000).

The Phase 2 SCALE-UP classroom before renovation, seating 55.

The Phase 2 SCALE-UP classroom after renovation, seating 54.

There is no "front" to the SCALE-UP classroom, as you can see by noting the students looking toward both ends of the room.

Figure 2: Transformation of a Physics Classroom at North Carolina State University (Beichner, 2000 p. 45-46)

Research on the Scale-Up Project (Beichner, Saul, Abbott , Morse , Deardorff , Allain , Bonham , Dancy & Risley, 2007) has shown an increase in learner problem solving ability and conceptual understanding of the subject material. Attitudes toward study and university engagement were also shown to improve, and failure rates for women and minorities were reduced. In addition, 'at risk' students were shown to perform more strongly in later courses. Furthermore, learning in Next Generation Learning Spaces has shown to develop attributes such as teamwork and co-operation, the skills employers desire and expect from contemporary graduates and that increases student work readiness.

Additionally, other studies have shown statistically significant higher academic achievement (Whiteside, Brooks & Walker, 2010) and higher attendance has also been reported (Deslauriers, Schelew & Wieman, 2011).

Overall, all of these findings are associated with increased levels of student engagement with the curriculum and enhanced learning that the effective use of Next Generation Learning spaces can promote when used well.

Given the level of investment and the important role that academic staff play in impacting student learning outcomes outlined above, it is imperative that Next Generation Learning Spaces are used to their full capacity and much needed effort is expended to ensure that this is the case across the sector.

Despite the increasing interest and energy surrounding the use of next generation learning spaces, it is well recognised in universities that attempts to influence the use and uptake of contemporary learning and teaching approaches by academics have not always been met with open arms. Changes to practices on the ground, including student-centred learning and elearning, have been hard won (Bath, Smith, Stein & Swann, 2004; de la Harpe & Radloff, 2006; Newton, 2003).

The culture of academia may not always encourage engagement in professional development for teaching. In general, the primary motivation of academics has been found to be the valuing of research, with its focus on intellectual inquiry, over teaching with the majority prizing research-oriented activities that they believe are more likely to lead to promotion and tenure (Akerlind, 2005). Additionally, many academics believe that there is both a lack of support and resourcing to support teaching, and an increasing administrative workload. According to Trowler and Bamber (2005, p.81 , citing Skelton, 2004), "…[t]his is unsurprising, given the lack of consensus on what constitutes "good" university teaching, and how staff can be prepared for it".

The important and critical role that staff play in the success, or not, of any innovation is often overlooked when projects are implemented. Academic staff have the main responsibility for the enactment of the curriculum, thus the beliefs that academic staff hold about learning and teaching influences the approach they take to their teaching and engagement in professional learning.

In the study by Quinn (2012), academics expressed one of four discourses that impacted on their attitudes towards and engagement with professional development. The first discourse was around an academic's belief that the main purpose of their role was to research and that institutions reward research, expressing views that "[s]pending time on training courses is time spent avoiding the main purpose of a lecturer's raison d'etre at a university"(p.73). Coupled with this conception was the belief that attainment of a PhD automatically meant good teaching and that this meant they would not need to engage in any kind of professional development for teaching. The academics who held these conceptions engaged in "…ignoring all institutional structures aimed at academic staff development". When these academics did recognise a need for development they preferred that it occurred within their department and with peers from the same disciplinary background. These academics believed that being told to undertake professional development for teaching undermined their autonomy and academic freedom and that academic developers lacked any credibility.

The second discourse was around the belief that students were the problem, being underprepared and not at the standard required. Those with this belief indicated that if academics had better students to teach, then they would not need to engage in professional development. Any support should focus on students receiving help and not them, the teachers. Often those with this belief actively undermined the work of academic development units and organised meetings to clash with any professional development activities.

The third discourse was around the belief that teaching is simple, intuitive, focused on skill development and there is nothing to learn about it. If there was anything to learn it would be around public speaking or how to make a PowerPoint slide. Academics with this view saw teaching as a menial and amateurish task with no underpinning theory, as opposed to the real work of research. These staff engaged with professional development aimed at tips and tricks rather than taking a scholarly approach.

The final discourse was around the belief that engaging in professional development would be to satisfy an institutional requirement or a compliance need, fulfilling a policy, or meeting a personal strategic intent, such as gaining promotion. This group see any professional development as an increased burden on their time, preventing them from continuing with their proper jobs. Most academics are employed by universities based on their expertise in a research field, with no requirement for a teaching qualification, despite this being a significant part of their role (Quinn, 2012). They keep up with their discipline knowledge through their research, reading, collaboration, publishing and attendance at conferences, but the other active part of their role, teaching, is often taken for granted. As an academic in the study by Quinn (2012, p.73) responded in an email questionnaire "[s]pending time on training courses is time spent avoiding the main purpose of a lecturer's raison d'etre at a university - research".

In a university world where there is casualisation of staff, massification of student numbers, globalisation of the student body, growing use of technology, an increasing need to develop learner 'agency', and the need to connect what students learn to industry, being an intuitive 'academic' teacher is no longer adequate and knowledge of educational theory and expert practice is now essential (Bok, 2013; Barber, Donnelly & Rizvi, 2013; Bokor, 2012). New ways to develop the capacity of academics to teach are required.

At the same time, however, there are examples of cutting edge innovation in the creation and use of Next Generation Learning Spaces emanating from individual practice and institutional projects. For example in the USA are the TEAL (Technology Enhanced Active Learning) and Scale-Up (a learning environment specifically created to facilitate active, collaborative learning in a studio-like setting) projects in the sciences.

Providing effective continuous professional development support for academic staff when moving to teach in Next Generation Learning Spaces is core to improving student learning outcomes. Staff engagement in professional development on teaching has been shown to have a direct relationship on student learning outcomes (Hattie, 2009). But at the same time getting staff to engage in professional development is notoriously challenging in terms of design, take up and impact (Hattie, 2009; Knight, Tait & Yorke, 2006).

Thus, while the sector has seen cutting-edge innovation, as well as contestation and resistance, a patchy uptake of learning and teaching (L&T) innovations is acknowledged as an issue across the higher education sector, both nationally and internationally (Frame, Johnson & Rosie, 2006; McKenzie et. al., 2005; Southwell et al, 2005). Traditionally, in universities, the adoption of learning and teaching innovations relies on individual academic staff willingness, acceptance and ability to translate ideas into their own teaching practice. However, there is now extensive evidence, both in the literature and anecdotally, that such an approach has had limited success in widespread change of academic L&T practices on the ground (Hacker & Dreifus, 2010).

Aims and Drivers

The *Not a Waste of Space* project aimed to identify and respond to the professional development needs of academic staff teaching in Next Generation Learning Spaces. The project focussed on designing and developing an interactive and adaptable professional learning approach which institutions could adopt or adapt to bring about a paradigm shift in the philosophy and practice of learning and teaching in these spaces.

This project responds to a much needed attempt to support academic staff to adopt contemporary learning and teaching approaches for teaching in Next Generation Learning Spaces. It was underpinned by a belief that effective academic continuous professional development for Next Generation Learning Spaces impacts student learning outcomes; that any approach should be based on principles/strategies that have been shown empirically to be effective; and that there is a critical need to focus on improving teaching in Next Generation Learning Spaces, since space matters to academics. This project focused on these aspects and not on the space *per se*. Given the positive relationship between teaching approaches and learning outcomes (Gibbs & Coffey, 2004), finding more exciting and sophisticated ways to support teachers to maximise the use of Next Generation Learning Spaces should take centre stage in institutions across the sector.

The primary outcome of the project was to develop a professional learning approach with activities aimed at enhancing learning and teaching in Next Generation Learning Spaces. The project did this by providing a suite of flexible *continuous professional development activities for Next Generation Learning Spaces* in order to support and enhance *new ways of learning* for academics. The project explored the development of *innovative professional development activities* for Next Generation Learning Spaces that were '*flexible', 'bite-sized', 'just-in-time'* and '*just-for-me'*. The professional development was 'individualised' and tailored to suit academic specific needs with immediate access to specific and specialised knowledge (available online).

Deliverables

The project deliverables were as follows:

- An innovative flexible, 'bite sized', 'just-in time' and 'just-for-me' continuous professional development (CPD) approach with activities and resources that are specifically focused on utilising Next Generation Learning Spaces
- An adaptable step-by-step online institutional implementation "*e*Guide" for the sector - a practical user friendly online resource for universities that incorporates instructions and validated easily adaptable materials and policy template

    - Active involvement across the sector in the evaluating and validating the materials and implementation of the '*e*Guide' in different organisational settings
- An interactive website using social networking tools that documents and showcases the project and encourages active engagement of a distributed network of colleagues, and builds on existing and previous ALTC project networks
- Increased knowledge of innovative ways to support staff continuous professional development for Next Generation Learning Spaces across the disciplines
    - More effective use of Next Generation Learning Spaces
    - Enhanced academic staff knowledge of and experience in student-centred L&T practices appropriate for Next Generation Learning Spaces
    - Positive student experiences and learning outcomes (as evidenced by student feedback data)
    - Improved understanding of the impact and financial requirements of providing effective continuous professional development for Next Generation Learning Spaces
- A number of Scholarship of Learning and Teaching (SoLT) papers for publication in ERA ranked journals that document innovation and excellence in continuous professional development for Next Generation Learning Spaces

The ultimate goal of the project was to *enhance student learning experiences in Next Generation Learning Spaces* by helping *staff to improve their teaching practices* and to make innovative approached and materials widely available for sector wide use. The project is *innovative* and underpinned by a future oriented philosophy; it is *strategically aligned*; has sector *wide application and impact*, and is *value for money*; responding to a significant need across the higher education sector.

In the next chapter traditional and new approaches to professional learning are discussed.

Chapter 2 – Professional learning that works

The approach to professional development used most widely around the world to enhance academic teaching practice traditionally involves a face-to-face mode of learning in ad hoc, one-off events.

In this chapter we discuss why the traditional approach to academic development is no longer adequate and then argue how the design of professional learning for academics teaching in Next Generation Learning Spaces can, and should, be transformed.

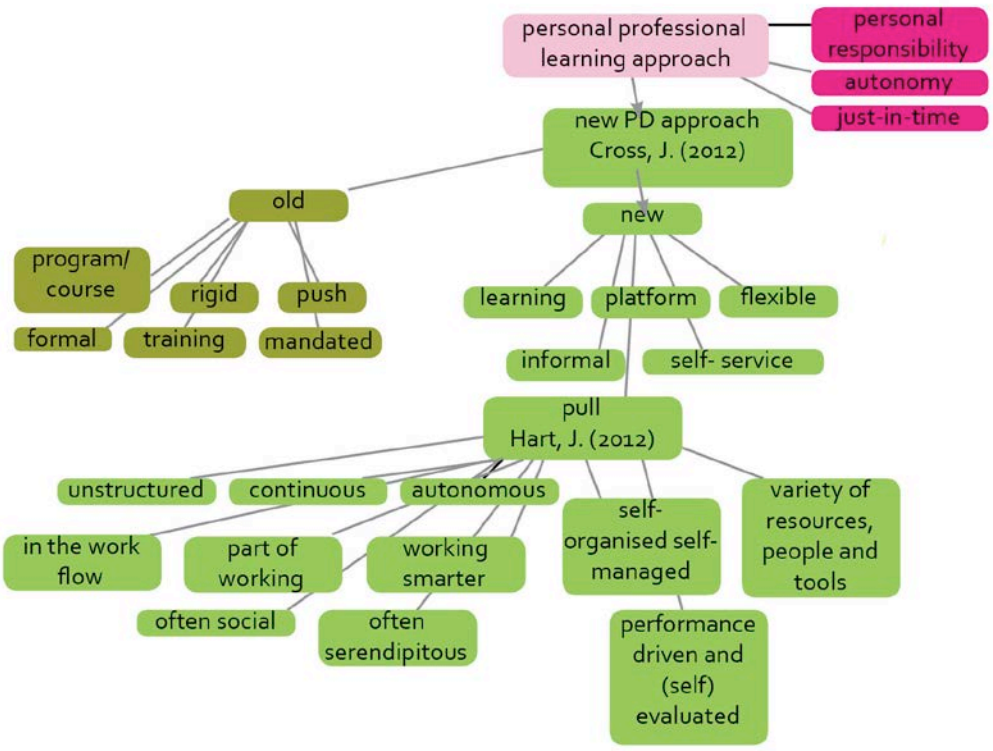


Figure 3. Old and new approaches to professional learning

Traditional approach

Traditionally, institutions have supported academic staff to enhance their teaching practice by using formal learning activities. These usually take the form of workshops, face-to-face sessions, conference attendance, forums with expert speakers, a certified program or some sort of in house training (see Figure 3.). Most universities would also have a staff website dedicated to teaching and learning resources. In addition, online modules are being developed, but these are often focussed more on compliance education rather than learning and teaching, including topics such as, ethics, copyright and occupational health and safety. Similarly, many professional bodies require members to participate in similar types of professional development activities as part of continuous professional development, for example, medicine, architecture, dentistry, to retain their registration to practise. Systems normally involve a compliance model using points or hours based accrual system.

The expectation is that staff will engage with these formal learning activities in a 'just-in-case' manner. This learning approach is about staff undertaking professional development when it is on offer just in case they need the knowledge at some point in the future. This ad hoc approach may or may not directly deal with academics' current needs.

As far back as the mid-80s, questions have been raised around the effectiveness of this traditional professional development approach. As Webster-Wright (2009, p. 703) points out, "…many [PD programs] remain as episodic updates of information delivered in a didactic manner, separated from engagement with authentic work experiences".

Formal professional development with workshops academics attend at set times or 'just-in-case' workshops have been found to be ineffective in developing the professional action of academics (Hattie, 2009; King, 2004; Roscoe, 2002; Wade, 1985). These formal learning activities may increase academic staff professional knowledge but this may not flow on to action in the classroom, course or to students (Hattie, 2009). Additionally, academics are often resistant to engaging in professional development activities often citing lack of time or lack of relevance of program to their context. It is quite common for the staff running the workshops to report lack of attendance despite registrations for workshops/conferences. A study of continuous professional development (CPD) for dentists (Barnes, Bullock, Bailey, Cowpe & Karaharju-Suvanto, 2013, p.5) found that the factors preventing engagement in CPD "…included time since graduation, costs, work and home commitments...interest and convenience" and barriers to implementing change in workplace practice were around "…availability of materials, resources and support from colleagues".

In fact, a meta-analysis of literature that included 91 studies on staff development, concluded that "...of all the different types of training structures, independent study is the most effective."(Wade, 1985, p. 54). Similarly, the study by Birman, Desimone, Porter and Garet (2000, p.29) that explored the evidence supporting the effectiveness (or not) of professional development, found that "[a]n activity is more likely to be effective in improving teachers' knowledge and skills if it forms a coherent part of a wider set of opportunities for teacher learning and development", encourages active learning and is offered over time.

Overall, the traditional approach outlined above is generally 'bolted on', with a focus on surveillance and compliance, and are content heavy rather than learning oriented (Boud & Hager, 2012; Cross, 2010; Feixas & Zellweger, 2010; Hart, 2011; Webster-Wright, 2009;). As pointed out by Hart (2011, p.1), for many organisations "…the current state of workplace learning is one where there is a heavy focus on formal-content-rich courses, pushed down to end-users, and managed, tracked and monitored in command and control systems like an LMS". This type of approach to professional development often leads to a superficial accumulation of knowledge, layer upon layer, rather than an ongoing re-conceptualisation of educational practice (Boud & Hager, 2012; Cross, 2010; Feixas & Zellweger, 2010; Hart, 2011; Webster-Wright, 2009).

New approach

There is significant research that professional learning should be continuous, in the workflow, aimed at staying current, social, self-organised, self-managed, performance-driven and (self)-evaluated (Hart, 2011; Cross, 2010, Boud & Hagar, 2012; Webster-Wright, 2009; Roscoe, 2002). This is because learning happens informally "…in the work setting…from asking questions, hearing stories, watching someone do a task, trial and error, searching Google, talking with the help desk, conversation in the coffee room" (Cross, 2010, p.45) and contributes to workers remaining up to date (see Figures 3.).

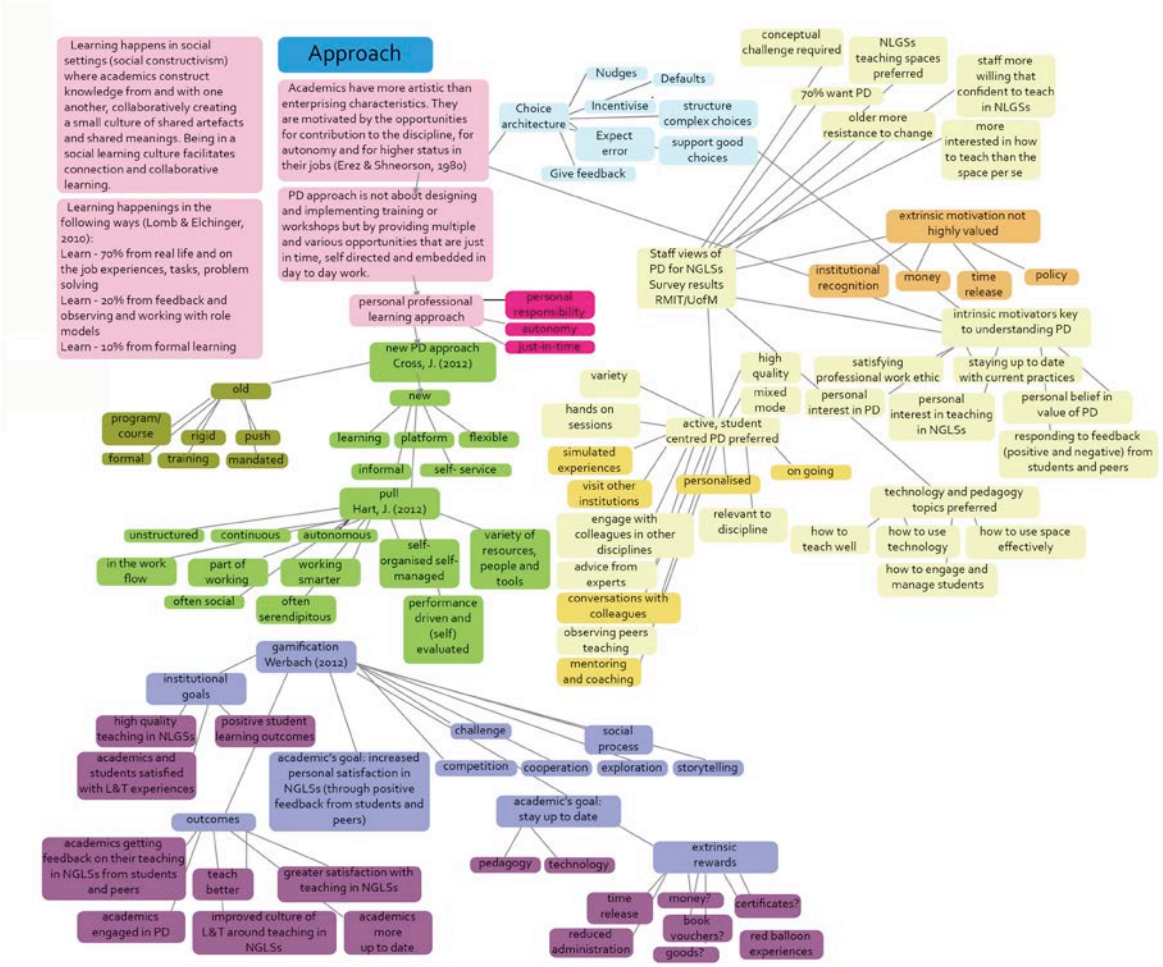


Figure 4. Overall concept map of professional learning for teaching in NGLS

Cross (2010) likens traditional or more formal learning to riding on a bus "[e]veryone starts at the same place, goes to the same destination, and arrives at the same time…[whilst]…[i]nformal learning is more like riding a bicycle. A person starts when he [sic] feels like it. If he's hungry, he may detour to a restaurant. If he chooses to shoot for another destination, he does so" (p.44-45).

Many studies have found that 'informal learning' is a powerful way to learn, with "[s]tudy after study finding that at least 80% of how workers learn to do their jobs…". However, those who advocate that the future of learning for academics is all informal through social networking or through talking with colleagues have not recognised the need for input from the other which lifts the learner to their zone of proximal development. Thus, Cross (2010, p.46) suggests that both formal and informal learning are required and can overlap.

> "[i]nformal learning and formal learning are not either/or. Rather they are spaces on several scales. I don't know of any learning that's 100% formal or 100% informal. Formal learning is generally more appropriate for novices; informal, for experienced workers".

Academics require professional learning which can both be formal or informal depending on their needs. Regardless, both kinds of learning can be based on 'just-in-time' and 'just-for-me' rather than 'just-in-case' methods and can respond to a 'problem of practice' that the academic is experiencing in their teaching at that particular time. Funding needs to be re-balanced since "…eighty percent of the corporate investment in learning flows into formal learning, yet 80% of the results come from informal learning" (Cross, 2010).

This new approach is underpinned by a 'pull' rather than a 'push' philosophy, with academic staff themselves driving their own professional learning within a rigorous, organisational accountability framework (see Figure 4.).

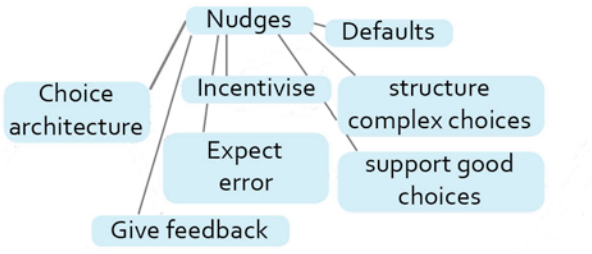
Additionally, a number of new and exciting ideas, methods and strategies have come from researchers in the fields of behavioural economics, gamification and theory of planned behaviour. For example, the influential work from research in the field of behavioural economics has been successfully applied in politics, health reform, sustainability education, accident prevention and substance abuse to positively impact people's behaviour (Thaler & Sunstein, 2009; Avineri, 2012). Similarly, concepts and techniques from game theory are increasingly being applied to non-game contexts with positive results (Werbach, 2012; Gee, 2003; 2004; 2005; 2012). In addition, the theory of planned behaviour has seen significant success in the health industry and organisational contexts by influencing attitudes, social norms and perceived behaviour control (Azjen, 1985; 1991). These offer great possibilities for adaption for use in educational contexts to influence engagement in professional learning and in enhancing learning and teaching in positive ways.

Behavioural Economics

Behavioural economics has shown that people are not always rational decision makers, instead they often make irrational or unpredictable decisions that appear impulsive, habitual or emotional rather than planned and which do not follow the neo-classical economic model of decision-making behaviour (Angner & Loewenstein, 2010).

In their influential book based on Behavioural Economic Theory and Human Psychology, *Nudge: Improving decisions about health, wealth and happiness*, Thaler and Sunstein (2009) argue that rational judgment and decision-making does not always prevail. They provide extensive support and examples of how the way choices are presented influence decision making. They argue that choice architecture does not mandate or prevent choices but rather aims to influence good choices. By designing the choice architecture individuals are 'nudged' to make the "right" decision and are not deprived of their freedom to make decisions and choices. There are six elements that underpin 'nudges'.

Institutions can use behavioural economic theory responsibly to 'nudge' staff by designing choices so that staff are supported to make the 'right decisions'. As pointed out by Avineri (2012, p.7) "[p]eople are influenced by 'defaults' set to them by choice architects". An example of choice architecture at work in an organisational setting is the printing software on individual computers being preconfigured to have double-sided printing as the default option for all printers (Thaler, Sunstein & Balz, 2009).



*i**N**centives*
***U**nderstanding mappings*
***D**efaults*
***G**ive feedback*
***E**xpect error*
***S**tructure complex choices*

Figure 5. Choice architecture with elements of 'nudges'

The six elements are described below and in Figure 5. above.

1. i**N**centives – inviting academics to explore the consequences of a choice: what the is the academic is going to get out of that specific decision? is it worth the time / effort? Is it consistent with their values and other goals? Who else is affected? What is the overall cost/benefit ratio of the choice in question? Are there ways to

make a specific outcome more desirable or more doable? What would the academic be doing differently?

2. **U**nderstanding mapping – helping academics to improve their ability to map and hence to select options that will make them better off. What are the options? What do they really mean? How can they better understand the information re the different options? Can specific effects be mapped? Can the different options be translated the into specific behaviours or action steps? Can the academic be helped to visualise vividly, and in detail, the steps needed to implement an option?

3. **D**efaults –setting baseline options. Because of inertia and because of the "status quo bias" many people, when confronted with options, will do nothing. How can academics be helped to make that "nothing" the better option? How can they improve their situation if they choose not to choose? How can we help them build a better alternative to the choosing in question?

4. Give feedback – providing feedback to academics to help gauge performance. How can academics be helped to set up their own indicators and their own feedback systems? How do they know that things are going wrong? Better still, how can they know when things are about to go wrong?

5. **E**xpect error – helping academics come up with a back-up plan. How can academics be helped to use errors as part of the learning process? What if…? What can they do to prevent errors from happening? Questioning what happened and how that was done? What is the best way to cope with that error?

6. **S**tructure complex choices – helping academics to see different scenarios and using scaling questions to assess progress and solutions.

(Adapted from Terni, 2008)

Additionally, the seven principles from behavioural economics and psychology can inform professional development policy and practices (Dawnay & Shah, 2005). They include that:

1. Other people's behaviour matters: people do many things by observing others and copying; people are encouraged to continue to do things when they feel other people approve of their behaviour.

2. Habits are important: people do many things without consciously thinking about them. These habits are hard to change – even though people might want to change their behaviour, it is not easy for them.

3. People are motivated to 'do the right thing': there are cases where money is de-motivating as it undermines people's intrinsic motivation, for example, you would quickly stop inviting friends to dinner if they insisted on paying you.

4. People's self-expectations influence how they behave: they want their actions to be in line with their values and their commitments.

5. People are loss-averse and hang on to what they consider 'theirs'.

6. People are bad at computation when making decisions: they put undue weight on recent events and too little on far-off ones; they cannot calculate probabilities well and worry too much about unlikely events; and they are strongly influenced by how the problem/information is presented to them.

7. People need to feel involved and effective to make a change: just giving people the incentives and information is not necessarily enough.

Gamification

The use of gamification in education and learning is on the rise (Gee, 2003; 2004; 2005; Werbach, 2012). Gamification methods work by appealing to the human innate characteristics of competition, achieving outcomes, feelings of high status, being able to express emotions and the satisfaction of finishing a task. In addition, being rewarded for completing tasks is a strategy central to games (see Figure 6.).

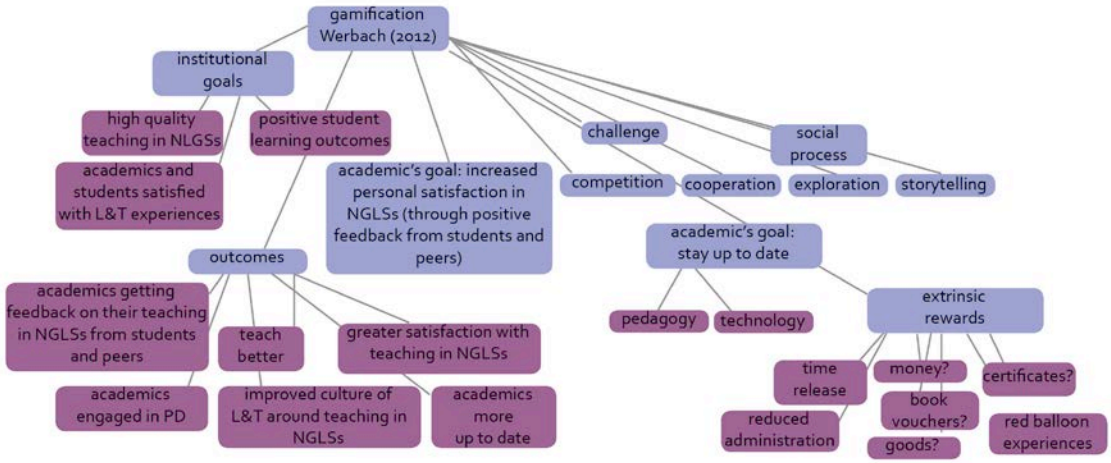


Figure 6. Gamification elements

An example of encouraging competition is the use of leader boards and making completion tasks visible to others. Accruing points, gaining badges, or moving up levels are examples of how rewards work.

Gamification works by drawing on extrinsic or intrinsic rewards that are found to motivate behaviour.

> *Extrinsic rewards* motivate learners to perform a behaviour or engage in an activity in order to earn a reward. Examples of extrinsic rewards include gifts, bonuses, raises, profit sharing, tuition reimbursement, paid or unpaid leave to pursue further education and paid holidays and promotions. They are called "extrinsic" because they are external to the work itself and other people control their size and whether or not they are granted.

Intrinsic rewards are psychological rewards that give individual personal satisfaction and are often derived from doing meaningful work and performing it well.

Gamification in learning involves:

1. Challenge
2. Rules
3. Interactivity
4. Feedback
5. Quantifiable outcomes
6. Linking to emotional reactions

The real power of gaming involves engaging learners through storytelling, visualisation of characters and problem solving. According to Gee (2012, p.xviii), while people can learn things from books, movies and television, for games though, learning is core and unavoidable as it is built into the design.

> Those who engage in playing games do not just do things and make decisions, they learn things and master them. If they do not, they do not leave the first level of a game. Imagine a book that constantly had quizzes and tests at the end of each section (oops, that's a textbook). Few people would consider it fun (few people consider textbooks fun). But games constantly assess players. Every action is a test with feedback, and the boss at the end of a level is a "final exam" for that level. Games have found that both learning and constant assessments of that learning are a "turn-on" for people. And players pay lots of money for this turn-on. The textbook makers can only marvel in envy.
>
> Good games work because they know that learning is a deep drive for humans, a drive that school has managed to kill for many. Games are simply spaces for learning and problem-solving with a "win" condition (beating each level and the game as a whole). But to sell, they have to organise learning in engaging and motivating ways. They have to tap into the innate drive for learning and mastery that is inside all human beings.

Game elements can be adapted to existing tasks. This can be done by adding meaningful choice, increasing levels of challenge, gathering points or badges, engaging in puzzles and quests and incentivising participation. This creates gameful and playful experiences, motivates desired behaviours and can increase fun while learning.

Turning the activity of professional development for learning and teaching in Next Generation Learning Spaces to incorporate the game elements of competition, cooperation, exploration and storytelling, was key to the project.

Theory of planned behaviour

The theory of planned behaviour is a social psychology theory that focuses on the cognitive factors (or beliefs) that can be used to predict an individual's intention to engage in a given behaviour (Ajzen, 1991). According to the theory, intentions are the immediate precursor to the performance of most behaviours (Ajzen, 1991). In general, the stronger the intention to engage in a behaviour the higher the likelihood that it will be performed (i.e. individuals intention to engage in professional learning will predict their professional learning activity). The theory includes three independent predictors of intention: attitudes, subjective norm, and perceived behavioural control (Ajzen, 1991). According to this theory individuals will intend to engage in professional learning to the extent that they believe the likely outcomes of engagement to be favourable, that they perceive social pressure from people who are important to them, and that they feel capable of engaging in professional learning without difficulty.

This theory has been widely applied to the prediction of behaviour across a number of different domains (including engaging in health protective behaviours, voting intentions, eLearning adoption among students, and doctor professionalism behaviours). While the

theory of planned behaviour has rarely been applied to the understanding professional learning, meta-analysis of studies that have applied the theory of planned behaviour to the performance of a range of behaviours suggests that the theory accounts for 27% of the variance in behaviour (Armitage & Conner, 2001).

One study used the theory of planned behaviour to predict teacher's use of the internet for professional development. That study found that the model accounted for 49% of the variance of the teachers' use of the internet for professional development (Demir, 2010). These findings are particularly salient in the context of evidence that academic staff often hold beliefs about professional development that seem likely to decrease their intention to engage in professional learning.

For example, a number of previous studies have found that academic staff often hold negative attitudes towards professional development because they see limited benefits associated with participation (Quinn, 2013; Hunzicker, 2011; Webster-Wright, 2009). In addition to negative attitudes towards professional development, academic staff often report unfavourable subjective norms that impact their intentions to engage in professional learning. For example staff report that their peers (or institutions) do not value professional learning. Additionally, perceived behavioural control may be limited, especially where staff report that professional learning is difficult (time, workload etc.) for them to engage in.

Overcoming negative attitudes, influencing subjective norms positively, and increasing perceived behavioural control will enhance any attempts at providing professional development for academics.

Systems thinking

The Systems thinking paradigm recommends that the local context and the complexity of organisational settings are taken into account when designing, implementing and evaluating interventions (see Figure 7.).

According to Senge (1990, p.48), "[s]ystems thinking is a discipline for seeing wholes…It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static 'snapshots'". Systems thinking is non-linear, additive, ever changing and all-inclusive. It sees the connections between the elements in a larger system as well as the personal dynamic between people (Adam & de Savigny, 2012).

Underlying systems thinking is a problem solving approach that sees systems as "…constantly changing, governed by history and by feedback, where the role and influence of stakeholders and context is critical, and where new policies and actions (of different stakeholders) often generate counterintuitive and unpredictable effects, sometimes long after policies have been implemented" (Sterman, de Savigny & Adam cited in Adam & de Savigny, 2012).

Table 1 Skills of systems thinking

Classical approach	Systems thinking approach
Static thinking	**Dynamic thinking**
Focusing on particular events	Framing a problem in terms of a pattern of behaviour over time
Systems-as-effect thinking	**System-as-cause thinking**
Viewing behaviour generated by a system as driven by external forces	Placing responsibility for a behaviour on internal actors who manage the policies and 'plumbing' of the system
Tree-by-tree thinking	**Forest thinking**
Believing that really knowing something means focusing on the details	Believing that to know something requires understanding the context of relationships
Factors thinking	**Operational thinking**
Listing factors that influence or correlate with some result	Concentrating on causality and understanding how a behaviour is generated
Straight-line thinking	**Loop thinking**
Viewing causality as running in one direction, ignoring (either deliberately or not) the interdependence and interaction between and among the causes	Viewing causality as an on-going process, not a one-time event, with effect feeding back to influence the causes and the causes affecting each other

Source: Modified from Richmond (2000).

Figure 7. Classical versus Systems thinking approaches

Systems thinking is set apart from traditional thinking in that it is purposeful, ongoing and holistic. The classical thinking approach and the systems thinking one are compared and contrasted in the table below (Adam & de Savigny, 2012, p. iv2).

The health industry has, however, found in using systems thinking to bring about reform that, "… conviction alone is not enough—a concerted effort by all stakeholders at all levels is needed to instigate a paradigm shift by supporting new initiatives and new ways of working that integrate systems thinking in everyday practice. Only then will health systems make strides in achieving their desired goals, where lessons from past experiences are valued and acted upon" (Adam & de Savigny, 2012, p.iv3). Equally, this applies to professional learning of academics in higher educational contexts.

The use of systems thinking in professional learning, by taking account of all aspects of the institutional context and the interconnected elements, can mitigate against lost opportunities for improving the teaching of academics and the positive impact this may have on student learning outcomes when ad hoc, 'just-in-case' initiatives are offered.

Future approach

There is a growing body of literature that professional development needs to become more sophisticated to overcome the significant barriers and beliefs that academics hold. More recent literature suggests that more effective approaches are locating professional development in the practice of work, and focussing on enhancing learning rather than knowledge acquisition. Boud and Hagar (2012) argue that "…CPD must be located in what professional do and how they do it" (p.18). In their view, academic learning should be seen as "…a normal part of working and indeed most other social activities. It occurs through practice, in work settings from addressing the work challenges and problems that arrives.

Most learning takes place not through formalised activities, but through the exigencies of practice with peers and others, drawing on expertise that is accessed in response to need. Problem-solving in which participants tackle challenges which progressively extend their existing capabilities and learn with and from each other appears to be a common and frequent form of naturalist development" (p.22).

A model for transformation which can be sustainably applied to the whole of the institution and not simply left up to individual academics or faculties is core (Senge, 1999). Levine (2006, p.109) describes teacher education "…[l]ike the fabled Wild West town, it is unruly and disordered". Using systems thinking the professional learning of academics is a dynamic and complex whole, made up of many elements responding to the academics' individual and varying needs.

In this system, academics choose what, when and how they want to learn to become better teachers. Institutional settings influence their behaviour positively by 'nudging' habits and setting defaults that result in academics having no choice but to make the "right" decisions or do the "right" thing. Multiple and various opportunities that are just-in-time, self-directed and embedded in day to day work and performance-driven and evaluated, are most effective (Thaler & Sunstein, 2009; Avineri, 2012).

This requires commitment from all members of the institutional community and especially the leaders. Whilst the design of Next Generation Learning Spaces nudges academics into needing new ways of teaching, higher education institutions also need to find a new way to support academics in their teaching.

In summary, synthesising the research and theories discussed above, professional learning of the future:

1. *Is holistic* in a *culture* that encourages professional learning
2. *is situated* in *work*
3. *is self-organised* and *self-managed*

4. "*nudges*" good choices from activities that work
5. *Is fun* by using gamification
6. *Is performance-driven* and (self)-*evaluated*

The Not of a Waste of Space project responded to the literature discussed above to design and develop a new approach for professional learning of academic staff based on contemporary learning and organisational theory and by adding elements from behavioural economics, gamification, the theory of planned behaviour and systems thinking. In this new approach, professional learning is holistic, in the workflow, self-organised and self-managed, "nudges" good choices, is fun and performance-driven and (self)-evaluated. It is designed to influence positive behaviour as part of a coherent and systematised institutional framework.

In the next Chapter, the strategies and activities that have been empirically found to impact professional learning positively are outlined.

Chapter 3 – Strategies and activities that work

As discussed in Chapter 2, a professional learning approach based on the literature and that moved away from a traditional approach to a new one was presented.

In this chapter we present the professional learning activities and strategies that have the most likelihood of successfully impacting student learning outcomes. We report staff views regarding these activities and strategies and show how these were used to inform the development of the professional learning approach.

Activities that impact

A number of studies, including a significant meta-analysis by Hattie (2007), have identified the professional development activities that most impact teacher knowledge and/or student learning (Hattie, 2007; Timperley, Wilson, Barrar & Fung, 2007; Wade, 1985). In the table below a number of professional development activities are listed according to the effect they have on student outcomes and/or teacher knowledge.

Table 1. *Professional development activity and effectiveness on student outcomes and teacher knowledge*

Activity	**Effectiveness**	
	Student outcomes	**Teacher knowledge**
Being in a university culture that encourages professional learning	Yes	Unknown
Having current conceptions of teaching challenged	Yes	Unknown
Actively deepening teaching ability through independent self-study (eg. web searches, reading articles and books, watching videos, etc)	Yes	Unknown
Watching or listening to recordings of own teaching	Unknown	Yes
Engaging in hands-on sessions on teaching	Unknown	Yes
Observing peers teaching	Unknown	Yes
Attending training with colleagues from other disciplines	Unknown	Yes
Micro-teaching, which involves videotaping teaching and then analysing practice	Unknown	Yes
Practicing teaching	Unknown	Yes
Participating in 360-degree feedback reviews, which involves receiving feedback on teaching from students and colleagues	Unknown	Yes
Having conversations with colleagues about teaching	Necessary but not sufficient	Unknown
Getting advice from external experts	Necessary but not sufficient	Unknown
Applying best practice research in teaching practice	Necessary but not sufficient	Unknown
Participating in a professional learning group	Necessary but not sufficient	Unknown
Undertaking activities on teaching over time	Necessary but not sufficient	Unknown
Attending externally-hosted sessions on teaching	Necessary but not sufficient	Unknown

Being directed to undertake professional development activities on teaching	Necessary but not sufficient	Unknown
Undertaking formal study on teaching (ie Grad. Cert in Tertiary Teaching)	Necessary but not sufficient	Unknown
Attending a lecture on teaching	Unknown	No
Being coached/mentored about teaching	Unknown	No
Reading instructional material	Unknown	No
Undertaking a guided field trips to other institutions	Unknown	No
Engaging in a simulation/game about teaching	Unknown	No
Completing a residency at another institution focusing	Unknown	No
Undertaking a secondment to a Learning and Teaching unit	Unknown	Unknown
Undertaking an exchange in another institution	Unknown	Unknown
Undertaking a sabbatical	Unknown	Unknown
Learning from how one was taught as a student	Unknown	Unknown

As shown in Table 1. above, the teacher activities that are most likely to impact student outcomes, (that is student learning and grades) include:

- being in a university culture that encourages professional learning
- challenging academic conceptions of teaching
- actively undertaking independent self-study to enhance teaching ability (eg. web searches, reading articles and books, watching videos, completing a self-paced module, undertaking a MOOC)

Activities that are necessary but not sufficient on their own are:

- participating in a professional learning group
- developing experience in teaching by undertaking activities to enhance teaching practice over a prolonged period of time
- attending externally hosted sessions on teaching
- being directed to undertake professional development activities on teaching
- undertaking formal study on teaching such as a Graduate Certificate in Tertiary Teaching and Learning

On the other hand, an increase in teacher knowledge was influenced most by undertaking micro-teaching (which involves videotaping teaching and then analysing practice); watching or listening to recordings of own teaching; engaging in hands-on sessions on teaching; observing peers teaching; attending training with colleagues from other disciplines; practicing teaching; and participating in 360-degree feedback reviews (which involves receiving feedback on teaching from students and colleagues).

The strategies that increase teacher knowledge have, however, been shown to have little effect on teaching practice and even less effect on influencing student learning (Hattie, 2009) and would thus not be recommended at this stage to form a core part of a contemporary professional learning approach.

Additionally, whether staff were funded to participate in professional learning, given time release to do so and whether their participation was voluntary or mandated made no difference to student learning outcomes (Timperley, Wilson, Barrar & Fung, 2007).

Many of the activities and strategies outlined above and found to be most effective or necessary but not sufficient can be grouped under cognitive theory, specifically, constructivism (cognitive challenge and independent, self-directed active learning, undertaking activities over time, undertaking formal study on teaching) and those that are necessary but not sufficient can be classified under social constructivism (participating in a professional learning group and attending externally hosted sessions on teaching). Being in a culture that encourages professional learning, and being directed to undertake professional development activities on teaching all relate to the broader organisational context or system and or behavioural theory.

What academics say

Based on the activities identified in the literature, and shown in Table 1. above, a scoping survey was designed.

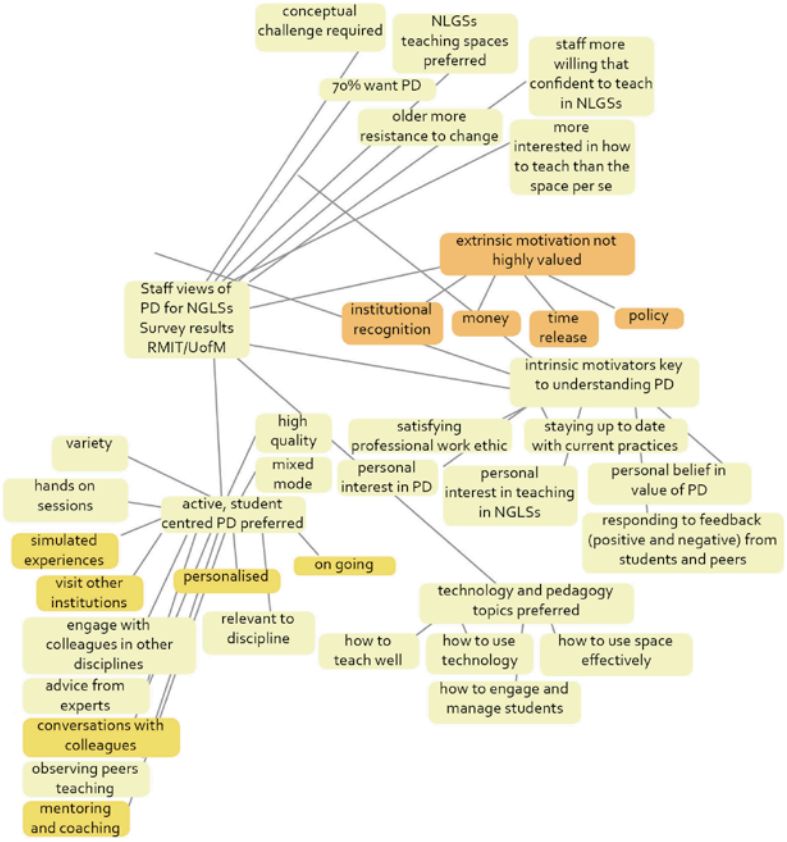


Figure 8. Academic staff professional learning preferences

Survey questions sought academic staff preferences in relation to professional development for teaching in next generation learning spaces, including academic staff:

- needs for profession development,
- preferences for professional development activities,
- views on incentives for undertaking professional development.

The survey comprised 25 items with 20 multiple choice questions and 5 open-ended ones.

The voluntary online survey was administered in Semester 1, 2012 at RMIT University and The University of Melbourne to gather feedback from academic staff.

At RMIT University the survey was sent via email to all academic staff by the Deputy Vice-Chancellor (Academic), while at The University of Melbourne the email was placed in the online staff portal for academics to access. Two hundred and eleven academic staff members responded to the survey (183 RMIT; 28 UoM).

Key findings from closed response questions

The findings below are based on the responses from the 183 academic staff at RMIT who responded to the survey (See Appendix 1. Analysis of Academic Survey and Figure 8.). The findings are based on the perceptions of those 183 staff who voluntarily provided their responses to the survey questions. Please note that given this and the small sample size the findings may not be representative of the population at large and must be interpreted with care.

Analysis of the 20 multiple choice questions suggested the following about providing professional development for academic staff teaching in new generation learning spaces:

- The overwhelming majority (74%) of academics who responded wanted professional development **to help them teach** in new generation learning spaces
- Academic staff wanted professional development to be **active and student-centred**, rather than through lectures (disciplinary backgrounds did not influence this preference)
- The **highest rated strategies** for professional development were engaging in hands-on sessions, observing peers teaching, having conversations with colleagues, engaging in professional development with colleagues from other disciplines, getting advice from external experts and practising in NGLS
- **Blended approaches** (online and face-to-face) for providing professional development were preferred, though this was age dependent, with younger academics preferring online and older academics preferring face-to-face contact
- The areas that academics wanted professional development to focus on were **'pedagogy - how to teach'** and '**technology** - **how to use it'**
- How to teach well, use technology, engage and manage students, use the space effectively were the areas **that challenged academic staff** the most
- **Intrinsic motivation** was the driver for academics to undertake professional development, rather than through extrinsic motivation such as gaining recognition by the institution, time release or money. Satisfying professional work ethic, personal interest in teaching in NGLSs, interest in professional learning, staying up-to-date with current teaching practice, responding to positive feedback from students and personal belief about professional development encouraged staff to undertake professional development
- **Older academics** tended to be less encouraged to engage in professional development by additional payment and by directives from heads of schools and more encouraged by a need to stay up-to-date with current teaching practice, satisfying their own professional work ethic and their own belief in professional development
- Academic staff were **more willing than** they were **confident** to teach in NGLSs
- **Casual staff** were slightly less confident than continuing and fixed-term staff to teach in NGLSs
- **Continuing staff** were less likely than casual and fixed-term staff to undertake professional development, regardless of professional development method. They were also less likely

than casual and fixed-term staff to undertake professional development if it was a directive from a Head of school or a university policy that required all teaching staff to undertake professional development

- The **more staff taught** in NGLSs the more confident and willing they were to teach in NGLSs
- Staff who did not want professional development to teach in Next Generation Learning Spaces reported that they were **significantly less confident** in using Next Generation Learning Spaces

Professional development activities based on effectiveness according to Hattie (2010), Timperley, Wilson, Barrar and Fung (2007) and Wade (1985), were ranked by academic staff and colour-coded. Activities that impacted student learning outcomes are blue, those that were necessary but insufficient are green, activities that impacted teacher knowledge but not student learning outcomes are orange and those had a low effect on teacher knowledge are red. Staff top ten and lower ranked professional learning activities are shown in Figure 8.

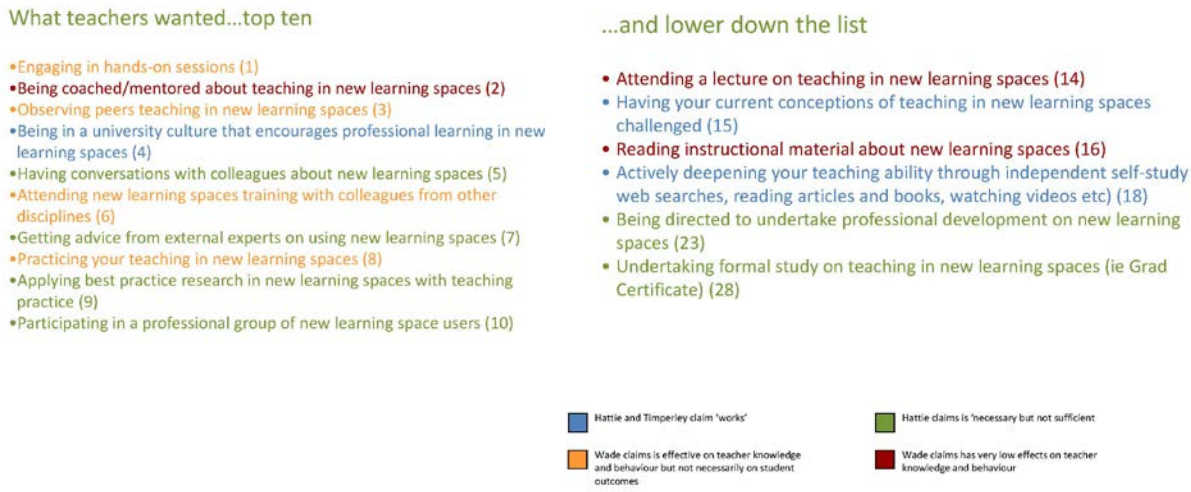


Figure 9. Rank order of professional development activities by academic staff

From Figure 9., only one activity that Hattie identified as impacting positively on student learning outcomes was ranked highly, in the top ten, by staff, namely, being in a culture that encourages undertaking professional learning about teaching in Next Generation Learning Space. A number of strategies that have been identified as necessary but not sufficient, including hands-on sessions, peer observation, attending training with other colleagues from other disciplines and practicing teaching, were listed in the top ten. Interestingly, being coached or mentored was listed second yet this has been identified to have low effects on teacher knowledge and student learning outcomes.

Key findings from open-ended questions

Overall, responses from the open-ended questions (see Appendix 1) supported the quantitative findings that academic staff wanted professional development aimed at helping them to teach effectively in Next Generation Learning Spaces, with a particular focus on pedagogy and technology.

- *my teaching would improve if I had access to, and training in practical approaches to teaching in New Generation Learning Spaces.*
- *how to effectively and creatively teach … using the facility/ space in creative ways -*
- *enable best use of the space, where to position power points to enable students to see & be involved*

- *the technology is new and the design does not easily suite a full class discussion. Need support with mechanisms to adapt learning techniques to this new environment.*
- *yes to be taught how to effectively use technical equipment*
- *I need support to ensure I was confident using the technology in the space*

In terms of pedagogy, academics were most interested in professional development in Next Generation Learning Spaces that was focussed on engaging students, classroom management and adapting assessment.

- *practical ideas for maximising engagement and effectiveness of group work*
- *development of student interaction activities*
- *how to engage students - how to make classes enjoyable - utilising teaching time effectively so students have the knowledge to continue their own study outside of class.*
- *keeping students actively participating*
- *facilitating and ensuring student interactions are learning-related*
- *continually devising challenging interaction activities to engage the student and developing tasks for various groups of students while working on the same task*

- *classroom management*
- *managing the classroom dynamics in a 360 degrees space*
- *getting student's attention, ensuring everyone can hear*

- *looking at new assessment strategies that can be used in NGLS*

The ways in which academics most wanted professional development support were through hands-on practice, observation of peers and peers sharing their experiences.

- *hands-on practice*
- *practical hands on experience in the classroom with an expert teacher using real examples of the sorts of activities that can be done in this space.*
- *exemplars of others - could be videos online*
- *watching other teach in the spaces*
- *I'd like to observe, listen to, and speak with those academics/teachers who have recent practical experience using these spaces*
- *observing colleagues who are recognised for their innovative pedagogy in such*
- *hearing from peers*

Academics provided a number of useful ideas for professional development support including using multi-modes, providing support in local contexts, ensuring facilitators were authentic, customising the approach to the discipline, making it easy and implementing change slowly.

- *the use of multimodal resources, e.g. short videos, tip sheets etc for just in time learning & PD*
- *hands on face-to-face is a more 'active' form of learning how to use these spaces*
- *look outside the traditional method of delivering via Semester mode - look at intense units, online delivery*
- *that it is local, respectful of and informed about existing good practice and recognises local objectives and needs first.*

- *please seek out facilitators who are current practitioners of NGLS as they bring an authentic, 'real world experience' narrative. Not really interested in hearing from 3rd party observers/experts who haven't been in front of a class for years, theorising and re-interpreting the concept.*
- *professional development in NGLS needs to model very effectively not just talk about*
- *it has to be relevant to the subject matter.*
- *the NGLS will require (possibly) radical and ad hoc transitions from current practice. A customised approach may be necessary (essential), from a disciplinary perspective, requiring discipline champions to be used in a targeted approach*

- *there will be a time of experimentation and innovation... this is to be expected... just need to make sure that the environment and its configuration and usage is EASY*
- *make access easier so it enables people to come in and play around with the set up to see what is possible so that it encourages use.*
- *change slowly and gradually*
- *approach it with a view that many old fogeys will resist the change… break us in gently*

Those who indicated that they did not want professional development reported that this was because they already taught in a Next Generation Learning Space, could handle the environment and could teach themselves, or did not want help with their teaching.

- *I have already used this type of teaching format for many years.*
- *feel I would be quite capable of handling the new space.*
- *I do not want anyone helping me teach.*

For those who indicated that they did not want professional development, learning something new or different, engaging in a different mode of professional development, acting in response to something not working well in their teaching, or being convinced that it would be worthwhile would change their minds about engaging in professional development.

- *the providers would need to demonstrate that they had something new to offer*
- *should there be any new teaching techniques which have been shown to be effective in improving learning in such an environment then I would like to be made aware of them*
- *training podcasts could be useful*
- *if it became evident that I was not using the facilities easily*
- *a compelling statistically sound and measured advantage which required me to attain new skills in order to utilise such a space*

The feedback from academics via the survey outlined above, combined with the literature informed the development of the professional learning approach and the strategies and activities used, see Table 2 in the next Chapter.

In the next chapter, we outline the professional learning approach for teaching in Next Generation Learning Spaces.

Chapter 4 – The professional learning approach

Introduction

The professional learning approach for teaching in Next Generation Learning Spaces was based on integrated organisational, cognitive and behavioural economic theory approach and incorporated formal and informal learning activities and strategies that have empirically been found to work and responded to the views and needs of academics on the ground.

In this chapter we outline the professional learning approach which comprises six elements, namely a work plan strategy, email strategy, online resources, tear-off guides, posters and bookmarks, and network meetings.

The outcomes of the professional learning approach were as follows:

> For the institution – academics engaging in and completing professional development; improved teaching; staff up to date, at the cutting edge and more satisfied; improved culture of learning and teaching.
>
> For the academics – teaching better in NGLSs; up to date; at the cutting edge; getting positive feedback (students and peers); personal satisfaction from teaching well; getting support that is individualised, useful and at the right level; students learning more.

The resultant professional learning approach allows for individualised and flexible professional learning that works for both the novice and the more experienced academic in their everyday contexts. An overview of each of the elements is provided below. More detailed information on how to customise and implement the elements is in the eGuide < http://bit.ly/JJieSi> see Appendix 3.

Professional learning elements

1. Work plan strategy

At the heart of this approach is a mechanism that ensures staff members take responsibility for their own professional learning and are accountable for taking action.

This approach allows staff choice in what, when and how they want to learn or engage, but within a system where outcomes are evaluated. This process involved the staff member creating/agreeing an objective on enhancing their teaching in Next Generation Learning Spaces, determining activities to achieve the objective and setting performance indicators to measure success as part of their work plan and mid and/or end of year review.

Where an online work planning system is available an institutional objective could be cascaded to prepopulate the work plan of all staff who are teaching in a Next Generation Learning Space. Additionally, a set of purposefully selected and relevant activities that have shown to be most effective could be provided from which staff could choose. For example, in this implementation staff could choose from a peer partnership program, self-directed study, a peer review or a module from the Graduate Certificate Tertiary Teaching and Learning.

The workplan strategy draws on recent literature (Hart, 2011; Cross, 2010) that suggests having processes that require staff to self-manage their learning needs within a clear accountability framework is most effective.

It is also underpinned by choice architecture, also known as a ‘Nudge’ theory. According to Thaler and Sunstein (2008, p.4), “[g]ood [choice] architects realize that although they can’t build the perfect building [professional learning program] they can make some design choices that will have beneficial effects”. Thus, choice architects can indirectly influence

how others behave by changing environments that then nudge habits and set defaults, making it easy for people to make the “right” decisions or do the “right” thing. If most people take the easy option or the path of least resistance then institutions should aim to make this the easiest choice for staff to make.

See eGuide for more detailed information on how to implement the workplan strategy.

2. Email strategy

Academic staff who were timetabled to teach in a Next Generation Learning Space were identified through the institutional timetabling system.

Personalised weekly emails (with staff member’s name and room number) were sent to these staff over the course of a Semester. There were 14 emails in total. Four focused on encouraging staff to undertake professional development and provided resources (Theory of planned behaviour), while eight invited staff to participate in a professional learning game, comprising 8 quests (Gamification).

Theory of planned behaviour Emails

The four emails that encouraged staff to engage in professional learning and provided resources were underpinned by the theory of planned behaviour (Ajzen, 1985). According to the theory of planned behaviour , a person is most likely to intend to engage in a behaviour if they evaluate that behaviour positively (attitude towards the behaviour), perceive social pressure to engage in the behaviour (subjective norm) and believe that the behaviour will be easy to perform (perceived behavioural control)(see Figure 10.).

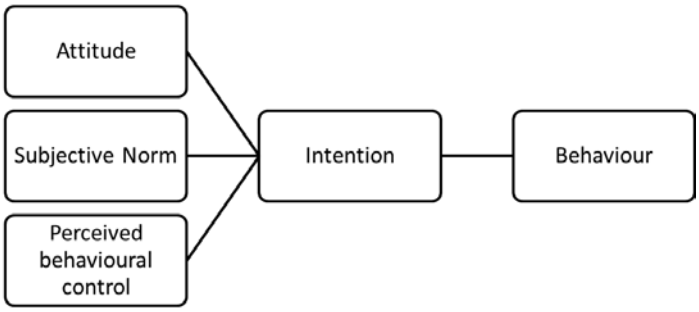


Figure 10. Elements of the theory of planned behaviour

According to the theory, attempts to alter behaviour should focus on changing these three factors. Emails were written to encourage intentions to engage in professional learning. Consistent with the theory, these emails focused on changing all three factors in order to increase engagement with professional learning (see Table 2).

Table 2. *Summary of TPB strategies used to promote professional learning for Next Generation Learning Spaces in NaWoS emails*

Theory of planned behaviour variable targeted	Behaviour change technique	Definition	Example
Attitude	Provide general information on the material consequences of behaviour	Information focusing on what will happen if the person performs the behaviour including the benefits and costs (or negative consequences) of action or inaction.	Provide evidence that that engaging in professional learning will lead to positive outcomes for staff and students
Subjective Norm	Provide information about others' behaviour	Information about what other are doing i.e., indicates that a particular action or sequence of actions is common or uncommon amongst a group.	Provide information about other staff members level of engagement with professional learning activities
	Provide information about others' approval	Information about how other people/ specific others judge/ approve of the participant's behaviour.	Provide information about peers' beliefs about the need for staff to engage in professional learning.
	Provide opportunities for social comparison	Provide a setting in which social comparison can occur.	Prompt staff to discuss use of Next Generation Learning Spaces with colleagues.
Perceived behavioural control	Arguments to bolster self-efficacy	Involves telling the person that they can successfully perform the behaviour, arguing against self-doubts and asserting that they can and will succeed.	Statement that professional learning is quick and easy to engage in successfully.
	Provide instruction	Telling participants how to perform a behaviour or preparatory behaviours e.g., instructions providing "tips".	Provide resources as examples of successful professional learning for teaching in Next Generation Learning Spaces

An example of a theory of planned behaviour email is shown below in Figure 11.

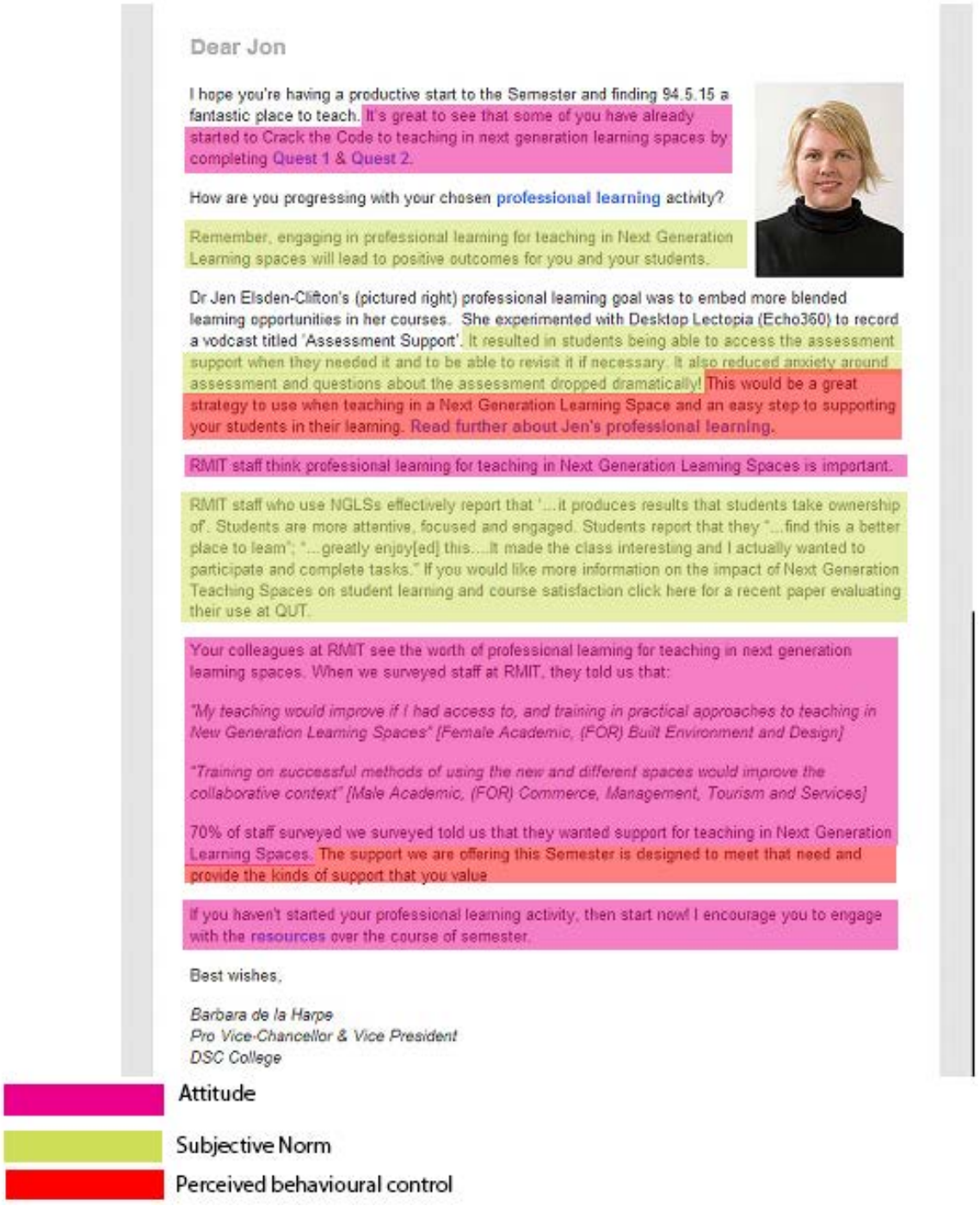


Figure 11. Example email showing elements of the theory of planned behaviour

Gamification emails

The eight gamification emails invited academics to engage in an interactive "Crack the Code" game involving eight Quests. The quests were designed to engage academic staff in exploring the opportunities that Next Generation Learning Spaces offer (see Figure 12.).

At the completion of each Quest the academic staff member received a redeem code or passcode. They then were asked to submit this code to a website whereupon they received a

badge for their efforts. The badge contained a letter – one of the letters towards cracking the code to teaching in Next Generation Learning Spaces game. Once the code is cracked the academic received a certificate of completion from the Pro-Vice Chancellor.

On the way to "cracking the code" extrinsic and intrinsic elements were employed. Extrinsic elements involved a variety and choice of professional development activities; coffee vouchers and a certificate that could be used for promotion or teaching award applications. Intrinsic elements included academics engaging in professional development activities that supported them to teach better, helped them to stay up to date, be on cutting edge and maintain currency. It also provided a sense of satisfaction from achieving the quests and cracking code.

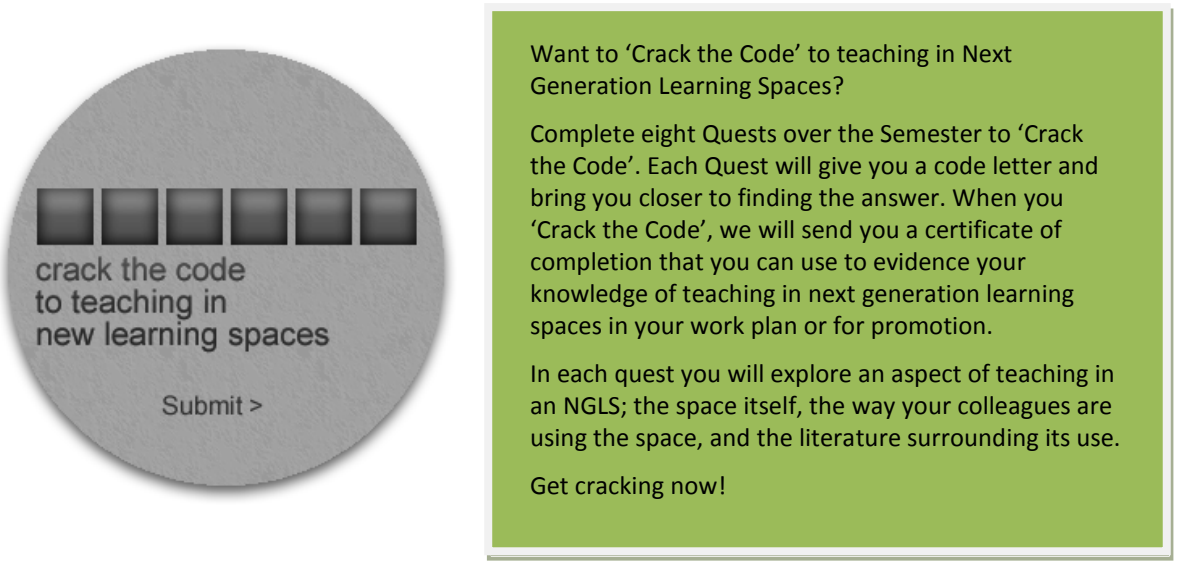


Figure 12. Introduction to Crack the code game

Applying game elements and techniques by game designers in non-game settings or activities is known as gamificaiton (Werbach, 2012). Gamification was used to incorporate elements of social learning, competition, cooperation, exploration and storytelling into professional learning activities.

The purposeful combining of learning and fun may not occur very often in traditional professional development approaches. There is, however, a need for more 'fun' in contemporary tertiary learning contexts. Injecting an element of fun and excitement through thoughtful well designed and managed 'healthy' competition is suggested as one way to engage and foster learning (Schindler, 2008; Verhoeff, 1997). In fact, "[h]ealthy competition focuses on doing one's best, having fun, and learning skills". Fun in and while learning is shown to promote teamwork and positive participation, with those who make a strong effort and strive to improve themselves usually advancing (http://www.parentstoolshop.com/HTML/STARTIP_ competition.htm). Providing opportunities for staff to participate in creative, fun and well designed and beneficial activities at a time that suits them may increase engagement.

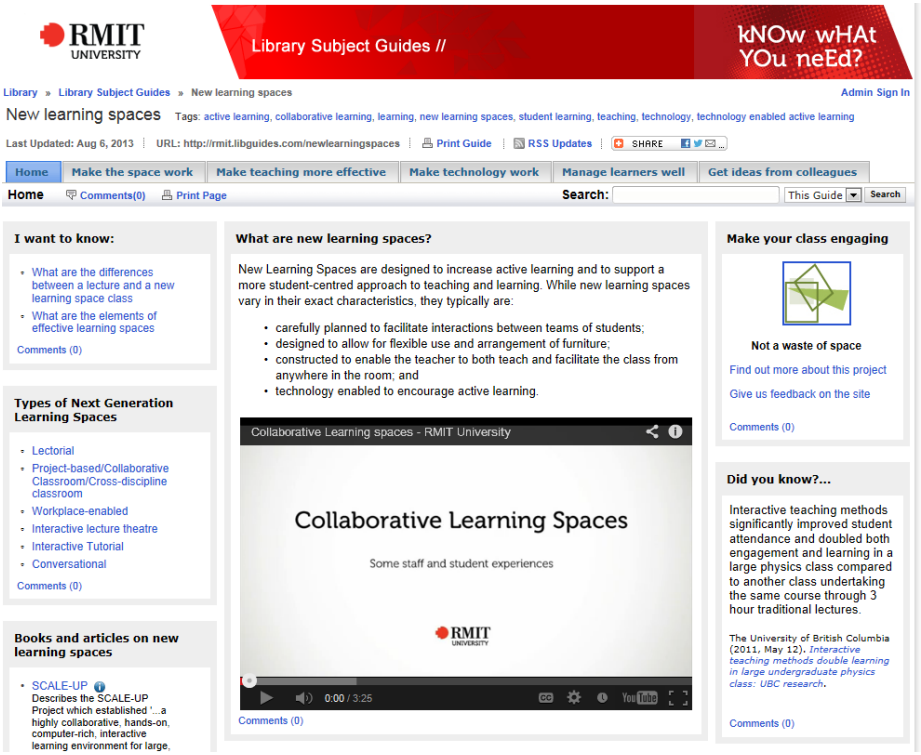
3. Online resources

A library guide (see Figure 13.). was designed to house all the resources relating to teaching in Next Generation Learning Spaces in the one space - <http://rmit.libguides.com/newlearningspaces> A library guide was chosen as the SpringShare software that the library guides uses has been adopted by most universities in Australia and would, therefore, be simple for other universities to adopt and adapt. It was also very easy to use and sustainable since the librarians agreed to curate it and ensure it was kept up to date with current links.

The guide was divided into five sections: Make the space work; Make teaching more effective, Make technology work, Manage learners well and Get ideas from colleagues.

These sections were chosen as a result of the feedback from the initial scoping survey as to what support academics staff said they needed conducted at RMIT and The University of Melbourne on teaching in Next Generation Learning Spaces (See Chapter 3). The resources were varied and included articles, videos, case studies, links to other university sites on assessment or group work for example. The very best of the numerous resources already available online were packaged for academic teaching staff. See <http://rmit.libguides.com/newlearningspaces>

Figure 13. Online resources available through library guide



4. Network meetings

Four Network meetings were held in each school during the semester. These were designed to be facilitated by the local learning and teaching liaison staff responsible for learning and teaching support in each school. Schools were given a moderate budget for catering and for guest speakers. Where there is no local learning and teaching representative dedicated to a school, a local champion can be nominated.

Learning and teaching liaisons were given the list of academics in their School who were teaching in Next Generation Learning Spaces. They then sent an invitation to these staff members inviting them to join the school network meetings. These meetings were contextualised depending on the needs of the school staff members and were thus organised in different ways. Some schools brought in external guest speakers to prompt discussion about teaching in Next Generation Learning Spaces. Other schools invited staff to speak about how they teach in a Next Generation Learning Spaces. Others facilitated sessions for staff to bring along their 'problems of practice' in teaching in these spaces for peer feedback and discussion. Nevertheless, they all provided a social, face-to-face environment for staff members who wanted to learn in this way.

5. Tear-off guides

Tear-off guides outlining teaching strategies for encouraging more interactive use of the space were developed and placed in the Next Generation Learning Spaces for academics teaching in the space to 'tear off' and use in their classes. These included strategies such as "Think-Pair-Share" or "Plus-Minus-Interesting" or "Role playing" (see Figure 14.).

The tear-off guide strategy was underpinned by choice architecture and behavioural economic theories, in that easy access to teaching strategies were available in the spaces in which academics were teaching. This made it easy for academics to learn about other ways of teaching and provided step by step instructions on how to implement them.

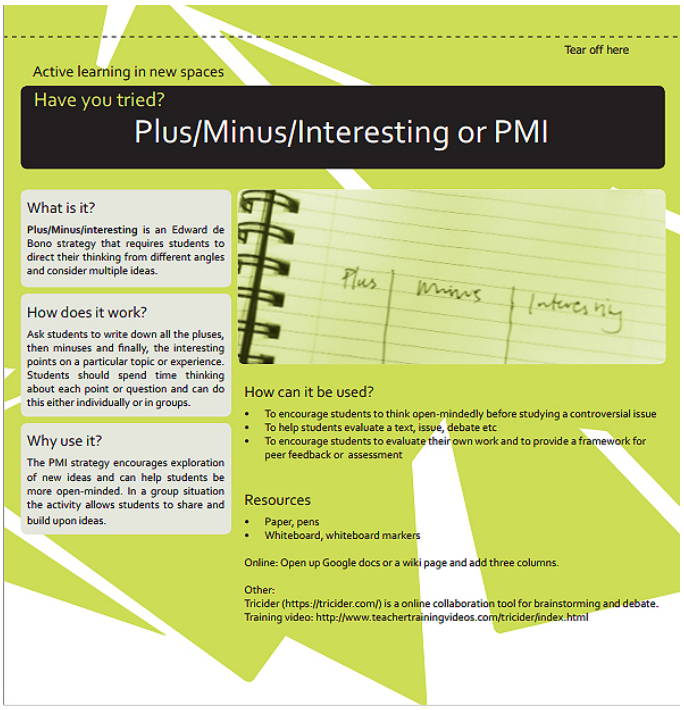


Figure 14. Example of tear-off guide placed in Next Generation Learning Space

6. Poster and bookmarks

Posters were developed that drew on the theory of loss aversion (behavioural economics) (see Figure 15.). Research suggests that negative messages about what might be lost are more effective on changing behaviour than positive messages (Kahneman & Tversky, 2000; Fuller, 2009). It has been successfully employed by the Transport Accident Commission such as the "If you drink then drive, you're a bloody Idiot' advertisements and/or stop smoking campaigns.

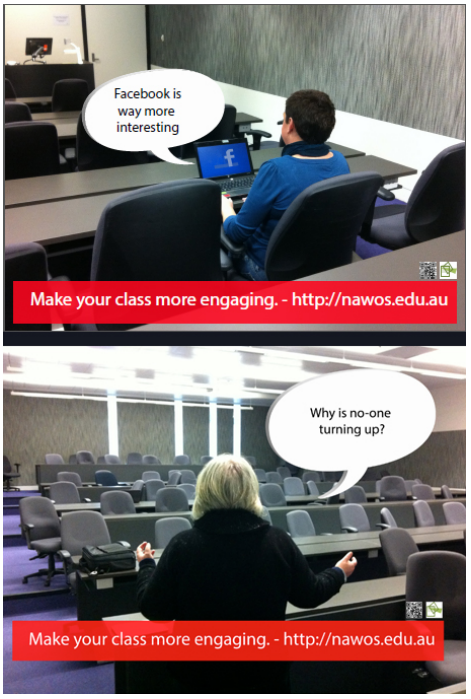


Figure 15. Posters based on loss aversion theory

Bookmarks were also designed as prompts to remind and encourage staff to engage in their professional learning (See Figure 16.). These drew on choice architecture, specifically "nudges". The bookmarks included the link to the library guide and included the name of the learning and teaching representative in the school. QR codes were used so that academic staff could simply go straight to the library guide using a QR reader on their phone or tablet making it easy for them to access information.

Figure 16. Bookmarks

Putting it all together

In Table 3. and Figure 1. below, the six elements of the professional development approach are mapped against the theories and the strategies and activities shown to be effective on impacting student learning outcomes and teacher knowledge.

Table 3. *Professional development activity and effectiveness on student outcomes and teacher knowledge mapped to professional learning approach and academic feedback*

Activity	***Effectiveness***		***Strategies and activities used in the PL approach***	***Academic ranking****	***Theory***
	Student outcomes	*Teacher knowledge*			
Being in a university culture that encourages professional learning	Yes	Unknown	Work plan strategy, Posters, Bookmarks, Tear-off guides	4	Systems
Having current conceptions of teaching challenged	Yes	Unknown	Email strategy (Quests and TPB), Network meetings, Tear-off guides, Online resources, Network meetings	15	Cognitive (Constructivist, Social Constructivist)
Actively deepening teaching ability through independent self-study (eg. web searches, reading articles and books, watching videos, etc)	Yes	Unknown	Work plan strategy (Choice of PD), Email strategy (Quests and TPB), Online resources	18	Cognitive (Constructivist)
Watching or listening to recordings of own teaching	Unknown	Yes	Not used	21	Cognitive (Constructivist)
Engaging in hands-on sessions on teaching	Unknown	Yes	Network meetings	1	Cognitive (Constructivist)
Observing peers teaching	Unknown	Yes	Work plan strategy (Choice of peer partnership, peer review)	3	Cognitive (Social Constructivist, Observational learning)
Attending training with colleagues from other disciplines	Unknown	Yes	Network meetings	6	Cognitive (Social Constructivist)
Micro-teaching, which involves videotaping teaching and then analysing practice	Unknown	Yes	Not used	17	Cognitive (Constructivist)
Practicing teaching	Unknown	Yes	Work plan strategy (Choice of peer partnership, peer review)	8	Cognitive/Behavioural
Participating in 360-degree feedback reviews, which involves receiving feedback on teaching from students and colleagues	Unknown	Yes	Work plan strategy (Choice of peer review)	13	Cognitive (Social Constructivist)
Having conversations with colleagues about teaching	Necessary but not sufficient	Unknown	Network meetings, Email strategy (Quests)	5	Cognitive (Social Constructivist)
Getting advice from external experts	Necessary but not	Unknown	Network meetings,	7	Cognitive (Social Constructivist)

	sufficient		Online resources		
Applying best practice research in teaching practice	Necessary but not sufficient	Unknown	Work plan strategy (Choice of self-directed study or Grad Cert module), Online resources Email strategy (Quests)	9	Cognitive/Behavioural
Participating in a professional learning group	Necessary but not sufficient	Unknown	Network meetings	10	Cognitive (Social Constructivist)
Undertaking activities on teaching over time	Necessary but not sufficient	Unknown	Workplan strategy, Email strategy (Quests and TPB), Network meetings	11	Systems, Cognitive (Constructivist)
Attending externally-hosted sessions on teaching	Necessary but not sufficient	Unknown	Not used	12	Cognitive (Social Constructivist)
Being directed to undertake professional development activities on teaching	Necessary but not sufficient	Unknown	Work plan strategy	23	Behavioural
Undertaking formal study on teaching (ie Grad. Cert in Tertiary Teaching)	Necessary but not sufficient	Unknown	Work plan strategy (Choice Grad Cert module)	28	Cognitive (Social Constructivist)/Behavioural
Attending a lecture on teaching	Unknown	No	Not used	14	Cognitive (Information transmission)
Being coached/mentored about teaching	Unknown	No	Work plan strategy (Choice of peer partnership)	2	Cognitive (Social Constructivist)
Reading instructional material	Unknown	No	Work plan strategy (Choice of self-directed study), Online resources	16	Cognitive (Information transmission)
Undertaking a guided field trips to other institutions	Unknown	No	Not used	19	Cognitive (Social Constructivist, Observational learning)
Engaging in a simulation/game about teaching	Unknown	No	Email strategy (Quests)	20	Cognitive/Behavioural
Completing a residency at another institution	Unknown	No	Not used	22	Cognitive (Social Constructivist)
Undertaking a secondment to a Learning and Teaching unit	Unknown	Unknown	Not used	24	Cognitive (Social Constructivist)
Undertaking an exchange in another institution	Unknown	Unknown	Not used	25	Cognitive (Social Constructivist)
Undertaking a sabbatical	Unknown	Unknown	Not used	26	Cognitive (Constructivist)
Learning from how one was taught as a student	Unknown	Unknown	Not used	27	Cognitive/Behaviour (Social Learning Theory, Modelling)

**Note*: 1 highest and 28 lowest rankings

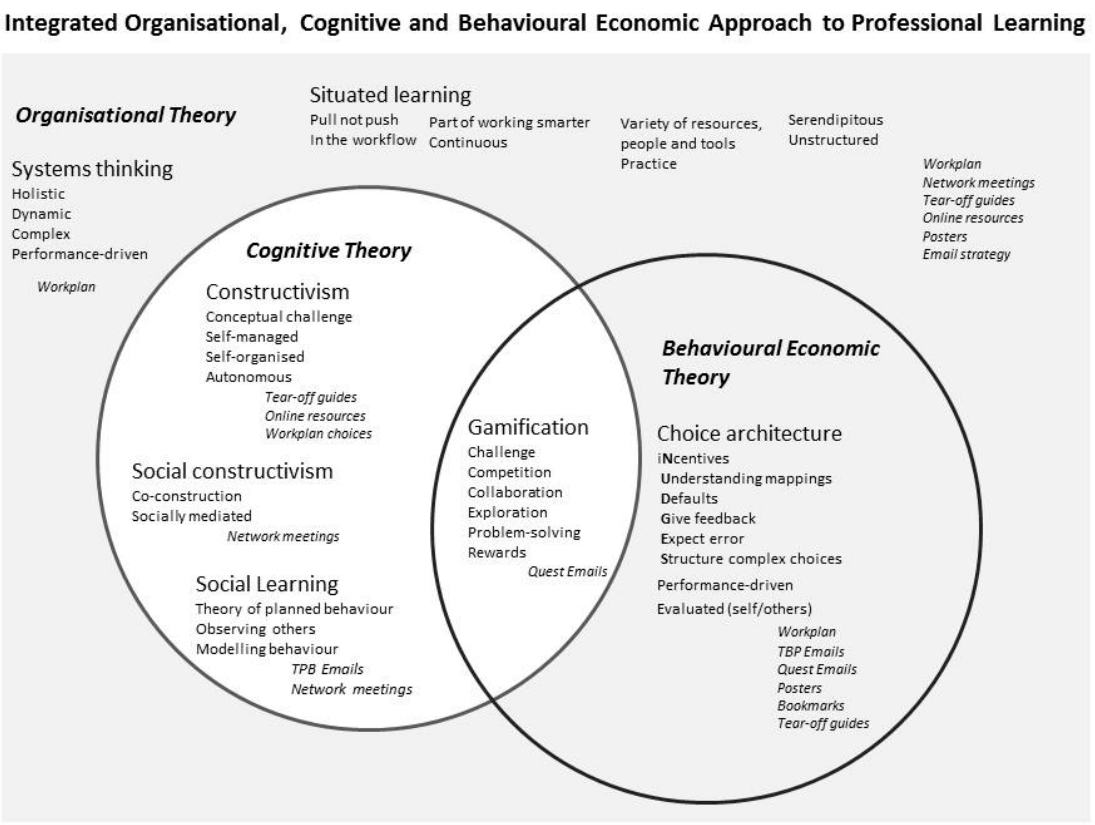


Figure 1. Professional learning approach for teaching in Next Generation Learning Spaces (Reproduced from Executive Summary)

Summary

The professional learning approach outlined above which involved six professional development elements catered for all types of learners and provided a number of different ways to for academic staff teaching in Next Generation Learning Spaces to access information and resources to help them enhance their practice.

Each element is underpinned by a theory that is shown to encourage participation and engagement. The professional learning approach encouraged academics to:

- Use technology in their learning
- Enhance the use of interactive strategies
- Learn from one another
- Choose the learning strategies that suit them
- Take more responsibility for their learning
- Be accountable for their own development and growth

The professional learning approach is underpinned by a 'pull' rather than a 'push' philosophy, with academic staff themselves driving their own professional learning. Academics choose what, when and how they want to learn to become better teachers. Institutional settings influence behaviour by 'nudging' habits and setting defaults that result in academics having no choice but to make the "right" decisions or do the "right" thing. Multiple and various opportunities that are just-in-time, self-directed and embedded in day to day work and performance-driven and evaluated are most effective.

Staff are given greater flexibility and choice in selecting the type and number of professional learning activities that are relevant to them regarding teaching in Next Generation Learning Spaces. Elements of fun through gamification and a positive behavioural change framework underpin the activities. Core to the approach is a holistic, systems thinking view to design and implementation that recognises the complexity of institutional contexts.

In the next chapter, we outline how the approach can be implemented in institutional settings.

Chapter 5 – Implementing the professional learning approach

Implementing change into complex organisations requires significant planning. Following a change management framework is beneficial. In fact, research has shown that the majority of change efforts flounder due to a lack of following a holistic approach to implementation.

In this chapter we outline the eGuide (see Appendix 3) that aims to support institutions to adopt and adapt the professional learning approach for their contexts. We share the institutional experiences of trialling the elements of the approach and consider the importance of adopting and adapting the approach into the future.

eGuide for institutional implementation

To assist institutions to implement the professional learning approach in their own contexts a comprehensive eGuide has been designed. It is designed to support institutions in the challenge of bringing about a paradigm shift in the philosophy and practice of learning and teaching so that outcomes can be adapted to other educational change initiatives across the Higher Education sector.

The eGuide is an interactive pdf, accessible online, offering practical and step by step instructions. The 'eGuide' is available at http://www.rmit.edu.au/browse;ID=xnbgfx4a17h3.

The 'eGuide' outlines how institutions can adopt a sustainable, future-looking professional learning approach with increased uptake and widescale engagement by academic staff.

The 'eGuide' comprises eight sections as follows:

Getting started

Workplan strategy

Email strategy

Network meetings

Online resources

Tear-off Guides

Posters and bookmarks

Rewards and Recognition

Feedback from trials

The professional learning approach was trialled in four Australian universities, namely RMIT University, Queensland University of Technology, Curtin University and Victoria University. The RMIT University trial involved implementing the professional development approach over a Semester. Queensland University of Technology, Curtin University and Victoria University trialled elements of the approach and provided feedback through focus groups.

Focus groups were held at QUT, Curtin and VU. A total of 20 staff were involved in peer reviewing the resources and the approach overall. Staff were asked to comment individually on the first seven emails (including quests and theory of planned behaviour emails), and on the approach overall.

Significant, helpful and considered feedback was provided by those involved in the trials on the individual emails and associated activities and resources. Suggestions given have been used to improve the emails and the approach. See Appendix 2. for how each suggestion has been addressed.

There was a mixed response to the gamification element with some finding this element juvenile while others found it engaging and encouraging. Overall, however, the feedback was more positive than negative, as show in the quotes below.

> *Going on a quest feels rather silly and I certainly do not want to hunt for a code. I want professional development and not a pseudo computer game*
>
> *The quests could be perceived as trivial and timewasting*
>
> *Gaming is not my thing so not so turned on by that sort of tool*
>
> *At the start I felt the idea of a Quest was a bit childish. It may have put me off engaging further. Ultimately I enjoyed the challenge but I think others might be dismissive*
>
> *Don't treat me like a kid. I don't want to go on a quest and I don't really need a coffee voucher as a reward. It is nice though. I do this because I am interested in it and not because I want to go on a quest*
>
> *Just starting to feel a bit niggly about the badges thing. I have philosophical problems as to how they can work in educational environments. Although I totally fell for it and enjoyed chasing the code aspect of the task.*
>
> *The phenomenon of badges just encourages more people-pleasing and working-for-praise. I'd be keen to not support that (even though I personally enjoyed it)*
>
> *The Quest appears as an innovative approach to get the attention of teaching staff.*
>
> *I think this [quest] is a fantastic way to get people talking*
>
> *I like that the quest is directed and personal, rather than impersonal*
>
> *I think this [the quests] is a great idea*

The responses to the theory of planned behaviour emails were very positive, with staff commenting that they were informative, motivating and prompted them to take action.

> *I like the short descriptions that are clear and focused. I would certainly follow up on them*
>
> *I like mixing in stories, stats about others usage and links to papers. I think this provides a good mix of 'motivators' for people to seek out more*
>
> *I would feel motivated by the email by reading the positive reactions from students and colleagues*
>
> *The credibility in this email comes from showcasing a champion that works at RMIT. If we can highlight the work of another academic which exemplifies good practice in an authentic manner, we are one step closer to that academic engaging in similar activities*
>
> *This email actually pushes me to make a decision, whether to go with what was suggested to me*

Notwithstanding this, on average, if an email was gamified academic staff were more than one and a half times more likely to open a Quest email and complete it than they were to open and click on a linked resource from a Theory of planned behaviour email.

Overall, the advantages of the professional development approach that the focus groups identified were that it was bite-sized, flexible, ‘just-in-time’, ‘just-for-me’, user friendly, useful and achievable.

> *Bite-sized, self-directed*
>
> *It is clearly designed to try and be absorbed in bite-size chunks. That is very user-friendly and academic -friendly. It also seems to be part-timer friendly*
>
> *It allows you different opportunities and approaches depending on your preferences and attempts to tailor the approach to your own learning style bite size*

It is a good way to 'chunk' things into smaller pieces so that the whole is not overwhelming.

Great flexibility

Pushed out to staff at regular intervals

The periodic emails and quest would remind me to keep on looking at things that I could use, and also prompt me to reflect on my teaching practices in an ongoing way

Staff can pace themselves

It can occur at any time

The academic can participate anytime/anywhere yet it still encourages and supports peer collaboration

I can do it at my own pace & in my own time

Ease with which to choose elements appropriate to my needs at the time

This seemed very do-able

Non-time consuming, can easily fit into a busy schedule

It has resources that you can use directly within your teaching practice

It opens up possibilities for longer, more focused approaches

It has a user friendly interface and models different online learning platforms

Ability to run the PD across a large group of staff. Good way to promote existing online resources and provide pointers to staff

Using new and innovative ways of sharing information always intrigues me too

The disadvantages the focus groups identified with the email strategy and quests included, the time it may take to complete given academics' busy workloads, whether academic staff would take notice of the emails or find the number too excessive. Without the link to the work plan and review process the impetus to be self-directed may decline and without the face-to-face network meetings, it would lack interaction with colleagues.

Sharing institutional experiences

Implementing the professional learning approach requires leadership, collaboration and ways to address tensions. Sharing experiences and insights of implementation with other institutions is one way to circumvent or forecast issues that may arise.

Involvement in the design and implementation by The University of Melbourne and the trialling at Queensland University of Technology and Curtin University required significant navigation at their institutions. Below, project team members reflect on the critical points to designing or trialling the professional learning approach.

At Melbourne University…

Gatekeepers:

- Critical to rolling out the Lib Guide, but very hard to locate in diverse and large universities.
- Those in power to authorise and encourage the roll need to be 'sold' on the concept quickly. While NaWoS has excellent documentation, and is a product that is sellable, it still needs to be sold.
- Ditto for those who hold access to pre-existing information. We estimate there is only about 10-15% new information that needs to be constructed in our institution – most comes embedded in the template, or pre-exists in other areas of our university's websites. But again, getting quick access is the challenge.

Gauging 'need':

- RMITs approach appears to work well within their PD culture. Not necessarily as suitable at our institution; those who will roll out the 'push' aspect of NaWoS at our site need to think carefully what is our particular need – the 'who', 'when', 'what' questions that we addressed very early on via the surveys at RMIT (and limited surveys at UniMelb). I think this data needs to be collected relevant to each institution.
- The Lib Guide gives a good platform for this, but re-conceptualising 'what is PD at our institution' may need to be a part of any 'roll-out package'.

Cost:

- The corporatisation of large institutions means those with the wherewithal to embed the Lib Guide and build the estimated 10-15% of local material will often only do so if their costs are covered.
- Ditto for personnel who need to drive the implementation. We have done our work without charge as part of our contribution to the research. But roll out of NaWoS is a service task, and an estimate of time/cost for this role would be informative for future participants.

At Curtin University…

Curtin University was invited to be a trialling partner in the NaWoS OLT project in late 2012, however, ratification and collaboration did not occur until mid 2013. The project is of substantial interest to Curtin University due to the significant investments in refurbishing its classrooms into new generation learning spaces. With the first phase of these refurbishments completed in 2013, the imperative to transform student learning by engaging academics in an innovative professional learning strategy is paramount, and the NaWoS initiative offers some interesting options towards achieving this goal.

As a comprehensive professional learning strategy, NaWoS integrates multiple items in an innovative personalised email strategy, including quests, that academics pursue over several weeks. It is evident that RMIT have the technological infrastructure, support and multiple professional learning opportunities that they can direct staff to. Unfortunately, this does not currently align within Curtin's emergent professional learning strategy, however, the LibGuide stood out in terms of its relevance and transferability.

The strength of the LibGuide lies in its comprehensiveness as a centralised and dynamic information repository, especially its capacity to filter quality resources, integrate different types of support, and foster a learning community around a strategic initiative. In terms of progress toward implementing this strategy internal working relationships have been

established with the Curtin Library who are now accommodating the development of a Collaborative Learning Spaces LibGuide. Curtin's Collaborative Learning Spaces LibGuide will be an adaptation of RMIT's New Generation Learning Spaces LibGuide with a focus on re-contextualizing it to Curtin, copying relevant boxes of information and building upon other boxes to ensure resources are up-to-date, informative and practical.

As Curtin advances its professional learning strategy, various elements of the NaWoS project will be revisited, and where appropriate adapted and or reused.

At Queensland University of Technology…

The NaWoS email approach is a very good approach for connecting academic staff to targeted professional development opportunities. The personalised, motivational approach is really sound. Some further refinements could assist in lodging 'message value' in academic brains - I am thinking of things like crafting the emails to be a bit shorter, tailoring the content to disciplines, balancing evidence/findings from other places with localised issues/experience. We would also consider tailoring the approach for different audiences, for example, the needs of a coordinating, or lead academic, might be different to a sessional academic working in a NGLS.

In implementing the email approach fully at QUT, certain systemic issues would need to be addressed, in particular, the way that academics are accurately associated with spaces in some kind of record. Our systems are not reliable at the moment and nor do they coordinate/communicate with each other very well.

The Springshare platform was easily harnessed in making a lightly customised version of the NaWoS Teaching in New Learning Spaces Guide for the QUT context. It also pointed to the value of the support available in the library for learning and development in general. This seems like a very sustainable model for the sector, once an information updating protocol is in place to refresh instances of the resource with up to the minute content, as it is made or becomes available.

Some advice from the project, about how to implement leadership frameworks, or models, for building staff capability, could help us, moving forward. The email approach and the libguide are very much focussed on the practice level of teaching and learning in NGLS, but some higher level discussion about how to identify institutional and workplace levers for improving student learning in NGLS could be really useful. (Thinking of a more holistic approach to course/program level design and development, how Deans, Heads of School and other higher ups can grow their understanding and awareness of pedagogy, technology and space, and the positive outcomes that building staff capability will realise.).

We have a bit of a disconnect at QUT between HR staff development programs, academic staff development programs (in learning and teaching) and annual Performance Process and Review for academic staff. We would have to think through how to connect the NaWoS approach into these existing frameworks, or more ideally, use it as a prompt for reconsidering our PD approaches and delivery methods more broadly.

Sharing project outcomes

The project team has disseminated the project widely.

Table 4. *Dissemination activities and events*

Event date	**Event title, Location (city only)**	**Brief description of the purpose of the event**	**Number of participants**	**Number of Higher Education institutions represented**	**Number of other institutions represented**
3 April, 2012	DASSH Network of Associate Deans meeting, Adelaide	Presentation on the Not a Waste of Space project to Associate Deans	19	16	-

4 July 2013	HERDSA Conference, Auckland	Conference presentation, "Transforming Design Thinking Through the Translational Design of Learning and Knowledge Environments". I	20	Unknown	Unknown
12 July 2013	LATICE Symposium, Brisbane	Panel presentation at QUT exploring collaborative initiatives for teaching in Next Generation Learning Spaces	80	6	5
10 August, 2013	The National Forum on Active Learning Spaces, Minnesota	Presentation on the Not a Waste of Space project. The purpose of the forum was to advance practice and research on active learning spaces in areas such as pedagogical innovation, student learning assessment, and faculty support.	171	57	6
2-4 Sept, 2013	Game On Symposium, Darwin	Presentation of the Not a Waste of Space project, specifically looking at the gamification elements	50	8	4
6 Sept, 2013	RMIT Sessional staff symposium, Melbourne	Workshop and presentation of the Not a Waste of Space project elements	19	1	

A number of Scholarship of Learning and Teaching (SoLT) papers have been published.

- de la Harpe, B., McPherson, M. & Mason, T. (2013). *Not a Waste of Space: Professional Development for Staff Teaching in New Generation Learning Spaces*. HERDSA news article. Available at: http://bit.ly/15X3yY2
- Fisher, K. (2013). Transforming Design Thinking Through the Translational Design of Learning and Knowledge Environments. In Frielick, S., Buissink-Smith, N., Wyse, P., Billot, J., Hallas, J. and Whitehead, E. (Eds.) *Research and Development in Higher Education: The Place of Learning and Teaching, 36* (pp 136 - 152). Auckland, New Zealand, 1 – 4 July 2013.
- de la Harpe, B. & Mason, T. (In Press). The future of professional learning for academics teaching in Next Generation Learning Spaces. In K., Fraser (Ed.). *The future of learning and teaching in technology enabled, collaborative spaces,* Journal of international perspectives on higher education research book series.

A number of articles are planned for publication in 2014 in the following journals, Studies in Continuing Education, International Journal of Academic Development, Adult Education Quarterly and Higher Education Quarterly. Titles of papers are as follows:

- Academic views on professional development that works for them and the great divide
- Reflections on designing and trialling a new professional learning approach for academic staff teaching in Next Generation Learning Spaces
- Does gamification work for academic professional development?
- Academic staff readiness to teach in a Next Generation Learning Space

Chapter 6 – Conclusion and recommendations

In this report the design, development and trialling of a future-oriented professional learning approach for academics teaching in Next Generation Learning Spaces has been outlined.

A video about the professional learning approach, the online resources and the eGuide are available to view/download and/or subscribe to the email strategy are at http://www.rmit.edu.au/browse;ID=xnbgfx4a17h3

The project team comprised members from five institutions, namely, RMIT University, The University of Melbourne, Queensland University of Technology, Curtin University and Victoria University.

The relevant literature and underpinning philosophies of contemporary learning, behavioural economics, gamification, the theory of planned behaviour and systems thinking have been discussed. Feedback from the academic staff survey and the trials at three Australian universities has been presented.

The project achieved all of the deliverables as follows:

- ✓ An innovative flexible, 'bite sized', 'just-in time' and 'just-for-me' continuous professional learning approach
- ✓ An adaptable step-by-step online institutional implementation "*e*Guide" for the sector
- ✓ A website that documents and showcases the project
- ✓ Increased knowledge of innovative ways to support staff continuous professional development for Next Generation Learning Spaces across the disciplines
- ✓ A number of Scholarship of Learning and Teaching (SoLT) papers

Overall, feedback was very positive (see Figure 17.), in the words of a staff member at QUT.

> [It is] v*ery personal, welcoming, positive, informative. Well thought through.*

Figure 17. Positive feedback from trials

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Appendix 1. Analysis of Staff Survey: RMIT and UoM participants

Not a waste of space – professional development for staff teaching in New Generation Learning Spaces

Analysis of academic survey 2012

RMIT University
University of Melbourne

Executive summary

How our RMIT sample compares to the total population of RMIT teaching staff

Summary

We have a low response rate (5.4%). While our sample is similar to the population on some characteristics (disciplines, gender), it is not identical on others (under-sampling of casual employees and young people). This means that the views of casual employees and young people are under-represented in the results reported in this document. There are arguments both for and against weighting the data to attempt to correct for these biases.[1] At this point, however, weighting has *not* been conducted.

Response rate

Results suggest a low response rate of approximately 5.4%. This low response rate somewhat reduces the confidence we can place in our findings.

Disciplines

Our sample is similar to the population in respect to discipline.

	Population		Our sample	
College	N	Percent	N	Percent
College of Business	492	14.63	30	22.7
College of Design and Social Context	1386	41.20	45	34.1
Research & Innovation	27	0.80	0	0
Science, Engineering and Health	1459	43.37	57	43.2
Grand Total	3364	100.00	183	100

Employment status

We have under-sampled casual employees.

	Population		Our sample	
	N	valid %	N	valid %
Non-casual	1311	39.0	101	73.7
Casual	2053	61.0	36	26.3
Total	3364	100	137	100

Gender

Our sample is similar to the population in respect to gender

	Population		Our sample	
	N	valid %	N	valid %
Female	1435	42.7	64	46.37681
Male	1929	57.3	74	53.62319
Total	3364	100	138	100

[1] For: Some demographic differences in responses to q3 and q5 exist, which indicate the weighting may benefit our findings.
Against: Our sample is fairly small, thus meaning that weighting may introduce or amplify biases of its own.

Age

Our sample is generally similar to the population in respect to age, but we do appear to have under-sampled young people (aged 30-39 and 29 or less), and oversampled people aged 50-54.

	Population		Our sample	
	N	valid %	N	valid %
<=29	625	18.57907	7	5.035971
30-39	835	24.82164	23	16.54676
40-44	415	12.3365	16	11.51079
45-49	386	11.47444	21	15.10791
50-54	390	11.59334	33	23.74101
55-59	307	9.12604	19	13.66906
60+	406	12.06897	20	14.38849
Total	3364	100	139	100

Frequencies and Percentages

Dataset used was current at 18 May, 2012.

1. If you were timetabled to teach in a New Generation Learning Space would you want professional development support to help you teach in this space?

Take-home message: All staff who are timetabled to teach in NGLSs should be offered professional development support to help them teach in the space, as the results of this item indicate that a large proportion of them would want such support. Moreover, later results indicate that there are no significant differences across disciplines and demographics on this question.

	Frequency	Valid %
Yes	130	71.0
No	53	29.0
Missing	0	-

2. Briefly explain the reason(s) for your answer to the question above.

Yes - want professional development support to help me teach in the space

Overall, respondents who wanted professional development for teaching in new generation learning spaces wanted professional development in teaching methods and techniques to help them teach effectively in Next Generation Learning Spaces .

- 77 responses wanted professional development in effectively teaching in the space
  - *I would like to use my limited time as best as I could to deliver effectively.*
  - *Every constructed or available environment has implied context, opportunities and limitations, understanding those assist in making best use of the space*
    Enable best use of the space, where to position power points to enable students to see & be involved
  - *My teaching would improve if I had access to, and training in practical approaches to teaching in New Generation Learning Spaces.*
  - *The technology is new and the design does not easily suite a full class discussion. Need support with mechanisms to adapt learning techniques to this new environment.*

- *Team learning and teaching methods differ in different courses, and it would be good to synchronise learning and teaching methods with spatial conditions. In my view this is an area that has not been developed enough, as there are not only deep suspicions against team learning and teaching, but simply not enough knowledge and experience around.*

- 50 of these responses wanted support in using the technology, rather than in using the space or pedagogical support
  - *So I know how to use the technology to best effect.*
  - *The technology is useless without people who can master it and utilize it creatively and appropriately. Otherwise it becomes just another 'accessory'.*
  - *ensure that I have the knowledge to operate the equipment competently*
  - *I am not familiar with some of the new technologies.*
  - *Different makes of smartboards/ teamboards, IT-related service issues eg wi-fi networks, printer drives, log-in problems, blown light globes.*
  - *Only to the extent that one needs to know how to run the technology.*
  - *To understand and learn new technologies*
  - *yes to be taught how to effectively use technical equipment*
  - *but only needed once and would only take 5-10 minutes. All I need is a quick hands-on overview of the capabilities of the room (technical + spatial).*
  - *Yes, because software and hardware can have their very trying issues and it is better to be prepared for all case scenarios as teaching only lasts for 45 mins and we need to make every second count. My biggest problem is combating the slowness of computers being turned on.*
  - *A professional development support tech would help me know all the function in the classroom*
  - *Given the technology needed to facilitate these spaces, some general information on how to access and set this up would be beneficial.*
  - *I would need to know what technologies are available. Working from round tables is not a new concept and I have taught this way for many years, but new technology is always needing the PD*
  - *To gain an understanding of how to use the technology*
  - *to check it's basically not different to other spaces technology wise*
  - *Already had an introductory session about SAB new Learning space but not on how to operate the technology*
  - *Introduction to new equipment.*
  - *I would require instruction regarding the use of the technology*
  - *What technology is being used in the learning space.*
  - *IT support*
  - *Training on use of new IT is needed. In particular how student can use devices in an interactive lecture or tutorial*
  - *I need support to ensure I was confident using the technology in the space, but this was not provided.*
  - *Just a quick intro to work the technology*
  - *some of the technology in there is new and I would want to know how to use it*
  - *use technology and boards*

No -do not want professional development support to help me teach in the space

Of the respondents who did not want professional development to teach in new generation learning spaces

- 37 responses indicated that support was not needed because they already taught in a Next Generation Learning Space, could handle the environment, could teach themselves or did not want help
  - *I have been teaching in similar spaces for 18 months by personal choice and to facilitate work integrated learning at bachelor's degree level.*
  - *I have already used this type of teaching format for many years.*
  - *Used this type of environment before*

- *I teach in this manner currently. It is interactive and produces results that students take ownership of. With this open style the teacher does need training. They also require training in the everyday requirements of communication skills. I like the idea that the teacher cannot 'hide" behind a consul.*
- *I have designed such spaces (Access Grid Rooms) as well as designed and provided much prof dev for these nationally (and presented keynote lectures etc internationally).*
- *Feel I would be quite capable of handling the new space.*
- *I do not believe a teacher has to be at the front of the room and a teacher should be able to adapt to the teaching space they are in*
- *I do not want anyone helping me teach.*
- *I would rather the resources for developments are used to improve spaces which are not 'new generation spaces.*

- 4 said they did not want support yet they indicated that they would want some technical support
  - *assuming that the system would be easy to follow.*
  - *if the instructions are written completely and clear, it would be sufficient*
  - *Because I have taught in rooms that have this kind of flexibility. Maybe not quite to this degree. I may need some assistance to become familiar with the new technology on offer.*
  - *I would just like to know the parameters and equipment of the space, then could develop content etc in relation to that.*

- 2 had problems with existing rooms
- 1 wanted examples from other teachers/lectures
- 5 thought PD was ineffective

3. Which of the following ways of undertaking professional development would meet your needs for teaching in New Generation Learning Spaces (NGLSs)?

Take-home message: While staff occasionally think that ineffective forms of PD 'meet their needs' (eg. coaching/ mentoring), there are numerous forms of PD that are both effective and moderately- to highly-liked by staff.

NB. Different colours indicate different levels of effectiveness according our interpretation of past meta-analytic findings.

- This colour signifies something that Hattie (2010) or Timperley et al (2007) claim 'works' (ie. has student impact)
- This colour signifies something that Hattie (2010) says is 'necessary but not sufficient' for student impact
- This colour signifies something that Wade (1985) claims is effective on teacher knowledge and behaviour, but not necessarily student outcomes.
- This colour signifies something that has low or very low effects on teacher knowledge or behaviour (Wade 1985)
- This colour signifies something that has not, to our knowledge, been investigated in past meta-analyses.

	Effectiveness[2]		Frequency			
	Student outcomes	Teacher knowledge	Valid	Missing	Mean	Median
Engaging in hands-on sessions on teaching in NGLSs	Unknown	Yes	112	71	3.9018	4.0000
Being coached/mentored about teaching in NGLSs	Unknown	No	108	75	3.7407	4.0000
Observing peers teaching in NGLSs	Unknown	Yes	112	71	3.7054	4.0000
Being in a university culture that encourages professional learning relating to NGLSs	Yes	Unknown	113	70	3.6637	4.0000
Having conversations with colleagues teaching in NGLSs	Necessary but not sufficient	Unknown	112	71	3.6518	4.0000
Attending NGLS training with colleagues from other disciplines	Unknown	Yes	110	73	3.4545	4.0000
Getting advice from external experts on using NGLSs	Necessary but not sufficient	Unknown	112	71	3.3750	4.0000
Practicing your teaching in NGLSs	Unknown	Yes	113	70	3.3717	4.0000
Applying best practice research in NGLSs with your teaching practice	Necessary but not sufficient	Unknown	112	71	3.3839	3.0000
Participating in a professional group of NGLS users	Necessary but not sufficient	Unknown	113	70	3.3363	3.0000
Undertaking activities on NGLSs over time	Necessary but not sufficient	Unknown	114	69	3.1930	3.0000
Attending externally-hosted sessions on teaching in NGLSs	Necessary but not sufficient	Unknown	111	72	3.1532	3.0000
Participating in 360-degree feedback reviews, which involves receiving feedback on your teaching in NGLSs from your students and colleagues.	Unknown	Yes	111	72	3.0631	3.0000
Attending a lecture on teaching in NGLSs	Unknown	No	110	73	2.9000	3.0000
Having your current conceptions of teaching in a NGLS challenged	Yes	Unknown	113	70	2.8673	3.0000
Reading instructional material about NGLSs	Unknown	No	109	74	2.7706	3.0000
Micro-teaching, which involves videotaping yourself teaching in a NGLS and then analysing your practice	Unknown	Yes	111	72	2.7568	3.0000

[2] As specified by Hattie (2010).

Actively deepening your teaching ability through independent self-study (eg. web searches, reading articles and books, watching videos, etc)	Yes	Unknown	111	72	2.7117	3.0000
Undertaking a guided field trips to other institutions using NGLSs	Unknown	No	111	72	2.7117	3.0000
Engaging in a simulation/game about teaching in NGLSs	Unknown	No	112	71	2.6696	3.0000
Watching or listening to recordings of yourself teaching	Unknown	Yes	110	73	2.6545	3.0000
Completing a residency at another institution focusing on using NLGSs	Unknown	No	111	72	2.5856	3.0000
Being directed to undertake professional development activities on teaching in NGLSs	Necessary but not sufficient	Unknown	112	71	2.5357	2.5000
Undertaking a secondment to a Learning and Teaching unit specialising in NGLSs	Unknown	Unknown	111	72	2.5225	2.0000
Undertaking an exchange in another institution	Unknown	Unknown	112	71	2.3929	2.0000
Focusing a sabbatical on NGLSs	Unknown	Unknown	111	72	2.1892	2.0000
Learning from how I was taught when I was a student	Unknown	Unknown	111	72	1.9820	2.0000
Undertaking formal study on teaching in NGLSs (ie Grad. Cert in Tertiary Teaching)	Necessary but not sufficient	Unknown	112	71	1.9196	2.0000

NB. These are ordered by median, then by mean. Scale ranges from 1 ('Does not meet') to 5 ('Completely meets')

4. What, if anything, would make you change your mind about not wanting professional development support for teaching in New Generation Learning Spaces?

Question 4 was the question logic landing for respondents who did not want professional development in question 1.
There were 45 responses.

- 21 responses indicated that either
  - Learning something new or different would change their minds:
    - *Access to ideas and teaching methods I am not currently using or currently familiar with*
    - *If it looked fun and interesting. If it was a short commitment of time and run in the afternoon, not the morning (I like to write in the morning)*
    - *The providers would need to demonstrate that they had something new to offer*
    - *a cool advertising campaign that convinced me there was something for me to learn*
    - *If they could help me convert my static powerpoint slides to dynamic excel spreadsheet models*
    - *If someone had something useful to contribute. That was outside of my experience*
    - *Should there be any new teaching techniques which have been shown to be effective in improving learning is auch an environment then I would like to be made aware of them*
    - *If someone can up with something that I had not seen / used before that raised my consciousness level on how I could work smarter*
    - *First: an indication that there is something I have missed. The examples provided online for the new SAB were 1.) two talking heads, speaking only generally, and 2) a group of people being lectured in a*

one of the SAB rooms - quite weird as an example of collaborative learning and use of new forms of space

- *If the support was a showcase of new ways to use the space, I might attend*
- *If it is offered across the university - would need to be specific to learning methods of the discipline/school*
- *Would have to be more than a rudimentary technology demonstration. If there were new ideas and suggestions brought about by experience from other lecturers*
- *When the collaborative software is working, I'd like a session on that*
- *new equipment I need an introduction to*

- Providing professional development in a different mode would change their minds:
  - Perhaps an informal discussion group rather than a workshop
  - *A quick pdf type overview would be sufficient*
  - *Training podcasts could be useful*
  - *Complex assessment projects may need one on one assistance to manage*
  - If the support were provided by academics, it might be useful

- Responding when something was not working in their teaching would change their minds:
  - *If it became evident that I was not using the facilities easily*
  - *an indication of what I don't know I don't know. Happy to learn but often this involves a lecture about perceived benefits rather than a hands on exploration of new or interesting scenarios*
  - *If had to teach a new subject*

- If they could be convinced that it was worthwhile that would change their minds:
  - *Much of the commentary on new spaces ets smacks of "architectural determinism" In addition, the application of IT to impact on learning outcomes does not a particularly have a particularly positive cost benefit history*
  - *A compelling statistically sound and measured advantage which required me to attain new skills in order to utilise such a space*
  - *My participation would need to let me leverage it in some way. eg it becomes a symposium on using the spaces and the presentations are recorded and become publicly available (*outside* of RMIT), or similar*
  - *If my university mounted a serious and sustained commitment to equip all teaching staff to become truly skilled teachers (by eg., mandating tertiary degree programs) and this included an attempt to really shift the reliance of most staff to the jug-to-mug 'instructional' model plus examination model of 'pedagogy' then I might begin to take some of these other developments seriously. Currently eg., the use of IT 'platforms' to 'deliver content' continues to demonstrate a commitment to that older model.*
  - *It can be helpful only if it delivers more engagement with the student learning.*

- If their workload was reduced that would change their minds:
  - *In a perfect world, if admin work was decreased significantly*

- 8 responses indicated that nothing would change their mind
  - *I don't need help, the room design needs help*
  - *I do not need this training*
  - *Nothing*

5. To what extent would each of the following encourage you to undertake professional development about teaching in New Generation Learning Spaces (NGLSs)? Please rate each item by clicking on the response that applies to you.

Take-home message: The most effective motivators of engagement in PD (according to staff themselves) seem typically to be intrinsic ones (e.g. 'personal interest', 'own professional work-ethic', etc). Conversely, the least-effective motivators were thought to be external requirements to undertake PD, followed by receiving recognition from the university or some division within the university.21

	Frequency			
	Valid	Missing	Mean	Median
Satisfying my own professional work ethic	153	30	4.0327	4.0000
A personal interest in teaching in NGLSs	155	28	3.9548	4.0000
My own interest in professional development	153	30	3.7908	4.0000
A need to stay up to date with current teaching practice	153	30	3.7778	4.0000
Responding to positive feedback from students	152	31	3.7566	4.0000
My own personal belief in professional development	150	33	3.6067	4.0000
Time release	152	31	3.4803	4.0000
Responding to positive feedback from peers	152	31	3.3947	4.0000
Responding to negative feedback from students	151	32	3.3907	4.0000
Additional payment	154	29	3.2273	3.5000
Having one-on-one private professional development sessions	149	34	3.2416	3.0000
Receiving recognition for promotion	151	32	3.1656	3.0000
Feeling that professional development will be presented at my 'level' (not too hard or easy)	152	31	3.0263	3.0000
Responding to negative feedback from peers	152	31	3.0000	3.0000
Including professional development in your work plan	149	34	2.9463	3.0000
Having an opportunity to publish	150	33	2.8267	3.0000
A professional accreditation requirement	152	31	2.7895	3.0000
Reducing my own anxiety about teaching in NGLSs	149	34	2.6040	3.0000
Receiving recognition (eg certificate) from your university	153	30	2.5229	3.0000
Receiving recognition (eg certificate) from your program	149	34	2.5235	2.0000

Receiving recognition (eg certificate) from your department or school	150	33	2.5000	2.0000
Receiving recognition (eg certificate) from your faculty/college/division	151	32	2.4967	2.0000
A university policy that requires all teaching staff to undertake professional development for teaching in NGLSs	154	29	2.4351	2.0000
A directive from your Head of School	153	30	2.3529	2.0000

NB. These are ordered by median, then by mean. Scale ranges from 1 ('Not at all encouraging') to 5 ('Extremely encouraging')

6. What way would you prefer to learn about New Generation Learning Spaces? Please select the option you prefer most.

	Frequency	Valid Percent
I prefer to experiment with new ideas, simulations, laboratory assignments, and practical applications.	67	44.7
I prefer to work in groups, listening with an open mind to different points of view and receiving personalized feedback.	56	37.3
I prefer readings, lectures, exploring analytical models, and having time to think things through.	15	10.0
I prefer to work with others to get assignments done, to set goals, to do field work, and to test out different approaches to completing a project.	12	8.0
Missing	33	

7. To what extent would you like professional development on teaching in New Generation Learning Spaces to be provided in each of the following modes?

	Frequency			
	Valid	Missing	Mean*	Median*
Face-to-face	149	34	3.76	4
A combination of online, face-to-face, and paper-based	147	36	3.30	4
Online	143	40	2.64	3
Paper-based/printed	145	38	2.34	2

* Scale ranges from 1 = 'Do not like' to 5 = 'Like extremely'.

8. In which of the below learning spaces would you most prefer to teach? Please rank these spaces from most to least preferred.

Due to disciplinary differences in room preferences, frequencies for each discipline are presented here, in addition to total explanations.

Overall, results suggest that teachers like teaching in NGLSs. In all three disciplines, 'F' (which is a NGLS) is most popular, and 'B' (which is also an NGLS) is among the top three most-preferred spaces. Conversely, D (which is a traditional lecture theatre) and A (a traditional tutorial room) rank at or near the bottom for all disciplines, with just one exception: Business teachers strongly liked the traditional tutorial room.

Science, Engineering and Health

	N (valid)	N (missing)	Medians	% first choice
F (NGLS 2)	54	3	2	42.6
C (Laboratory)	52	5	3	28.8
B (NGLS 1)	54	3	2	14.8
E (Studio)	54	3	5	11.1
A (Traditional tutorial room)	54	3	4	7.4
D (Traditional lecture theatre)	54	3	5	5.6

Design & Social Context

	N (valid)	N (missing)	Medians	% first choice
F (NGLS 2)	39	6	1	51.3
B (NGLS 1)	38	7	2	18.4
C (Laboratory)	38	7	4	15.8
E (Studio)	39	6	4	7.7
D (Traditional lecture theatre)	39	6	6	5.1
A (Traditional tutorial room)	40	5	4	5

Business

	N (valid)	N (missing)	Medians	% first choice
F (NGLS 2)	29	1	2	37.9
A (Traditional tutorial room)	29	1	3	27.6
B (NGLS 1)	28	2	2	21.4
E (Studio)	29	1	4	6.9
C (Laboratory)	29	1	5	3.4
D (Traditional lecture theatre)	30	0	5	3.3

Total

	N (valid)	N (missing)	Medians	% first choice
F (NGLS 2)	144	39	2	31.7
C (Laboratory)	140	43	4	17.1
B (NGLS 1)	142	41	2	16.9
A (Traditional tutorial room)	143	40	3	12.6
D (Traditional lecture theatre)	143	40	5	7
E (Studio)	143	40	4	4.2

9. What three aspects about teaching in a New Generation Learning Space would you (or do you) find the most challenging?

116 responses in total

- 70 responses indicated that pedagogy was one of the top three challenging aspect
  - *focusing on the reflective learning and sharing (feedback)*
  - *Relevance to the discipline I teach in. awareness and knowledge about NGLS's*
  - *Teaching to the whole group at once from the front of the room*
  - *What is the best way to use them.*
  - *Having a worthwhile class activity even if the IT hardware/software/network does not perform appropriately during the class session.*
  - *students getting used to the teacher "roaming"*
  - *Relevance to course content and access to machinery relevant to workshop and practice/design based learning.*
  - *Lack of experience Lack of knowledge re how to best use such spaces*
  - *continually devising challenging interaction activities to engage the student*
  - *and developing tasks for various groups of students while working on the same task*
  - *Presentation software is didactic in nature. This needs to be solved first...*
  - *Finding the most appropriate teaching approach to match individual courses with appropriate spaces and technology*

- 46 responses indicated that technology was one of the top three challenging aspect
  - Gaining competence to use the technology effectively.
  - learning the technology
  - Making use of all the opportunities of the space - ie. proper training in all the technological aspects of the room
  - Incompatible software, or different versions of software, being available in the NGLS compared to office desk top or lecture theatre.
  - Getting the software and hardware up and running in minimal time
  - lack of training
  - Using technology without hitches - using technology to exploit its full potential as at teaching tool
  - Knowing that the technology is going to work and not fail, including the wireless network
  - Not being able to confidently use the technology in the class rooms. Currently equipment does not always work and access is often-very slow. Tech support are always very helpful.
  - Ensuring the technical infrastructure that involves student BYOD strategies is sufficiently reliable and of appropriate quality.
  - Would like a mix of iPads and laptops to access during this time
  - That the technology is not integrated, the configuration is not supportive of student laptops/tablets, that local areas have to manage it and that equip and basic Tips are not provided.

- 43 responses indicated that classroom management was one of the top three challenging aspect
  - Managing the classroom dynamics in a 360 degrees space
  - Getting student's attention Ensuring everyone can hear
  - Giving students control of technology
  - Getting the students to speak up when answering questions so everyone can hear.
  - being able to keep students focussed
  - maintaining pace of class
  - maintaining eye-contact with students
  - students arriving for class without materials and unprepared. Late students are also much more disruptive, as there is no 'back of the class' to sit.
  - Facilitating and ensuring student interactions are learning-related (Classroom management)
  - Addressing the whole class when needed.
  - Getting response from all students
  - no technology to block students from cell phone / internet surfing..

- Keeping the student group engaged in active problem-based learning
- Smaller number of students per class.
- Student attention. Teacher respect (lack of).
- emotional intelligence - where are the students up to, how are they responding, are they engaged?
- Keeping students engaged
- Keeping students actively participating
- Maintaining student interaction

10. What are the three professional development areas about teaching in New Generation Learning Spaces that you would be most interested in?

101 responses in total

- 41 responses indicated that pedagogy including assessment was one of the top three professional development areas of most interest

  - Maintaining interest
  - focus; pace
  - maximizing the learning experience
  - content preparation, facilitation, time management
  - design studio teaching
  - developing teaching materials to suit NGLS
  - developing material
  - practical ideas for maximising engagement and effectiveness of group work
  - development of student interaction activities
  - creation of game/play situations relevant to the course content and learning environment
  - structuring course material for group work
  - Developing true collaboration
  - Redesigning class plans to take advantage of the new spaces
  - Hacking the spaces - how to break the rules in a positive way.
  - Use of spaces
  - Moving to team-based teaching - Developing problem-based, cross-disciplinary, project and WIL-oriented learning
  - Feedback and avoiding plagiarism
  - Small class teaching Group work
  - lesson plan
  - group dynamics
  - Teaching methodology options
  - Lesson facilitation options
  - flexible learning spaces pedagogy
  - How traditional-based teaching can be changed to this new paradigm.
  - More relaxed and inspiring environment
  - Developing appropriate learning experiences
  - How to maximize impact while minimizing time
  - Combining theory, practice and communication
  - Use of learning protocols
  - How to enhance student learning in such a space
  - Techniques and options for different levels of allocated preparation time.
  - looking at new assessment strategies that can be used in NGLS
  - Assessment Teaching strategies
  - Assessing and grading student through their individual participation NGLS
  - learning outcome evaluation
  - Assessment

- 16 responses indicated that engaging students was one of the top three professional development areas of most interest

  - how to engage students - How to make classes enjoyable - utilising teaching time effectively so

students have the knowledge to continue their own study outside of class.
- exploiting the ways in which students already use technology - in keeping with a learner-centred approach, getting students to drive the way space is used and technology is used.
- Given the differing learning styles of students engaging all students in classroom activities
- Engaging students in their learning
- how to keep students engaged
- I'd like to interrogate what strategies this approach offers to encourage the expression of critical thinking in our international cohort, some of whom come from a very prescriptive learning backgrounds I'm also curious to understand at what stage of the learning continuum students should be introduced to NGLS considering that some programs require the use of complex and dangerous equipment. A cognitive apprenticeship model suggests that novices acquire early task mastery through a more formal, less enquiry based approach. Are the spaces are better suited to 2nd and 3rd year learners?
- optimising learning outcomes bonding and interacting with learners getting best positive outcomes
- Engagement strategies
- Understanding Gen Y/Z: how to engage them.
- more interaction between the students
- How to better engage students in separate group.
- Engaging the students
- Students ability to engage ie. having ready learning tools
- Maintaining engagement eliciting student responses
- Possibilities for student collaboration

- 39 responses indicated that professional development in how to combine pedagogy, technology and space was one of the top three professional development areas of interest
  - It would help to understand the space prior to taking class's in these spaces therefore lesson plans could be adapted appropriately to make best use of the space
  - How to use effectively with large class numbers
  - How to effectively and creatively teach computer/technology classes -using the facility/ space in creative ways -classroom management
  - Integration of technology into the teaching space.
  - Making the most of the space
  - Running fully interactive workshop sessions with students
  - Converting existing lectures to interactive lectorials held in NGLSs. Running virtual practical classes in an NGLS.
  - How other people use this mixed learning spaces with the technology
  - Outline of L&T theories and pros and cons of the spaces
  - How the technology works and the potential of the technology Suggested teaching approaches
  - use of technology to develop teaching material
  - incorporating technology into the classroom
  - Methods of effective learning in these spaces.
  - Post graduate teaching in new spaces, how this can be improved from what we could do in the past. Pre-recording large lectures (for student numbers over 300-500), eg: desktop lectopia, and having more time for tutorials, team based teaching, how new spaces will allow and/or enhance it.
  - Developing curricula to include active learning with technology
  - network literacies as professional and pedagogical preparation
  - shifting from talking to doing.
  - Developing dynamic lesson plans, effective use of new technologies
  - The change
  - Use of spaces, Use of available technology, Use of new technology
  - New teaching approaches, new and creative teaching methods, teaching and coordinating students of different levels of commitment in a group setting
  - using the groupwork approach to the smart boards, when they all show the same "group" image!
  - Integrating technology in teaching
  - Teaching methodology options Media options Lesson facilitation options
  - Getting the best out of using the interactive whiteboard. Any new technology that can be integrated
  - Updating knowledge, teaching environment, technical support

- ‘ICT/IWB skills and pedagogy and how to set up and utilise your room

- 25 responses indicated that professional development in technology was one of the top three professional development areas of interest
  - Adapting the technology
  - equipment reliability
  - Convergence of smartboard to student email Audio-visual recording of teaching Learning Management systems in general - maintain course content, creating course content, assessment.
  - IT
  - IT system,
  - To have the ability to easily check whether all your students are on the system right from the first day of delivery instead of wasting valuable training time chasing up when your students are going to get access to BB etc.
  - skills in IT
  - use of technology
  - Capitalising on the opportunities afforded by the technology.
  - technology
  - learning about technology capabilities IT support
  - equipment trouble-shooting (especially in the evenings)
  - Use of technology
  - Technical capacities of the spaces
  - Use of the internet.
  - new ICT
  - Technical support
  - Technology instruction Response ware
  - softwares video internet
  - Learning how to use the technology
  - How to use a-v/electronic equipment esp software to use the facilities
  - Technology
  - How to run the technology
  - How to use technology (but keep it brief or online)

- 17 responses indicated that peers sharing their experiences was one of the top three professional development areas of interest
  - Sitting in on relevant person demonstrating relevant material delivery.
  - demonstrations of teaching using new technology
  - Hearing from peers
  - Success stories
  - feedback / research from those using now
  - I'd like to observe, listen to, and speak with those academics/teachers who have recent practical experience using these spaces
  - I'm interested in sharing experiences with those who have used them extensively. An opportunity to jointly publish with others.
  - Observing colleagues who are recognised for their innovative pedagogy in such spaces
  - Reflective, collegially, about the experiences
  - example on how to utilities the communication and visual technologies in the NGLS functionally. case studies of how teaching can be performed with the space
  - discussion and brainstorming session with people in my discipline area and outside my discipline area on the possibility within my context and what others are doing in their contexts.
  - Listening to experts in using the technology
  - Examples of best practice
  - Peer teaching/mentoring models in this setting; group presentations, etc.
  - Exemplars of others - could be videos online
  - Practical hands on experience in the classroom with an expert teacher using real examples of the sorts of activities that can be done in this space.
  - Watching other teach in the spaces

- 7 responses indicated that hands-on practice was one of the top three professional development areas of interest
  - Hands-on practice
  - Interactive PD sessions in the spaces that model good use and practice
  - Learning through engagement in use
  - Experimenting and trying new approaches myself in such spaces
  - Being 'coached' in such a way that I'll walk out of the training ready for implementation (artefacts, going through the yes-buts rather than enthusing over challenges of facilitation
  - Prefer learning by doing
  - Practical hands on experience in the classroom with an expert teacher using real examples of the sorts of activities that can be done in this space, hands on technical training on how to operate the software (the 30 minutes of theory we were given was hopelessly inadequate)

11. Is there anything that you want to tell us/ think we should know about providing professional development for teaching in New Generation Learning Spaces for academic teaching staff?

73 responses in total

- 29 responses provided ideas for professional development
  - Each scheduled staff information/training session must be highly effective (i.e. IT hardware/software/network must perform appropriately) to enable the most to be got out of participating in such a session - otherwise it has been a waste of time for staff, especially those with heavy combined teaching and research workloads.
  - Trainers should come from outside academia as the thinking that created (academia) situation, will not get you out of the situation.
  - wouldn't the experience of staff 'playing student' in a well facilitated NGLS class be one of the best forms of PD on this topic?? to experience the full potential of NGLSs from the students' perspective? if we can experience how it feels and works for students, we're more likely to model the facilitator's strategies and techniques in our own classes
  - Be guided more by local needs with this survey informing the discussion but not dictating it.
  - The use of multimodal resources, e.g. short videos, tip sheets etc for just in time learning & PD.
  - The professional development activities for teaching staff should reflect the variation in teaching NGLS bring to the student
  - as above, network literacies. The competencies and understandings about using a device on a network, adding applications as needed, and so on.
  - Please seek out facilitators who are current practitioners of NGLS in an RMIT HE/Assoc Degree course environment as they bring an authentic, 'real world experience' narrative for us ponder. Not really interested in hearing from 3rd party observers/experts who haven't been in front of a class for years, theorising and re-interpreting the concept.
  - Given that many staff do NOT teach in NGLS we need to be very careful about the PD we provide. An inclusive approach, emphasising good teaching, no matter what the physical space, seems like a useful approach to take. One can teach well in all of the spaces pictured on the previous page. One can also teach poorly in them all.
  - keep it simple and engaging
  - Please, no online tick the boxes modules. You'll kill the whole idea.
  - I think from the number of training sessions that are presented in chalk and talk from Lecturers that should know better and from the tone of this survey that there are a lot of teaching staff/academics that have no idea how to engage with students. At present we don't have access to any of these NGLS spaces and are instead working in cramped out of date classrooms so I don't need training so much as I need the swipe access to one of these within trolley distance of my desk. Please don't tell me there will be VHS/DVD players in the room or it will be yet another great step sideways.
  - You need to sell the concept. We were told that online was better and cheaper. Reality is that it is not.
  - There are many lecturers who like to teach in lecture theatres - they will not benefit from training in

using NGLS until many early adopters are already getting enhanced CES from the space i.e. 2 years. So look at the other lecturers - who already teach in flat floor rooms, who already run facilitated workshop type activities even in lecture theatres, who use project or problem based learning etc etc. We will be the early adopters. How to get us there? Staff are infamously hard to get to training. So provide an incentive - make it short (hour max), give us hands on, run a 5 minute demo and make it at lunchtime and serve lunch. Every day for a week.

- You should know that any training should be provided by academic staff.
- That it is localist, respectful of and informed about existing good practice and recognise local objectives and needs first.
- PD in NGS needs to model very effectively not just talk about
- TAFE is often ignored or overlooked in RMIT considerations and needs. Take account of the needs of TAFE staff, who have a much higher teaching load (21 hours per week) therefore need greater alternatives if PD is offered for them.
- Hands on face-to-face is a more 'active' form of learning how to use these spaces.
- The NGLS wil require (possibly) radical and ad hoc transitions from current practice. A customised approach may be necessary (essential), from a disciplinary perspective, requiring discipline champions to be used in a targeted approach, for example, for courses that are taught to first years and which courses are considered to be "bottleneck courses".
- Do it soon please!
- Roll out plan

- 11 responses provided ideas around change management for professional development

- change slowly and gradually
- the bottom line is not where we teach but how - i did not answer q7 because i am happy to teach anywhere and each serves a different and valid purpose. The ngls issue can distract from the bigger vision of who why and how we teach and the fact that there has to be a philosophical shift on the ground for this to occur.
- approach it with a few that many old fogeys will resist the change. students may take advantage of the discomfort of us old fogeys break us in gently
- Train the staff so that all features of the system can be utilized efficiently. Take on new staff with a new mind set and get rid of staff who are not performing and are set in their ways.. Look at courses that are profitable and use funds to finance proper new age buildings. Look outside the traditional method of delivering via Semester mode - look at intense units, online delivery and how can students combine work and study. For question 11 as a teacher I would make it my business to be able to use all systems efficiently
- Frankly, it is not about the space...we have taught in hoyts cinema, for 6 years for goodness sake, without any NGLS and still get good CES scores...it is about the interaction between the students and the staff so that learning can occur
- there will be a time of experimentation and innovation... this is to be expected... just need to make sure that the environment and its configuration and usage is EASY!
- There are many lecturers who like to teach in lecture theatres - they will not benefit from training in using NGLS until many early adopters are already getting enhanced CES from the space i.e. 2 years. So look at the other lecturers - who already teach in flat floor rooms, who already run facilitated workshop type activities even in lecture theatres, who use project or problem based learning etc etc. We will be the early adopters. How to get us there? Staff are infamously hard to get to training. So provide an incentive - make is short (hour max), give us hands on, run a 5 minute demo and make it at lunchtime and serve lunch. Every day for a week.
- Most lecturers who have been continuing with traditional lectures and tutes will have a big need for professional development, and many may feel very uncomfortable. As I have already adopted a new generation learning method, I was just waiting for the learning space to catch up to give myself and my students a better experience.
- Most academic staff have not had the opportunity to be taught how to teach. Their reviews are by students who do not know how to teach - so how can they improve?

- 4 responses provided a suggestion for hands-on practice

- Make access easier so it enables people to come in and play around with the set up to see what is

possible so that it encourages use. Having more rooms like this so PD can actually be applied

- there will be a time of experimentation and innovation, this is to be expected, just need to make sure that the environment and its configuration and usage is EASY!
- Staff are infamously hard to get to training. So provide an incentive - make is short (hour max), give us hands on, run a 5 minute demo and make it at lunchtime and serve lunch. Every day for a week.
- experiment with and implement that learning. A 1 hour induction to the classroom is useless if we don't have time to put any of the ideas and strategies into practice, or to refresh our curriculum to incorporate the new technology and space.

- 4 responses provided suggestions that professional development should be disciplinary based
  - It has to be relevant to the subject matter. Each subject, indeed each week's content may be best suited with a different teaching environment. If managers would design a program about the needs of teachers each week rather than using a generic approach. Then the training would stem from that point. The topic of the defines the working environment and thus the prof development.
  - Make it relevant and better and not be a project to fulfil project demands. I don't want this to be another enthusiastic, abstract idea from people who might not be sympathetic to the discipline I teach in.
  - You might consider asking people experienced with teaching in New Generation Learning Spaces to identify themselves and to ask whether they would be willing to act as “Champions” and conduct demonstrations for colleagues in cognate disciplines.
  - The NGLS will require (possibly) radical and ad hoc transitions from current practice. A customised approach may be necessary (essential), from a disciplinary perspective, requiring discipline champions to be used in a targeted approach, for example, for courses that are taught to first years and which courses are considered to be "bottleneck courses".

12. How confident are you in using New Generation Learning Spaces?*

	Frequency	Valid Percent
Not at all confident	11	7.6
Slightly confident	19	13.1
Moderately confident	53	36.6
Very confident	45	31.0
Extremely confident	17	11.7
Missing	38	-

* Scale median = 3 (labelled ‘Moderately confident’), Scale mean = 3.26

13. How willing are you to teach in New Generation Learning Spaces?*

	Frequency	Valid Percent
Not at all willing	3	2.1
Slightly willing	8	5.6
Moderately willing	25	17.5
Very willing	48	33.6
Extremely willing	59	41.3

Total (Valid)	143	100.0
Missing	40	
Total (Missing + Valid)	183	

* Scale median = 4 (labelled 'Very willing'), Scale mean = 4.06

14. In the past year, how many courses have you taught in New Generation Learning Spaces?*

	Frequency	Valid Percent
None	81	57.4
1	29	20.6
2	10	7.1
3	8	5.7
4	4	2.8
5 or more	9	6.4
Total (Valid)	141	100.0
Missing	42	
Total (Missing + valid)	183	

*Scale median = 1, Scale mean = 1.95

15. Which university are you employed at?

	Frequency	Valid Percent
RMIT University	140	99.3
Melbourne University	1*	.7*
Total (valid)	141	100.0
Missing	42	
Total	183	

* I've decided to include the one person who said they were from Melbourne University in this sample of RMIT employees. Given that no advertisements had been placed at Melbourne University at the time this data was collected, I've assumed that this was either an error (and the participant was thus employed by RMIT), or that the individual worked both at RMIT and Melbourne University.

16. What is your employment type?

	Frequency	Valid Percent
Part- time (less than 50% of full-time equivalent)	31	22.1
Part-time (More than 50% but less than 100% of full-time equivalent)	17	12.1
Full-time	92	65.7
Total (Valid)	140	100.0
Missing	43	-
Total	183	100.0

17. What is your employment status?

	Frequency	Valid Percent
Casual/sessional/conjoint/adjunct	36	26.3
Fixed/limited term	15	10.9
Continuing	86	62.8
Total (Valid)	137	100.0
Missing	46	-
Total	183	100.0

18. What is your current level of employment?

	Frequency	Valid Percent
Lecturer A (Associate Lecturer)	14	14.7
Lecturer B (Lecturer)	32	33.7
Lecturer C (Senior Lecturer)	27	28.4
Lecturer D (Associate Professor)	10	10.5
Lecturer E (Professor)	12	12.6
Total (Valid)	95	100.0
Missing	88	-
Total	183	100

19. How many years of university teaching experience do you have?*

	Frequency	Valid Percent
less than one year	11	7.9
1 to 2 years	5	3.6
3 to 5 years	27	19.4
6 to 10 years	22	15.8
More than 10 years	74	53.2
Total (Valid)	139	100.0
Missing	44	-
Total	183	100.0

* Median = 'More than 10 years', Mean = 4.02 (which represents approximately 6-10 years)

20. Which academic discipline do you teach in?

Original categories on survey

	Frequency	Valid Percent
Mathematical Sciences	3	2.3
Physical Sciences	1	.8
Chemical Sciences	1	.8
Environmental Sciences	1	.8
Biological Sciences	2	1.5
Information and Computing Sciences	10	7.6
Engineering	13	9.8

Technology	8	6.1
Medical and Health Sciences	16	12.1
Built Environment and Design	12	9.1
Education	10	7.6
Economics	5	3.8
Commerce, Management, Tourism and Services	21	15.9
Studies in Human Society	6	4.5
Psychology and Cognitive Sciences	2	1.5
Law and Legal Studies	4	3.0
Studies in Creative Arts and Writing	6	4.5
Language, Communication and Culture	10	7.6
History and Archaeology	1	.8
Total (valid)	132	100.0
Missing	51	-
Total	183	100.0

21. How many years of workplace/industry experience (excluding university teaching) do you have that is related (directly or indirectly) to your discipline?*

	Frequency	Valid Percent
Less than one year	14	10.1
1 to 2 years	8	5.8
3 to 5 years	22	15.9
6 to 10 years	16	11.6
More than 10 years	78	56.5
Total (valid)	138	100.0
Missing	45	
Total	183	

* Scale median = 'More than 10 years'

22. Do you have a formal teaching qualification? (includes any teaching qualification)

	Frequency	Valid Percent
Yes	74	52.9
No	66	47.1
Total (valid)	140	100.0
Missing	43	-
Total	183	100.0

23. What is your age?*

	Frequency	Valid Percent
25-29	7	5.0
30-34	10	7.2
35-39	13	9.4
40-44	16	11.5
45-49	21	15.1
50-54	33	23.7
55-59	19	13.7
60-64	11	7.9
65-69	9	6.5
Total (Valid)	139	100.0
Missing	44	-
Total	183	100.0

* Median age group = '50 to 54'

24. What is your gender?

	Frequency	Valid Percent
Male	74	53.6
Female	64	46.4
Total (Valid)	138	100.0
Missing	45	-
Total	183	100.0

25. Have you undertaken any professional development in the past year?

	Frequency	Valid Percent
Yes	80	57.6
No	59	42.4
Total (Valid)	139	100.0
Missing	44	-
Total	183	100.0

Differences between those want PD support and those who don't want PD support

In what would encourage them to undertake PD

A series of Mann-Whitney U tests were computed to determine the extent to which respondents who didn't want PD differ from those who did want PD (as determined in question 1) in what would encourage them to undertake PD. Separate tests were conducted on each of the items in question 5.
Results revealed that those who didn't want PD were significantly less encouraged by the following factors:

- Time release, $U = 1415.5$, $p < .001$
- A personal interest in teaching in NGLSs, $U = 1854$, $p = .02$

- Responding to positive feedback from peers, U = 1757, p = .02
- Reducing my own anxiety in teaching in NGLSs, U = 1135.5, p < .001
- My own personal belief in professional development, U = 1408.5, p < .001
- Feeling that professional development will be presented at my 'level' (not too hard or easy), U = 1744.5, p = .02

No significant difference existed on any of the other encouraging factors mentioned in question 5.

In learning preferences

As a preliminary form of analysis, the percentages below were calculated using data from questions 1 and 6. *Preliminary results appear to show that those who don't want PD support are more likely than those who do want PD to prefer to 'experiment with new ideas, simulations…*' I can conduct more rigorous tests on this if you are interested.

	Do want PD % (valid)	Don't want PD % (valid)
I prefer to work in groups, listening with an open mind to different points of view and receiving personalized feedback.	42.7	22.5
I prefer readings, lectures, exploring analytical models, and having time to think things through.	10.9	7.5
I prefer to experiment with new ideas, simulations, laboratory assignments, and practical applications.	38.2	62.5
I prefer to work with others to get assignments done, to set goals, to do field work, and to test out different approaches to completing a project.	8.2	7.5

In delivery modes

A series of Mann-Whitney U tests were computed to determine the extent to which respondents who didn't want PD differ from those who did want PD (as determined in question 1) in which learning mode they preferred. Separate tests were conducted on each of the items in question 7.
Results revealed that those who didn't want PD were significantly less fond of a learning mode that included 'a combination of online, face-to-face and paper-based' materials, U = 1385, p = .001

In confidence in using NGLSs

A Mann-Whitney U test was computed to determine the extent to which respondents who didn't want PD differ from those who did want PD (as determined in question 1) in their confidence in teaching in NGLSs (question 12).
Results revealed that those who didn't want PD were significantly less confident in using NGLSs, U = 1020, p < .001

In willingness to teach in NGLSs

A Mann-Whitney U test revealed *no significant difference in willingness to teach in an NGLS between those who did and those who didn't want PD*.

In demographics

Both Mann-Whitney U tests (using wanting pd as the factor) and Spearman correlations were performed to test for demographic associations with wanting PD. All demographic items were included, with the exception of the one measuring academic discipline. *No significant demographic differences existed between those who did and those who didn't want PD support.*

Differences between disciplines

How we categorised disciplines in this RMIT sample

Initially, there were twenty-two disciplinary categories, as in the ABS discipline categorisations (http://bit.ly/wsH2pV). As we had very small numbers of participants in many of these categories (often less than five), we collapsed these categories into three. These three categories were based on RMIT's college structure, which has the following colleges: 'Science, engineering and health' (SEH), 'Design and social context' (DSC), and 'Business' (BUS).

In which ways of undertaking PD meet their needs

A series of Kruskal Wallis tests using discipline (RMIT college) as the factor and each way of undertaking PD (question 2) as the dependent variables found some differences between groups.
There were significant differences between disciplines in the extent to which they thought the following met their needs (business was typically lower than DSC and SEH):

- Observing peers teaching in NGLSs (χ^2 (2) = 6.64, p = .036)
    - Mean ranks: SEH = 50.74, DSC = 50. 48, BUS = 34.57
- Engaging in hands-on sessions on teaching in NGLSs (χ^2 (2) = 7.13, p = .028)
    - Mean ranks: SEH = 49.35, DSC = 54.42, BUS = 35.91
- Undertaking a guided field trip to other institutions using NGLSs (χ^2 (2) = 10.68, p = .005)
    - Mean ranks: SEH = 47.06, DSC = 56.50, BUS = 32.40
- Undertaking an exchange in another institution (χ^2 (2) = 6.84, p = .033)
    - Mean ranks: SEH = 50. 25, DSC = 52.50, BUS = 34.40
- Focusing a sabbatical on NGLSs (χ^2 (2) = 7.95, p = .019)
    - Mean ranks: SEH = 53.74, DSC = 47.00, BUS = 34.17

In what encourages engagement in PD

A series of Kruskal Wallis tests using discipline (RMIT college) as the factor and each way of encouraging engagement in PD (question 3) as the dependent variables were computed to test for disciplinary differences.
Almost no disciplinary differences emerged on what encouraged individuals to undertake PD. The only significant difference was in the extent to which 'My own interest in professional development' was thought to encourage one to undertake PD (χ^2 (2) = 6.48, p = .039, Mean ranks: SHE= 58.67, DSC = 66.12,).

In what methods of delivery are preferred

A series of Kruskal Wallis tests using discipline (RMIT college) as the factor and each way of delivering PD (q. 7) as the dependent variables were computed to test for disciplinary differences.
No significant disciplinary differences were found in the extent to which they liked each delivery method.

In confidence and willingness

Two Kruskal Wallis tests using discipline (RMIT college) as the factor, one using confidence (q. 12) as the dependent variable, the other using willingness (q. 13) as the dependent variable. *No significant disciplinary differences were found in confident and willingness.*

Associations with age

Ways of undertaking PD

Spearman correlation coefficients were computed to test for relationships between age and each of the ways of undertaking PD listed in question 1. *No significant correlations between age and any of the ways of undertaking PD were found.*

Ways to encourage engagement with PD

Spearman correlation coefficients were computed to test for relationships between age and each of the ways of encouraging PD listed in question 2.
Signification associations between age and the following were found:

- *Older people tended to be less encouraged by additional payment (ρ = -.24, p = .005), and by directives from Heads of School (ρ = -.19, p = .030).*
- *Older people tended to be more encouraged by 'a need to stay up-to-date with current teaching practice' (ρ = .19, p = .026), 'satisfying [their] own professional work ethic' (ρ = .37, p < .000), and their 'own belief in professional development' (ρ = .18, p = .034).*

Ways of delivering PD

Spearman correlation coefficients were computed to test for relationships between age and each of the ways of delivery PD listed in question 3.
Age was correlated with one of the delivery modes: 'online'. The older one was, the less they liked online delivery (ρ = -.24, p = .006).

Confidence and willingness

Spearman correlation coefficients were computed to test for relationships between age and confidence (q. 12) and willingness (q. 13). *Results revealed that age was not significantly correlated with willingness. A marginally-significant positive relationship between age and confidence was found (ρ = .149, p = .084), indicating that older people may feel slightly more confident than younger people in using NGLSs.*

Differences between employment statuses

In which ways of undertaking PD meet their needs

A series of Kruskal Wallis tests using employment status (casual, fixed term, continuing) as the factor and each way of undertaking PD (question 2) as dependent variables found some differences between groups.
There were significant differences between casual, fixed term and continuing employees in the extent to which they thought the following met their needs (typically, continuing employees' responses were lower than casual and fixed term employees on these measures):

- Undertaking formal study on teaching in NGLSs (χ^2 (2) = 8.48, p = .014, Mean ranks: Cas = 58.34, Fix = 59.50, Cont = 42.81)
- Getting advice from external experts on using NGLSs (χ^2 (2) = 6.22, p = .044, Mean ranks: Cas = 54.10, Fix = 64.72, Cont = 44.09)

- Actively deepening your teaching ability through independent self-study (χ^2 (2) = 7.56, p = .023, Mean ranks: Cas = 49.52, Fix = 70.78, Cont = 44.62)
- Participating in a professional group of NGLS users (χ^2 (2) = 7.37, p = .025, Mean ranks: Cas =58.10, Fix = 51.94, Cont = 43.56)
- Being in a university culture that encourages professional learning relating to NGLSs (χ^2 (2) = 6.66, p = .036, Mean ranks: Cas =56.84, Fix = 62.00, Cont = 44.08)
- Attending externally-hosted sessions on teaching in NGLSs (χ^2 (2) = 12.72, p = .002, Mean ranks: Cas =59.80, Fix = 52.00, Cont = 44.53)
- Being directed to undertake professional development activities on teaching in NGLSs (χ^2 (2) = 12.30, p = .002, Mean ranks: Cas =62.33, Fix = 60.00, Cont = 41.73)
- Undertaking a guided field trip to other institutions using NGLSs (χ^2 (2) = 9.17, p = .010, Mean ranks: Cas = 59.96, Fix = 58.94, Cont = 42.39)
- Completing a residency at another institution focusing on using NGLSs (χ^2 (2) = 6.78, p = .034, Mean ranks: Cas =59.39, Fix = 56.89, Cont = 43.87)
- Learning from how I was taught when I was a student (χ^2 (2) = 11.30, p = .004, Mean ranks: Cas =57.57, Fix = 68.83, Cont = 42.70)
- Undertaking a secondment to a Learning and Teaching unit specialising in NGLSs (χ^2 (2) = 11.54, p = .003, Mean ranks: Cas =59.91, Fix = 64.11, Cont = 41.64)
- Undertaking an exchange in another institution (χ^2 (2) = 9.04, p = .011, Mean ranks: Cas = 59.39, Fix = 62.39, Cont = 43.06)

In what encourages engagement in PD

A series of Kruskal Wallis tests using employment status (casual, fixed term, continuing) as the factor and each way of undertaking PD (question 5) as dependent variables found some differences between groups.
Specifically, there were significant differences between individuals of different employment statuses in the extent to which they said the following encouraged them to undertake PD (typically, continuing employees' responses were lower than casual and fixed term employees on these measures):

- A directive from your head of school (χ^2 (2) = 6.12, p = .047)
- A university policy that requires all teaching staff to undertake PD (χ^2 (2) = 10.59, p = .011)

In what methods of delivery are preferred

A series of Kruskal Wallis tests using employment status (casual, fixed term, continuing) as the factor and each way of delivering PD (question 7) as dependents were computed.
Results revealed a significant difference in the extent to which 'a combination of online, face-to-face and paper-based' was liked, χ^2 (2) = 8.74, p = .013. Casuals appeared to like this more than fixed-term and continuing employees.

In confidence and willingness

A series of Kruskal Wallis tests using employment status (casual, fixed term, continuing) as the factor and confidence and willingness as dependents were computed.
Results revealed no significant differences in confidence or willingness. However, a marginally-significant difference in confidence levels was found, χ^2 (2) = 5.70, p = .058. Casuals appeared less confident than fixed-term and continuing employees.

Differences between individuals with different learning types

In which ways of undertaking PD meet their needs

A series of Kruskal Wallis tests using learning type (question 6) as the factor and each way of undertaking PD (question 2) as the dependent variables found some differences between groups.
*There were **significant** differences ($p < .05$) between individuals with different learning types in the extent to which they thought the following met their needs:*

- Attending a lecture on teaching in NGLSs (χ^2 (3) = 18.08, $p < .001$)
- Reading instructional material about NGLSs (χ^2 (3) = 9.24, $p = .026$)

*There were **marginally-significant** ($p < .1$) differences between individuals with different learning types in the extent to which they thought the following met their needs:*

- Participating in 360-degree feedback reviews (χ^2 (3) = 7.60, $p = .055$)
- Attending NGLS training with colleagues from other disciplines (χ^2 (3) = 7.00, $p = .073$)
- Attending externally-hosted sessions on teaching in NGLSs (χ^2 (3) = 6.66, $p = .084$)

In preference for delivery modes

A series of Kruskal Wallis tests using learning type (question 6) as the factor and each delivery mode (question 7) as the dependent variable found some differences. *Significant differences in the liking of online (χ^2 (3) = 8.62, $p = .035$) and face-to-face (χ^2 (3) = 10.24, $p=.017$) delivery modes were found between learning types. Furthermore, differences in the liking of paper-based/print delivery modes approached significance (χ^2 (3) = 7.37, $p=.061$).* The mean ranks in each group for each delivery method are reported in the table below. Lower mean ranks indicate lower liking.

Ranks

	What way would you prefer to learn about New Generation Learning Spaces? Please select the option you prefer most.	N	Mean Rank
Online	I prefer to work in groups, listening with an open mind to d	54	66.72
	I prefer readings, lectures, exploring analytical models, an	15	98.77
	I prefer to experiment with new ideas, simulations, laborato	61	67.16
	I prefer to work with others to get assignments done, to set	10	68.85
	Total	140	

Face-to-face	I prefer to work in groups, listening with an open mind to d	56	83.73
	I prefer readings, lectures, exploring analytical models, an	15	63.00
	I prefer to experiment with new ideas, simulations, laboratory	64	64.16
	I prefer to work with others to get assignments done, to set	11	90.05
	Total	146	
Paper-based/printed	I prefer to work in groups, listening with an open mind to d	55	70.39
	I prefer readings, lectures, exploring analytical models, an	15	97.10
	I prefer to experiment with new ideas, simulations, laborato	62	66.27
	I prefer to work with others to get assignments done, to set	10	71.65
	Total	142	
A combination of online, face-to-face, and paper-based	I prefer to work in groups, listening with an open mind to d	55	77.15
	I prefer readings, lectures, exploring analytical models, an	15	77.03
	I prefer to experiment with new ideas, simulations, laborato	63	68.13
	I prefer to work with others to get assignments done, to set	11	68.09
	Total	144	

Associations with having taught in NGLSs in the last year

Confidence and willingness

Spearman correlations were computed between the number of courses taught in NGLSs in the past year (q. 14), confidence in teaching in NGLSs (q. 12), and willingness to teach in an NGLS (q. 13). *Results revealed that the number of classes taught in NGLSs in the past year was positively correlated with confidence ($\rho = .23$, $p = .006$) and willingness ($\rho = .22$, $p = .009$).*

Comparison of University of Melbourne and RMIT data

Note that we have only a very small sample from the University of Melbourne, thus meaning that the confidence we can place in these findings is somewhat limited.

Frequencies and Percentages

Dataset used was current at 25 July, 2012

1. **If you were timetabled to teach in a New Generation Learning Space would you want professional development support to help you teach in this space?**

		Yes	No	Total
RMIT University	Count	103	37	140
	% within Which university are you employed at?	73.6%	26.4%	100.0%
Melbourne University	Count	22	6	28
	% within Which university are you employed at?	78.6%	21.4%	100.0%
Total	Count	125	43	168
	% within Which university are you employed at?	74.4%	25.6%	100.0%

*A Pearson chi square test indicated no significant differences between Melbourne & RMIT respondents on this item, χ^2 (1) = .31, p = .58

2. **Briefly explain the reason(s) for your answer to the question above.**
3. **Which of the following ways of undertaking professional development would meet your needs for teaching in New Generation Learning Spaces (NGLSs)?**

	Which university are you employed at?								Tests for differences	
	RMIT University				Melbourne University					
	N				N					
	Valid	Missing	Mean	Median	Valid	Missing	Mean	Median	Mann-Whitney U	Sig
Engaging in hands-on sessions on teaching in NGLSs	101	39	3.9208	4.0000	22	6	3.6818	4.0000	952.500	.257

Being coached/mentored about teaching in NGLSs	96	44	3.7396	4.0000	22	6	3.3182	3.5000	840.500	.115
Having conversations with colleagues teaching in NGLSs	99	41	3.7172	4.0000	22	6	3.8636	4.0000	1016.500	.599
Observing peers teaching in NGLSs	99	41	3.6970	4.0000	22	6	3.8182	4.0000	961.500	.354
Being in a university culture that encourages professional learning relating to NGLSs	100	40	3.6900	4.0000	22	6	3.5909	4.0000	1040.000	.668
Getting advice from external experts on using NGLSs	99	41	3.4949	4.0000	21	7	3.5238	4.0000	1027.000	.926
Attending NGLS training with colleagues from other disciplines	98	42	3.4694	4.0000	22	6	3.0455	3.0000	844.000	.099
Practicing your teaching in NGLSs	101	39	3.4455	4.0000	22	6	3.4091	3.0000	1061.500	.734
Applying best practice research in NGLSs with your teaching practice	100	40	3.4400	4.0000	22	6	3.4545	4.0000	1087.000	.927
Participating in a professional group of NGLS users	100	40	3.3900	4.0000	22	6	3.0455	3.0000	925.500	.228
Undertaking activities on NGLSs over time	101	39	3.2079	3.0000	22	6	3.1818	3.0000	1074.000	.798
Attending externally-hosted sessions on teaching in NGLSs	99	41	3.1616	3.0000	22	6	2.7273	3.0000	873.500	.134
Participating in 360-degree feedback reviews, which involves receiving feedback on your teaching in NGLSs from your students and colleagues.	99	41	3.1313	3.0000	22	6	2.8636	3.0000	953.500	.345
Attending a lecture on teaching in NGLSs	98	42	2.9082	3.0000	22	6	3.0455	3.0000	997.500	.572
Having your current conceptions of teaching in a NGLS challenged	100	40	2.8900	3.0000	21	7	2.6667	3.0000	937.500	.427
Micro-teaching, which involves videotaping yourself teaching in a NGLS and then analysing your practice	99	41	2.8182	3.0000	22	6	2.5909	3.0000	979.500	.449
Reading instructional material about NGLSs	98	42	2.7653	3.0000	22	6	3.0455	3.0000	958.000	.399

Watching or listening to recordings of yourself teaching	98	42	2.7245	3.0000	22	6	2.6364	3.0000	1033.500	.755
Actively deepening your teaching ability through independent self-study (eg. web searches, reading articles and books, watching videos, etc)	98	42	2.7245	3.0000	22	6	2.7727	3.0000	1054.500	.868
Undertaking a guided field trips to other institutions using NGLSs	99	41	2.6970	3.0000	22	6	2.4545	2.0000	963.000	.384
Engaging in a simulation/game about teaching in NGLSs	100	40	2.6800	3.0000	22	6	2.8182	3.0000	1045.500	.709
Completing a residency at another institution focusing on using NLGSs	100	40	2.5800	3.0000	21	7	2.0476	2.0000	814.000	.096
Being directed to undertake professional development activities on teaching in NGLSs	100	40	2.5400	2.5000	22	6	1.9091	1.5000	786.500	.031*
Undertaking a secondment to a Learning and Teaching unit specialising in NGLSs	99	41	2.5657	2.0000	21	7	2.0000	2.0000	782.000	.067
Undertaking an exchange in another instition	100	40	2.4200	2.0000	22	6	1.8636	1.0000	829.000	.059
Focusing a sabbatical on NGLSs	99	41	2.2323	2.0000	22	6	1.9091	1.0000	924.000	.240
Learning from how I was taught when I was a student	99	41	2.0000	2.0000	22	6	1.5909	1.0000	899.500	.170
Undertaking formal study on teaching in NGLSs (ie Grad. Cert in Tertiary Teaching)	99	41	1.9293	2.0000	22	6	1.6818	1.0000	969.500	.386

NB. These are ordered by RMIT median, then by RMIT mean. Scale ranges from 1 ('Does not meet') to 5 ('Completely meets')

4. **What, if anything, would make you change your mind about not wanting professional development support for teaching in New Generation Learning Spaces?**
5. **To what extent would each of the following encourage you to undertake professional development about teaching in New Generation Learning Spaces (NGLSs)? Please rate each item by clicking on the response that applies to you.**

	Which university are you employed at?								Difference Tests	
	RMIT University				Melbourne University					
	N				N					
	Valid	Missing	Mean	Median	Valid	Missing	Mean	Median	Mann-Whitney U	Asymp. Sig. (2-tailed)
A personal interest in teaching in NGLSs	140.00	0.00	4.00	4.00	28.00	0.00	4.04	4.00	1922.50	0.87
Responding to positive feedback from students	139.00	1.00	3.83	4.00	28.00	0.00	3.68	4.00	1925.50	0.93
Responding to negative feedback from students	138.00	2.00	3.46	4.00	28.00	0.00	3.39	4.00	1889.50	0.85
Responding to positive feedback from peers	139.00	1.00	3.45	4.00	28.00	0.00	3.36	4.00	1894.50	0.81
A need to stay up to date with current teaching practice	139.00	1.00	3.80	4.00	28.00	0.00	3.79	4.00	1892.00	0.81
Satisfying my own professional work ethic	140.00	0.00	4.08	4.00	28.00	0.00	4.11	4.00	1857.50	0.64
My own personal belief in professional development	137.00	3.00	3.64	4.00	28.00	0.00	3.54	4.00	1803.50	0.60
My own interest in professional development	140.00	0.00	3.81	4.00	26.00	2.00	3.58	4.00	1564.50	0.23
Time release	137.00	3.00	3.51	4.00	27.00	1.00	2.96	3.00	1393.00	0.037*
Additional payment	139.00	1.00	3.24	4.00	28.00	0.00	2.93	3.00	1726.00	0.33
Responding to negative feedback from peers	139.00	1.00	3.05	3.00	28.00	0.00	3.07	3.50	1906.50	0.86
Receiving recognition for promotion	139.00	1.00	3.20	3.00	28.00	0.00	2.79	3.00	1622.00	0.16
Having one-on-one private professional development sessions	136.00	4.00	3.24	3.00	28.00	0.00	3.21	3.00	1890.50	0.95

Having an opportunity to publish	137.00	3.00	2.82	3.00	28.00	0.00	2.57	3.00	1717.00	0.37
Feeling that professional development will be presented at my 'level' (not too hard or easy)	139.00	1.00	3.01	3.00	28.00	0.00	3.21	3.00	1793.50	0.50
A professional accreditation requirement	139.00	1.00	2.82	3.00	28.00	0.00	2.46	2.50	1659.50	0.21
Including professional development in your work plan	136.00	4.00	2.99	3.00	28.00	0.00	2.50	2.50	1495.00	0.07
Receiving recognition (eg certificate) from your university	139.00	1.00	2.56	3.00	28.00	0.00	2.46	2.00	1890.50	0.81
A directive from your Head of School	139.00	1.00	2.42	2.00	28.00	0.00	2.11	2.00	1752.50	0.39
A university policy that requires all teaching staff to undertake professional development for teaching in NGLSs	140.00	0.00	2.46	2.00	28.00	0.00	2.14	2.00	1757.00	0.37
Receiving recognition (eg certificate) from your program	135.00	5.00	2.56	2.00	28.00	0.00	2.29	2.00	1684.00	0.35
Receiving recognition (eg certificate) from your department or school	136.00	4.00	2.54	2.00	28.00	0.00	2.25	2.00	1695.50	0.35
Receiving recognition (eg certificate) from your faculty/college/division	137.00	3.00	2.54	2.00	28.00	0.00	2.39	2.00	1827.50	0.69
Reducing my own anxiety about teaching in NGLSs	137.00	3.00	2.58	2.00	27.00	1.00	2.59	2.00	1835.00	0.95

NB. These are ordered by RMIT median, then by Melbourne median. Scale ranges from 1 ('Not at all encouraging') to 5 ('Extremely encouraging')

6. What way would you prefer to learn about New Generation Learning Spaces? Please select the option you prefer most.

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
I prefer to experiment with new ideas, simulations, laborato	62	45.6	9	32.1
I prefer to work in groups, listening with an open mind to d	51	37.5	13	46.4
I prefer readings, lectures, exploring analytical models, an	13	9.6	4	14.3
I prefer to work with others to get assignments done, to set	10	7.4	2	7.1
Total valid	136	100.0	28	100.0

7. To what extent would you like professional development on teaching in New Generation Learning Spaces to be provided in each of the following modes?

	RMIT University				Melbourne University				Difference test	
	N				N					
	Valid	Missing	Mean	Median	Valid	Missing	Mean	Median	Mann-Whitney U	Asymp. Sig. (2-tailed)
Face-to-face	136.00	4.00	3.78	4.00	27.00	1.00	3.96	4.00	1721.50	0.58
A combination of online, face-to-face, and paper-based	135.00	5.00	3.32	4.00	26.00	2.00	3.88	4.00	1290.50	0.03*
Online	132.00	8.00	2.61	3.00	27.00	1.00	2.78	3.00	1630.50	0.48
Paper-based/printed	133.00	7.00	2.31	2.00	27.00	1.00	2.93	3.00	1224.00	0.01*

8. In which of the below learning spaces would you most prefer to teach? Please rank these spaces from most to least preferred.

	RMIT University				Melbourne University			
	N		% 1st choice	Median	N		% 1st choice	Median
	Valid	Missing			Valid	Missing		
B	129	11	18.60	2.00	28	0	32.10	2.00
F	131	9	42.00	2.00	27	1	44.40	2.00
A	131	9	10.70	3.00	28	0	14.30	3.50
C	128	12	18.00	4.00	28	0	10.70	4.00
E	130	10	4.60	4.00	28	0	3.60	5.00
D	131	9	4.60	5.00	28	0	7.10	5.00

9. **What three aspects about teaching in a New Generation Learning Space would you (or do you) find the most challenging?**
10. **What are the three professional development areas about teaching in New Generation Learning Spaces that you would be most interested in?**
11. **Is there anything that you want to tell us/ think we should know about providing professional development for teaching in New Generation Learning Spaces for academic teaching staff?**
12. **How confident are you in using New Generation Learning Spaces?***

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
Not at all confident	10	7.3	1	3.6
Slightly confident	18	13.1	3	10.7
Moderately confident	50	36.5	13	46.4
Very confident	42	30.7	7	25.0
Extremely confident	17	12.4	4	14.3
Total valid	137	100.0	28	100.0
Missing	3		0	

*A Mann-Whitney U test indicated no significant difference in confidence between RMIT and Melbourne respondents , U = 1878, p = .856.

13. How willing are you to teach in New Generation Learning Spaces?*

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
Not at all willing	2	1.5	1	3.6
Slightly willing	7	5.2	1	3.6
Moderately willing	23	17.0	3	10.7
Very willing	45	33.3	9	32.1
Extremely willing	58	43.0	14	50.0
Total	135	100.0	28	100.0
Missing	5		0	

* A Mann-Whitney U test indicated no significant difference in willingness between RMIT and Melbourne respondents , U = 1737, p = .473.

14. In the past year, how many courses have you taught in New Generation Learning Spaces?*

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
None	79	56.8	6	21.4
1	29	20.9	5	17.9
2	10	7.2	6	21.4
3	8	5.8	8	28.6
4	4	2.9	2	7.1
5 or more	9	6.5	1	3.6
Total	139	100.0	28	100.0
Missing	1			

***** A Mann-Whitney U test indicated significant differences between RMIT and Melbourne respondents in the number of courses taught in NGLSs in the past year , $U = 1143$, $p < .000$. The number of courses taught in NGLSs was lower amongst RMIT respondents (median = 1) than Melbourne respondents (median = 3). One reason for this may be that the Melbourne sample includes mostly people from the education discipline, and the education building at Melbourne has recently been refurbished to include more NGLSs.

15. Which university are you employed at?

	Frequency	Percent	Valid Percent
RMIT University	140	64.2	83.3
Melbourne University	28	12.8	16.7
Total	168	77.1	100.0
Missing	50	22.9	

16. What is your employment type?

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
Part- time (less than 50% of full-time equivalent)	30	21.6	7	25.0
Part-time (More than 50% but less than 100% of full-time equ	17	12.2	5	17.9
Full-time	92	66.2	16	57.1
Total (valid)	139	100.0	28	100.0
Missing	1			
Total	140			

17. What is your employment status?

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
Casual/sessional/conjoint/adjunct	35	25.7	8	28.6
Fixed/limited term	15	11.0	9	32.1
Continuing	86	63.2	11	39.3
Total (valid)	136	100.0	28	100.0
Missing	4			
Total	140			

18. What is your current level of employment?

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
Lecturer A (Associate Lecturer)	14	14.9	6	25.0
Lecturer B (Lecturer)	32	34.0	7	29.2
Lecturer C (Senior Lecturer)	26	27.7	5	20.8
Lecturer D (Associate Professor)	10	10.6	5	20.8
Lecturer E (Professor)	12	12.8	1	4.2
Total (valid)	94	100.0	24	100.0
Missing	46		4	
Total	140		28	

19. How many years of university teaching experience do you have?*

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
less than one year	11	8.0	0	0
1 to 2 years	5	3.6	3	10.7
3 to 5 years	27	19.7	5	17.9
6 to 10 years	22	16.1	7	25.0
More than 10 years	72	52.6	13	46.4
Total (valid)	137	100.0	28	100.0
Missing	3			
Total	140			

* A Mann-Whitney U test indicated no significant difference in years of university teaching experience between RMIT and Melbourne respondents , U = 1879, p = .854.

20. Which academic discipline do you teach in?

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
Mathematical Sciences	2	1.5	0	0
Physical Sciences	1	.8	0	0
Chemical Sciences	1	.8	0	0
Environmental Sciences	1	.8	0	0
Biological Sciences	2	1.5	1	3.6
Information and Computing Sciences	10	7.7	2	7.1
Engineering	13	10.0	1	3.6
Technology	8	6.2	0	0
Medical and Health Sciences	16	12.3	0	0
Built Environment and Design	12	9.2	2	7.1
Education	10	7.7	13	46.4
Economics	5	3.8		
Commerce, Management, Tourism and Services	20	15.4	2	7.1
Studies in Human Society	6	4.6	1	3.6
Psychology and Cognitive Sciences	2	1.5	1	3.6
Law and Legal Studies	4	3.1	0	0
Studies in Creative Arts and Writing	6	4.6	2	7.1
Language, Communication and Culture	10	7.7	1	3.6
History and Archaeology	1	.8	2	7.1
Total (valid)	130	100.0	28	100.0
Missing	10		0	
Total	140			

21. How many years of workplace/industry experience (excluding university teaching) do you have that is related (directly or indirectly) to your discipline?*

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
Less than one year	13	9.6	3	10.7
1 to 2 years	8	5.9	1	3.6
3 to 5 years	22	16.2	3	10.7
6 to 10 years	16	11.8	7	25.0
More than 10 years	77	56.6	14	50.0
Total (valid)	136	100.0	28	100.0
Missing	4		0	
Total	140			

* A Mann-Whitney U test indicated no significant difference in years of industry experience between RMIT and Melbourne respondents , U = 1854, p = .811.

22. Do you have a formal teaching qualification? (includes any teaching qualification)

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
Yes	74	53.6	17	60.7
No	64	46.4	11	39.3
Total (valid)	138	100.0	28	100.0
Missing	2			
Total	140			

23. What is your age?*

	RMIT University		Melbourne University	
	Frequency	Valid Percent	Frequency	Valid Percent
20- 24	0	0	1	3.6
25-29	7	5.1	2	7.1
30-34	10	7.3	3	10.7
35-39	13	9.5	5	17.9
40-44	16	11.7	3	10.7
45-49	21	15.3	1	3.6
50-54	33	24.1	4	14.3
55-59	19	13.9	2	7.1
60-64	9	6.6	4	14.3
65-69	9	6.6	3	10.7
Total (valid)	137	100.0	28	100.0
Missing	3			
Total	140			

* A Mann-Whitney U test indicated no significant difference in age between RMIT and Melbourne respondents , U = 1775, p = .532.

24. What is your gender?*

		RMIT University	Melbourne University
Male	Count	72	10
	% within university	52.9%	35.7%
Female	Count	64	18
	% within university	47.1%	64.3%
Total	Count	136	28
	% within university	100.0%	100.0%

* Pearson chi-square revealed no significant differences in gender between universities.

25. Have you undertaken any professional development in the past year? *

		RMIT University	Melbourne University
Yes	Count	79	12
	% within university	57.7%	42.9%
No	Count	58	16
	% within university	42.3%	57.1%
Total	Count	137	28
	% within university	100.0%	100.0%

* Pearson chi-square revealed no significant differences between universities in the amount of PD undertaken in the past year.

Appendix 2.Response to trial feedback

Do you have any comments about the introductory email?	
too much of a "home story" where are the facts?	Facts about how teaching in NGLS enhances learning will be added
I scanned it pretty quickly as it is reasonably long. I was also quickly tempted to look at the video, rather than paying attention to the detail of the possibilities. But I think it is a good email for laying out the approach.	Will shorten the email. Unfortunately the video cannot go lower in the email due to the Campaign Monitor software.
I would like to see a video about a university from Aust/NZ. Although, the video was very interesting and positive. / Some of the key words could be highlighted (in bold?) to make message more prominent.	Will make a video about a university from Aust/NZ for the next iteration. Will bold key words.
Whilst the use of email is not particularly innovative, it is clearly the most used communication within our universities at present. The email being sent to academics teaching in specific rooms is a great idea. My only hesitation in this at Curtin would be ensuring the correct data (source of truth) being provided. Often we have sessional academics that are not employed until O Week or Week 1 and this is difficult to get names and email addresses for.	
Maybe a bit of oversell? And the video may be a bit overwhelming for staff who are used to lecturing with minimal interaction	
I would make the teaching venue more prominent and perhaps a link to a properties web page that helps them become more familiar with the room if they have never taught there before. Would increase the relevance.	Will make the teaching venue more prominent with link.
I found it very interesting and supportive in nature. It will depend on when it is sent to the teaching academics as to whether they will take notice of it - well ahead of semester start would be wiser than just prior semester starting. The weeks at which the series of emails are sent should be carefully selected to avoid weeks when academics are known to be swamped (e.g. marking).	Will try to send well ahead of semester pending timetabling information.
I think that there is far too much awe and wonder placed around the idea that the technology is creating the learning. Students can work effectively in problem based ways and in teams in any environment if they are facilitated to do so. / There needs to be a greater focus on the pedagogy rather than technology.	Will stress the focus on pedagogy rather than technology.
Occasionally when I read an email like this I try to imagine the kind of person that the author is writing for. For most of the email it felt like someone who wasn't me ie. a person who is nervous about technology and new learning spaces.	

At other times it did feel like it was addressing me ie. a time poor person who needs to do PD on the run. / The crack the puzzle bit sounded interesting - but I started to question how long it would take. Would I have the patience for it?	
Call Intro - Intro :)	This title was used for the focus group peer review only
Rename to Intro	See above
It sounds like a good idea, but for me this situation is hypothetical. I have experienced other forms of email PD and found them not to be so much 'just in time' because my issues do not coincide with the 'roo out' of information. I prefer to go to an interactive site on which I can access support and information according to my needs.	Interactive site also provided. Will provide link in first email.
Great video showing good details of the room setup and student feedback.	
Some grammatical errors. /	Grammatical errors will be fixed.
First paragraph - I didn't know what or who DSC is, perhaps it needs to be introduced early. Also, "support you teach", meant to be support your teaching? (sorry, it's the teacher in me coming out here). /	Grammatical errors will be fixed.
It is a little unclear about what these emails will be offering me or why I would want to do them. The video linked to this email is interesting, but I find that the reference to the space also needs to be linked to reference to what the teacher/lecturer might do and the aims of the learning that is planned there. Otherwise mostly good.	Will link to what the academic might do and the characteristics of learning an NGLS influences.

Do you have any comments about Quest - What kind of teacher are you?	
going on a quest feels rather silly and I certainly do not want to hunt for a code. I want professional development and not a pseudo computer game... /	
I felt there were too many questions about professional development/professional learning that were each only marginally different from the others. I got a bit frustrated towards the end of the list (about others, me, promotion, etc). Perhaps this would work better with one stem and then a list of options with choices. In "How would you prefer to engage" I didn't want to pick one, because I like variety and I thought it was not a complete list for QUT. I'd include "collaboratively with my Course/Unit team might be one option. I'd hope we could offer opportunities to Unit Teams which might include both ongoing staff and sessionals to learn together. And we've also had success with working with course teams (which supports a whole of course approach).	The number of professional learning questions can be reduced. The choice of professional development activities can be customised by each university. At RMIT, we had school network meetings for academics to meet and learn collaboratively too.
Are there any other "What type of teacher are you?" tools that I could follow up with? e.g. related to pedagogical approaches, learning theory etc. If so, could other resources	More resources and information will be provided at the end of

be provided at the end of the quest? / Irrespective of the result, I'd like to be aware of all the PD options available - e.g. use link to a site that lists these. / I'm interested in how others would rate themselves - I'd also like to discuss my results with a peer so could I access these? / I'd like to know the basis on which this quest was developed.	the quest.
Unsure about the psychology behind some of the questions. For example, I will try to engage in PD has selections around I have complete control, Its mostly up to me..... I am interested to know what the answers to this will be used to inform in the wider research?	The Theory of Planned Behaviour was the underpinning theory behind the questions and explores academics' attitudes, perceived behavioural control and subjective norms to professional development.
Gaming is not my thing so not so turned on by that sort of tool	
The questions seemed a little repetitive. The final summary screen contained a lot of information with LOTS of links. Would have been useful to 'save' or get a copy of that via email.	Will add a 'Print or save' message to the end of the quest.
I found the repetition of the questions with very minor changes somewhat confusing and I think the quest was longer than it needed to be. But the analysis of results was good and the resources looked to be worthwhile	The number of professional learning questions can be reduced.
I responded to the self-evaluation personally and know that self-directed study suits me best so the feedback that I was doing well and that self-directed study sounds like the way to go for me wasn't that useful. I did ask whether to respond as a hypothetical lecturer - and the guidance and awareness raising of the pd initiatives would be more useful for those who are less experienced and confident.	
May be a bit confusing that when links are clicked the pages seem to lead into the same browser window and staff will have to use the back button to get back into the Quest. I was using Safari on the iPad for this test.	Will ensure links open in new windows.
Really easy user interface and layout of the survey. Language was easy to understand and then gave me some practical useful strategies for my own professional development	
Just starting to feel a bit niggly about the badges thing. Although I totally fell for it and enjoyed chasing the code aspect of the task, I have philosophical problems as to how they can work in educational environments. Not entirely comfortable with it.	
'Person most important to me' was an odd way of phrasing the question	
Very good link to different approaches on how to do further professional development.	
It made me laugh because it provided the same advice I would give someone.	

From the point of view of a non-academic staff who is not teaching, what goes through my mind as I did the Quest was the uncertainty in the kind of student I am targeting at. Even as an academic, if I were to do the Quest before the start of a semester, I would also be asking this question. I will likely try to determine the readiness of my student before deciding to what extent I will go with my implementation of a collaborative approach in the NGLS. However, the Quest appears as an innovative approach to get the attention of teaching staff.	
Good questions that tap into key aspects of being innovative and incorporating technologies into teaching and learning. Perhaps a little 'black & white' about what using a laptop or having students talking while someone is teaching means in terms of whether that indicates that my style is interactive. Good suggestions for the kinds of PD one might access. (Just a technical point about the survey - it opened up in same window then wouldn't let me easily get back to the survey/info).	Will ensure links open in new windows.

Do you have any comments about Choose your professional learning... email	
i usually read emails as txt documents and not as html documents. Hence this email initially looked really messy. / Maybe you want to offer a txt version as well through a link at the very top.	Will explore the Campaign Monitor software to see if this is a possibility.
It was a good follow up to the quest to remind about options. I like the short descriptions that are clear and focused. I would certainly follow up on them.	
I like the reminder about the previous quest. / I think the choices are relevant and not too overwhelming. / I'd like to be directed to a web page for this information rather than have links embedded in an email (i.e. if I needed to access again I'd rather do so from a bookmark). / I like the fact that it draws on existing resources with info and examples. / Good to have registration link embedded. /	Will add professional learning choices to a web page.
Would like the opportunity to choose more than one. Depending on the circumstances I would vary between self-directed (when time poor and choose do it when I had spare time) to working with peers if I have more time available. I ended up choosing the choice I would favour if I had time.	Each Semester you could choose a different one.
Again, I had a lot of choices (4 different options available to me)... which I found a little overwhelming. But really liked the email idea of getting staff to nominate the PD strategy as well as nominating their line manager. That was a nice touch saying that the PD would be coordinated through them. But how is this coordinated?	Through the work plan or annual review.
Following the peer partnership link gave me lots of resources to facilitate this. Useful to have a quick link to register for the 4 opportunities and that it auto submitted to my line manager	
Knowing about the project I thought the library guide would have been more promoted here. The development me	Will link to library guide too.

website didn't load.	
The quest was interesting and I am wondering whether the final output is forwarded to staff as a record of their outcome - I failed to notice anything about this, but probably missed it. The time commitment for each of the PD options is not completely obvious at this point and busy people may just opt out.	Will add a 'Print or save' message to the end of the quest.
Clear, simple and easy to use.	
Pretty straightforward. Easy. In real life I'd probably check out what my peers were doing so that I'd have company on my journey.	
Brilliantly laid out, simple, focused and good range of choice to suit different people. Very useful links to relevant resources.	
This fits in the RMIT context. Peer review of teaching is defined differently in different situations. In the Curtin context I would need to rephrase the two references to PRT activities.	The professional learning approach can be customised to suit any university.
This email actually pushes me to make a decision whether to go with what was suggested to me. Though the other options were also listed alongside the suggestion, I realised that I have comfortably skipped over them and focused only on the reported suggestion.	
Perhaps an email should have been sent with the results of the Quest 1, because as soon as I clicked through I forgot what the result or suggestion was, and was unable to find it again.	Will add a 'Print or save' message to the end of the quest.
Perhaps a little de-contextualised in the VU situation (reference to RMIT programs). I am a little unclear about the purpose of this email - to inform me about options, to report to my line manager what I'd like to do, or ....?	The professional learning approach can be customised to suit any university.

Do you have any comments about Quest - What can I use in my teaching space?	
If I'm thinking in terms of a time poor academic and their approach to this, I think that maybe a step through quiz takes a bit longer than possibly a list of options on one page that they can then choose from to explore (so if I knew about things and had had training then seeing the detail that was provided would not be necessary).	Will add a skip to options link.
I think it focuses on important technologies - google apps and bb wikis/blog. / I'd like to have links that go to a central resource repository rather than the direct source.	Will link to a central resource repository.
It would be great to access additional information on these spaces - certainly help with the design of teaching programs prior to semester.	Will link to the online resources available through the library guide.
This provided a large amount of technical assistance to those teaching within the spaces. It would be really useful for most academics. My concern is the length. Academics are busy	Will add a skip to options link.

people who often don't make time for these things unless they are short and sharp. Maybe chunking it would be more appropriate.	
As it says, there are a lot of other technologies that could have been mentioned - BB Collaborate was conspicuous by its absence...	Will link to other technologies available through the library guide.
The questions around blogs and wikis seemed odd as they didn't seem to make sense when talking about a venue. But that could just have been the wording	Will revise wording
A good length. Some of the technology questions needed you to know more about the technology than perhaps some staff might know. Didn't get a code at the end :-(	Will promote the passcode so it is more visible.
It's email 5 and I don't feel that I have really engaged in an PD yet - it's a strange way of reviewing the approach. It's a lot of information and I don't have any take away strategies to try yet... Some resources did not load :(could be the stress on the wifi. There is a lot of reminding to do past quest activities - so feedback on how other people are going, e.g the pd options were individual autonomous, but I would like individual but social so a collaborative space were people have nominated what their doing so I can see others people's journey ?	Another aspect of the professional learning approach is to have School Network meetings for academics to collaborate and learn together.
The concept of using the code with staff getting the letters multiple weeks apart might not be very encouraging and will be perceived as being trivial by some. The questions are helpful in alerting staff to the tools that are available, but encouraging them to do more with this info could be difficult depending on how busy they are.	
Clear questions but not too sure why you were quizzing me about what is in the room prior to asking me how to use is. I imagine that's formative assessment??? / / Made me think more about software opportunities that I could access more eg google drive etc	Will add questions about how to use the room first.
I had a quick browse of the "Libguide" site. I found myself filtering to try and find easy -to- adapt guides or something-I-could-try tomorrow hot tips. I would probably put this in my to read later file (and probably never get around to it - although I'd want to). I guess I was looking for innovative seating plans or activities...	Will promote the guides and activities on the site so they are more noticeable.
The questions in this Quest can be designed to surface some useful tools/features which might have been missed by experienced users of NGLS or have them raised an awareness to staff new to the use of such tools.	
Some links could not be accessed - required RMIT login. / I'm not 100% sure what you mean by "line manager" / I was unclear on a few things for example what the teamboard or smartboard were. / I also don't think I answered some questions entirely accurately, as I was only after I had answered them that I was given an explanation of what the teaching tools were. Then I was unable to go back to correct my answer. / Regarding the question on training in blackboards and wikis, it could have a few more options. As	When customised to individual universities this should not be an issue.

my training involved a quick 5 minute demo of how to log in. So I received some training but not enough.	
The tools mentions (e.g. wikis and blogs, etc.) are not strictly in the space. They can be access from the space, but can also be accessed anywhere a person has internet access. I don't believe that access alone will prompt people to teach differently. The need to collaborate requires activities / tasks / questions that inspire and prompt people to collaborate, the tools help that but alone don't guarantee that. / Tools might also refer to hardware - there wasn't much mention of that in the quest. Perhaps the quest could pair tools with activities.	Will pair tools with activities.

Do you have any comments about the email "Helping you to achieve your professional learning goals for...	
Personally I really don't care about anonymous feedback/statements. Sounds too much like an add for a consumer product i.e., car insurance, etc.	
I like mixing in stories, stats about others usage and links to papers. I think this provides a good mix of 'motivators' for people to seek out more.	
I think this kind of sharing of experience is invaluable. It also helps to consider a process of how to reflect on one's own teaching.	
It would be good if there were a guide to establishing these sort of vodcast - for those that haven't had that much experience. It's great to suggest technologies but to also provide a link on how to set them up (that can be accessed at any time).	Link is available in the online resources (library guide)
The credibility in this email comes from showcasing a champion that works at RMIT. We know from our work at Curtin, this is often the key to engaging staff. If we can highlight the work of another academic which exemplifies good practice in an authentic manner, we are one step closer to that academic engaging in similar activities.	
IT was a nice friendly reminder of what resources are available.	
Ah... You gave me what I was looking for in this email.. / / Comment re quest two - I found some of the questions ambiguous and confusing, how does a venue have a blog or google drive? Isn't this based on whether students brought their own devices or in the lab has computers? Perhaps asking if we have tried using those tools in that space? You are trying to ask a question so that you can provide custom feedback - but I feel it's quite controlled and hidden. If the person never does the quest or doesn't complete the quest how can they be exposed to it other ways? Perhaps more direct linking to libguide?	Will link more directly to the online resources (library guide)
I think I have lost the thread with the Quests and codes as I would have expected Quest 3 in this email... Also I have just about forgotten my codes by now and am losing my sense of excitement about it.	Will explain the email strategy in more detail so that recipients know what to expect.

An excellent example of using technology to make workload lighter. Enjoyed the use of vodcasts and it makes me want to learn more about the use of blackboard .	
It is the time thing that gets me down. I would love to go back and read through some of that stuff but I know I won't. Now that Simon and I have had a conversation about the "assessment task" vodcast I could imagine us following up and one of us trying it out, and then the other one might have a go too, or at least save the idea up for another day.	
Idea for recording assessment explanation as a vodcast great	
Perhaps a bit long	Will try to reduce the length of the email.
I would feel motivated with the email by reading the positive reactions from students and colleagues.	
The information on the blog was interesting and provided a number of concrete examples of the kinds of things this person did, which I think would be very helpful for stimulating my approaches and strategies for incorporating these tools in useful ways. / The email - I think the messages in this email are many and a bit mixed. It could be a little more focussed.	

Do you have any comments about "Quest - What resource did you find the most useful?"	
very comprehensive.	
The libguide is quite detailed and I just skipped over it today. I like the mix of resources and media that it contains. I think if I was in the throes of a busy semester I'd be skipping to the most useful elements and bookmarking it to look at in planning for my next semester class.	
I would like to have access to this website from the beginning - if so, the question should be "what resource have you found to be the most useful?" / Although, can analytics on the site tell you this? And can you highlight this on the home page - i.e. which resources are most viewed/trending? (and which resources are new?) / Am I able to contribute resources to this site? /	Will link to the online resources in every email. Will investigate the site analytics to see if we can add trending information.
I particularly liked the idea of being able to prepare and practise with technology prior to class time.	
The lib guide is a great resource and I see would be largely useful for most academic staff.	
Again a wealth of resources to look through.	
These questions don't seem to relate to the LibGuide that I just looked at. The questions are obviously standardised but being able to nominate the tab that was most useful would have been worthwhile.	
I feel like I have done some quests but they are not registering, feeling of uncertainty...	

The third Quest was no numbered Quest 3 - this confuses me a bit as I am an academic and expect consistency... :-) / This quest was a quest to find the quest. The quest is distracting me from the actual content of what I am meant to look at to learn more. Perhaps at this point there needs to be another way around this where the same quest interface is retained whilst staff are still lead through looking at the resources. / /	More detail will be provided around completing the quest.
If I were doing this by myself at home, I would probably take more time over the task and find it more rewarding.	
Can't do it.... The comment pop up window is hidden behind all the other resources on the webpage.	
A good collection of resources and ideas - something that I could dip in and out of.	

Do you have any comments about Quest - Talking Teaching?	
First one I thought of as innovative, as it is rare that I deliberately think to discuss practices, it generally occurs as a matter of course. I think a deliberate intention would yield a better result, with far more consideration given to how other practices can be implemented in my own.	
I think this is a fantastic way to get people talking. Some of the best professional learning happens over coffee :) I like the short and focused email and depending on when it came in semester, it would be a good way to 'de-stress' by sharing what's happening (ie the challenges) with someone else.	
I think this is a great idea. / Peer discussions should occur at anytime of the semester - can the vouchers be available sooner rather than later?	
I think a coffee voucher on campus makes more sense. I do however think that chatting with peers is a great way to learn and is a method I use currently. Its also why we design these collaborative spaces for our students. / / I	
How can coffee vouchers be anything but successful? This is a really innovative idea that I could see being successful here at Curtin. Love to get some stats on the budget and uptake of these at RMIT?	
Not getting the page to enter my redemption codes for quest 2 or 3	
Love the coffee voucher idea!	
It's a great idea to have the coffee vouchers. Just need to find a colleague	
It's about learning from each other and sharing the strategies people are trying. Love the coffee incentive idea	
This was an easier one... :-)	
I think it is a very simple and effective way to facilitate the informal discussions that form the basis of any good reflective teaching practice. /	

Great idea. This is when some of my best learning happens. Sitting around a cuppa with inspiring colleagues. when it comes to new learning spaces it's the colleagues who get enthusiastic about trying new things and creating great learning environments for students who inspire me the most.	
It's important to share experiences... For me, at least!	
I think this is a great idea, and would definitely suit my way of learning	
I like the idea of facilitating/encouraging staff to get together over coffee to discuss ideas - a simple idea, but something which appeals to me. It acknowledges the importance to time to de-brief, share ideas and develop and share practices. /	

What do you see as the advantages of this professional learning approach?	
great flexibility. ease in which to choose elements appropriate to my needs at the time.	
i can do it at my own pace & in my own time	
It is a good way to 'chunk' things into smaller pieces so that the whole is not overwhelming. It opens up possibilities for longer, more focused approaches.	
Very personal, welcoming, positive, informative. / Well thought through - good reminders.	
I think its great if we have access to these resources however I am afraid the idea would get lost amongst a mountain of email.	
The academic can participate anytime/anywhere yet it still encourages and supports peer collaboration.	
bite size	
Bite-sized, self-directed	
Ability to run the PD across a large group of staff. / Good way to promote existing online resources and provide pointers to staff.	
Staff can pace themselves	
I would need to allocate a lot more time to work through the available pd - perhaps a question about how much time can you allocate to this. I would have liked some tangible strategies to try, more case studies perhaps, assistance with making connections with peers ...	
Pushed out to staff at regular intervals.	
it can occur at any time. It has resources that you can use directly within your teaching practice. It allows you different opportunities and approaches depending on your preferences and attempts to tailor the approach to your own learning style. / / It has a user friendly interface and models different online learning platforms.	
I happened to score a session with a friend. that absolutely	

made the session more fun, engaging and probably memorable. Using new and innovative ways of sharing information always intrigues me too. IT is clearly designed to try and be absorbed in bite-size chunks. That is very user-friendly and academic - friendly. It also seems to be part-timer friendly. Sometimes PDs are just held on days that I don't work and or they take up too much of a chunk of the week. This seemed very do-able.	
Non-time consuming, can easily fit into a busy schedule.	
The periodic emails and quest would remind me to keep on looking at things that I could use, and also prompt me to reflect on my teaching practices in an ongoing way.	

What do you see as the disadvantages of this professional learning approach?	
Personally none, however acknowledge there are some less confident with technology who may still prefer face to face training.	School network meetings can provide the face-to-face interaction for academics who wish to learn in this way.
too generic / I already sit way too much time in front of a laptop. I much rather talk to people face to face!	See above
At the start I felt the idea of a Quest was a bit childish. It may have put me off engaging further. Ultimately I enjoyed the challenge but I think others might be dismissive.	
I'd like to be able to contribute resources, ideas rather than access them only.	Will add area to the online resources so that academics can contribute to resources.
Also when I timetable a room in a collaborative space I already have an idea on how I will use the space. Otherwise I would have requested an ordinary tutorial room.	
Another email for the trash bin!	
When the tech fails not so good. I couldn't enter the redemption codes for quests 2 or 3	
You're assuming people will pay attention to email and it won't get lost in SPAM :) / You may lose the sharing of ideas via groups and workshops (face to face).	School network meetings can provide the face-to-face interaction for academics who wish to learn in this way.
Just like a MOOC there will be staff who embark on this but never complete	
Maintenance of the resources, how is impact measured? How does it impact the broader pd strategy? To be discussed...	As the online resources are in a library guide, the librarians are happy to maintain the

	resources and ensure the links work and it is up to date. The work plan strategy is also sustainable.
The quests could be perceived as trivial and timewasting.	
It could lack interaction between colleagues which is so critical for developing teaching practice.	School network meetings can provide the face-to-face interaction for academics who wish to learn in this way.
The badges. The phenomenon of badges just encourages more people-pleasing and working-for-praise. I'd be keen to not support that (even though I personally enjoy it. I think it would wear thin after a while anyway. / Disadvantage is that it is still quite computer based. I'd still like higher involvement with peers and face-to-face human beings.	School network meetings can provide the face-to-face interaction for academics who wish to learn in this way.
Can possibly get lost in the barrage of emails received everyday.	
Requires commitment to complete - might be easy to postpone. Could it run alongside periodic (optional) get togethers at which elements of the content could be elaborated on? Or where staff could showcase something they felt was successful. An incentive to complete the work might be more engaging involvement in these events. Perhaps even link it to the development of application for teaching awards or some other tangible benefit.	The professional learning approach does provide incentives to finish the program as it can be used as evidence for promotion or teaching awards etc

Do you have any further comments or suggestions about this professional learning approach for teachi...	
Don't treat me like a kid. / I don't want to go on a quest and I don't really need a coffee voucher as a reward. it is nice though. / / I do this because I am interested in it and not because I want to go on a quest.	
I think it is important that online tools like this are a conduit to face to face engagement - getting people talking together in a community of practice is extremely valuable.	
I think there needs to be multiple communication channels rather than email only.	School network meetings can also provide the face-to-face interaction for academics who wish to learn in this way. There are also discussions with line managers regarding professional learning and work plans.

I like that the quest is directed and personal, rather than a impersonal DL	
Will academics read their email?	
In the intro/starter emails it would have been good to clarify exactly how the 'quests' work; like at times it was blurry as to what was a resource and what was simply a question (linking to further resources). The fact that some quests were qualtrics questions and others where resources to visit was a bit confusing at times.	More detail about the emails and the quests will be provided at the beginning.
A link to the libGuide in multiple places so that staff can easily access it	Links to the online resources (library guide) will be on every email.
Keeping up to date with resources.	
Perhaps simplify the interactions and make the quest a freestanding element that has a common thread and where staff progress is remembered from one session to another.	Staff will be able to subscribe to the quests through the library guide. Staff progress will be compared in the last quest (from the results of the first quest).
I think that it is a very useful resource and should be developed further. Any new pedagogical tools are of value for a practicing teacher to be able to access and then assess their usefulness	
I'd be keen to see what else you come up with. I like the careful use of language in the emails and the resources. I'm fascinated to watch how you will cater for the technologically competent and the fledglings at the same time. / And I still feel there's a gap. There's no mention of the personality and warmth that a teacher can bring to a classroom to make these spaces shine. Teacher attitude is so important, don't you think?	
Definitions of certain terms, some instructions needed to be a little more explicit.	Instructions will be more detailed and explicit.
Navigation is a little wobbly. Possibly because it is designed for RMIT rather than VU. However, I think it could still be streamlined with fewer pop-ups or housed in a site where one can go back and forward easily to find materials previously referred to.	

Please name any individuals or groups who would approve or think you should engage with this profess...
my school
DVC (L&T), those who've had success in these spaces
I can discuss this with XXX.

CTL
Curtin Learning Institute.
My line manager
Most academic staff should be offered the opportunity.
Anyone assigned to work in the "new generation learning spaces"
Anyone who is impressed by these terms and want that feeling that their department is doing the right thing. I often feel like my "elder" peers are happy to push me ahead of them because they can't be bothered doing it themselves...They are not actually excited or interested in the technology themselves, or sometimes even in engaging young people.
Course co-ordinators
??? staff who are using these spaces - opportunities for staff to participate in Professional development in these spaces doing activities along the lines of those that are being suggested. Our own PD tends to follow the 'chalk and talk' model of teaching.

Please name any individuals or groups who would disapprove or think you should not engage with this...
Some HOS would think that this is a lower priority than others
Basically any staff who already complains about receiving too many emails. (Sorry!)
None
Cannot think of any.
Can't think of anyone who would disapprove unless they found out that it was enormously expensive and came at an unreasonable cost especially in a university environment when we are often looking around and seeing money spent with very strange priorities ie not valuing the real human beings who do or the admin work and interact face to face with the human beings who keep our university alive ie the students.
??

Q23 Please outline any factors or circumstances that would make it easier or enable you to engage with t...
Being aware of who approves Professional Learning. Are we allowed to do during work time or is it an out of hours activity.
what software is available to use all those big, new touchscreens??
A culture that values professional learning
RSS - showcase events (both online and F2F)
I think that having face-face groups - particularly prior to the start of semester and online sessions that you can join through semester - would encourage the use of different ideas in these spaces. In addition I think it would be great to have the examples (via online videos etc) that can be accessed at any stage would be highly useful. Loved that idea.
Time to read emails
A reassurance that tech support is available if I need it. A reassurance that I will continue to

have access to this teaching space.
Simplify and keep highly relevant - don't expect staff to remember things from week to week if they are not critical.
As always time. For sessional if time was made available for them to be paid for the training this would be very useful.
Short sessions. Real, excellent teachers who are good with students but also good with technology. I also would like to see the spaces valued as not just technology-enablers but actually valuable because they imitate more "natural" learning environments eg. kindergartens, outside spaces, family home spaces.
Allowing enough time for each quest to be completed, and starting before the semester starts.
access to the actual spaces to try things out. / Facility to link up with colleagues who wish to discuss and try out ideas. /

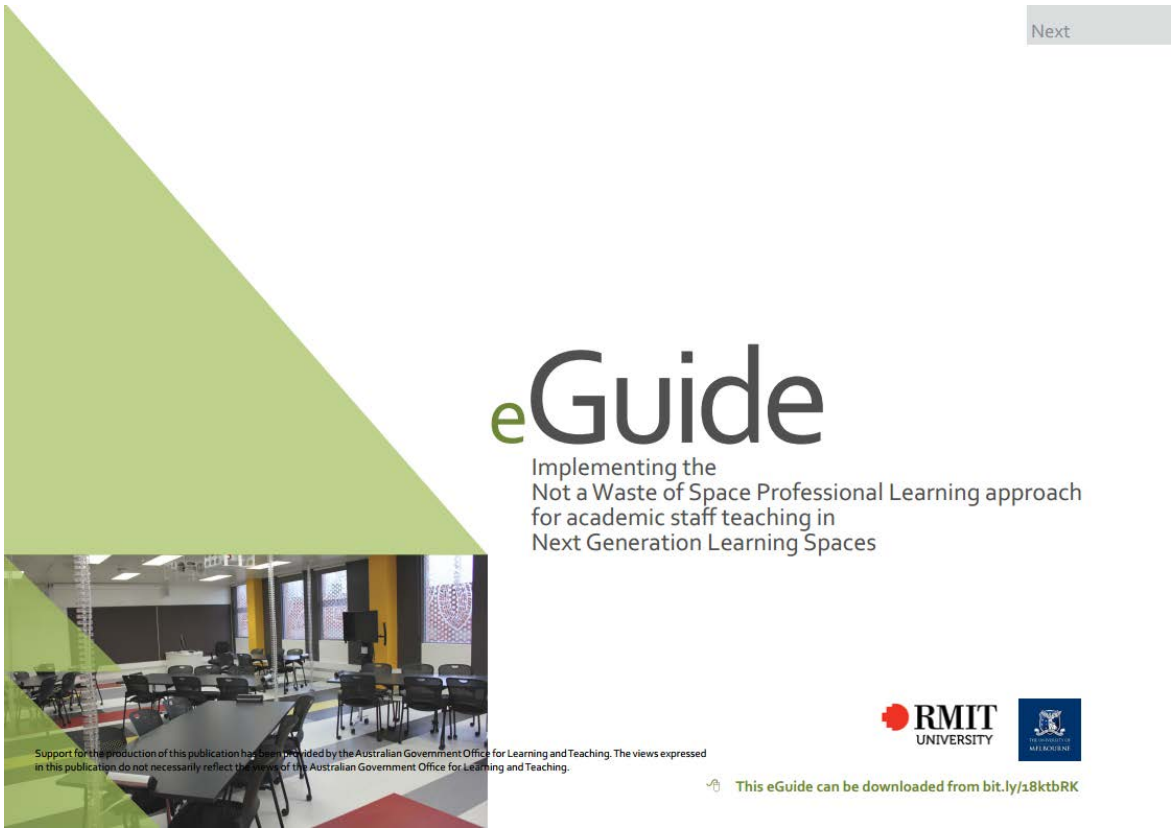
Please outline any factors that would make it difficult or prevent you from engaging with this profe...
my class has 130 odd students... / student volume is probably the biggest problem
Workload
A mountain of email. I tend to ignore a lot as I simply don't have time to read it.
With all academics the teaching and research competing priorities are a considerable factor for engaging in professional learning. At Curtin, we find the engagement of academics difficult when we are expecting high research outcomes in this current environment.
Access to venue for familiarisation during semester due to high utilisation
Time taken to carefully look through all of the resources.
Lack of time
Time factors... differences between types of staff sessionals vs senior
As a sessional staff member my hours have already been reduced and my workload increased. I would use these materials from a self-motivated perspective but it is always hard to feel appreciated for these efforts if there is no reward. In fact this type of learning platform provides a way of moving courses on-line and further reducing the opportunities for work for sessional staff. So embracing it feels a bit like "slitting my own throat"
Time. / Being part-time.
Work load. Work load. Work load!
Confusion over what is required.

Is there anything else you would like to tell us about this professional learning approach for teach...
Overall I didn't tick innovative for most questions/activities as they seemed to be obvious. However to package these things together and deliver in this manner I do find innovative and I am sure will produce excellent results!

I need to see real examples of how to use the available technology
I think this is a great balance between push and pull for professional learning
No thank you. Very interesting to consider alternatives - thank you for this opportunity.
I like using the spaces simply as a means of getting my students to assist each other's learning. It breaks down the barriers and assists me to get to know my students in smaller groups. However it is limited to those students that are willing to show up.
This is a great project and has attempted to move PD away from traditional face to face workshop approaches. Well done! I am really interested to see the research that comes out of the project after it is completed.
No
Great project and excellent resources - looking forward to finding out more after further development.
I think it would be good to develop more pedagogical resources around the way groups are actually facilitated. There seems to be an assumption sometimes that if you put students around a circular table and provide a port for them to plug in devices that they will automatically become collaborative. / / I think there is a great danger that data transfer is being facilitated more effectively but that communication is being lost. I believe that this is a real danger in a technologically rich environment. Are data transfer and communication the same thing?? And which is more important??
I think my colleague makes a very good point about the danger of encouraging more online teaching at the expense of face-to-face. It is the thoughtful, compassionate human beings who stand at the front of classrooms that make them work or not work, whether they are new learning or more traditional spaces.
If you could somehow facilitate making information and resources about these spaces available to teachers before they embark on teaching in these spaces I think it would enrich both the teaching and learning experience. I know I would have loved to have known more before the semester started.
I like the idea of regular small activities to complete. The email reminders would be useful in getting me to revisit ideas about my teaching in such spaces. Some consistency of the kinds of activities being done and the ways they are introduced would help me to quickly get on board and feel that I was progressing toward a better understanding of key issues/ideas.

Appendix 3. Link to eGuide

For eGuide, go to <http://bit.ly/JJieSi>



Appendix 4. External Evaluation Report

ID11-2050

Final Evaluation Report

3rd October 2013

Evaluator: Dr Sue Trinidad
Phone: 0401103322
Email: S.Trinidad@curtin.edu.au

Contents

The Project

The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces was an OLT-funded project carried out from October 2011-October 2013. The purpose of the project was to design, develop and trial an academic staff professional development approach with accompanying resources and the online institutional implementation '*e*Guide' making this product and process available for sector wide use. The overall aim was to enhance teaching approaches and student learning experiences by increasing academic staff engagement with the use of innovative approaches and materials that improve teaching practices in Next Generation Learning Spaces or **NGLSs**. This was achieved through:

1. An innovative flexible, 'bite sized', 'just-in time' and 'just-for-me' continuous professional development (CPD) approach with activities and resources that are specifically focused on utilising Next Generation Learning Spaces.
2. An adaptable step-by-step online institutional implementation "eGuide" for the sector.
    - The project includes not only a 'report about' but a practical user friendly online resource for universities that incorporates instructions and validated easily adaptable materials and policy template.
    - Active involvement across the sector in the evaluating and validating the materials and implementation of the '*e*Guide' in different organisational settings.
3. An interactive website using social networking tools that documents and showcases the life of the project and encourages active engagement of a distributed network of colleagues, and builds on existing and previous ALTC project networks.
4. Increased knowledge of innovative ways to support staff continuous professional development for Next Generation Learning Spaces across the disciplines.
    - More effective use of Next Generation Learning Spaces.
    - Enhanced academic staff knowledge of and experience in student-centred L&T
    - practices appropriate for Next Generation Learning Spaces.
    - Positive student experiences and learning outcomes (as evidenced by student feedback data).
    - Improved understanding of the impact and financial requirements of providing effective continuous professional development for Next Generation Learning Spaces.
5. A number of Scholarship of Learning and Teaching (SoLT) papers for publication in ERA ranked journals that document innovation and excellence in continuous professional development for Next Generation Learning Spaces.

The Project Leader was Professor Barbara de la Harpe leading the project at RMIT. The Project Team consisted of Thembi Mason (RMIT), A/Prof Kym Fraser (RMIT then VU), A/Prof Kenn Fisher and Dr Wesley Imms (University of Melbourne), Sheona Thomson (QUT) and Diana Taylor (Curtin). The Project Manager was Megan McPherson. In summary, the core of the Project Leadership Team has provided stable leadership overseeing the project for the two years of the life of the funded project

Dr Sue Trinidad was engaged to conduct the evaluation of this project in September 2013 after the previous Evaluator was unable to complete the project evaluation due to ill health. This Final Evaluation Report for the project provides an overview of the evaluation process, including the evaluation methods selected, evaluation questions applied, findings and conclusion. The evaluation of the project assesses the extent to which The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces operated as planned and achieved the outcomes

Evaluation Methods

Evaluation Approach

The evaluation approach taken in the appraisal of The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces was an interactive evaluation (Owen, 2006). This involved using a questions-based, mixed-method evaluation approach that provided both formative (improvement oriented) and summative (documentary, accountability-focused) appraisal of the project. The evaluation focused on processes and short-term program outcomes (Scriven,1996) as it is premature to assess the full impact of the program in terms of institutional benefits at this early stage although some comments are made about how the project was fully implemented at the lead institution and trialled at the trial universities.

The overall evaluation was essentially undertaken to provide the Project Team with areas of improvement as they arose and generate an assessment of overall merit and worth. Therefore the purpose of the evaluation was to critique the process of developing and trialling The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces against what was originally planned. It also identified the stakeholder/ participants' level of satisfaction with this project, to assess the extent to which the project outcomes have been achieved, and to make recommendations for improving subsequent offerings of the program.

Evaluation Key Questions

The evaluation was designed to address the following core questions:

1. To what degree was The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces implemented as planned and funded?
2. To what extent are participants satisfied with the design and delivery of The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces?
3. To what extent have The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces stated outcomes been achieved?
4. What, if any, unintended outcomes have been identified?
5. How might future The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces be improved?
6. To what degree has The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces model been developed?
7. What are the limitations of The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces?

Data Collection and Analysis Processes

The evaluation activities focused on addressing the key evaluation questions as outlined above. A systematic process using transparent data collection and analysis processes in line with the Guidelines for the Ethical Conduct of Evaluations approved by the Australasian Evaluation Society (see http://www.aes.asn.au/about) was undertaken. In addition, the evaluation report made recommendations for improving future iterations of the model.

The primary sources of data to address these questions was the analysis of The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces documents including working papers, notes of meetings and resources developed with the intent of identifying how the program operated in practice, to assess the extent to which this aligns with what was planned, and to identify key issues for the program. These issues were then presented to stakeholders to elicit their views on the causes and context of these issues and their importance to the overall success of the program. This allowed the Evaluator to:

1. Provide advice and guidance on the formative evaluative processes and overall evaluation systems of the project to insure the project meets the needs of the stakeholders;
2. Review Project Team meeting minutes, issue logs and comments noting improvements worked on since the first year report; and
3. Review and critique the final report, The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces, and associated *e*Guide before submission to the OLT

Specific data gathering methods were used to gather both formative and summative evaluations over the life of the project.

Document review: Document review included the study and analysis of key documents related to this project and specifically, the email quests and the website http://rmit.libguides.com/newlearningspaces. The purpose of the document review was to better understand the perceived need that the program addressed as well as strategies for implementation, timelines, and intended program outcomes. These documents included the proposal for the project's establishment, minutes of project meetings, any reports and resources developed for the project and any subsequent information that may elicit information.

Stakeholder/Participant Perceptions: The primary data gathering activity of the evaluation study was a survey of key stakeholders either through individual interviews or a survey. The interview questions were routinely guided by semi-structured protocols developed by the Evaluator, in consultation with the Project Team. The interviews were used to explore

participants' views on project successes and barriers to the scalability and sustainability of the project. Thus, in summary, this questions-based, mixed-method project evaluation provided both formative (improvement oriented) and summative (documentary, accountability-focused) appraisal of the project.

Evaluation Deliverables

- Final Evaluation Report – 3rd October 2013.

Meeting the Project Aims and Deliverables

Overall all members of the Project Leadership Team were satisfied that the project has achieved its aims. Eight individuals commented on the overall project. All were very positive indicating the importance of such a project, and that it has produced valuable products and outcomes of '*a highly innovative, future oriented and sustainable model that had been developed*' which is expected to have a positive impact for universities that implement this model in the future.

> *The outcomes at the centre of the project were the design, development and trialling in university contexts of an academic staff continuous professional development (CPD) approach with accompanying resources and institutional implementation 'eGuide'. This will be achieved on time and within budget.*

The realities of implementing and trialling such a large scale project was also acknowledged as:

> *It was clear that the depth of learning has been vast in terms of how CPD for NGLSs needs to be tied to existing university processes and systems and how this is both difficult but essential for universities to implement such a model.*

To what degree has The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces ***been implemented as planned and funded?***

With such an innovative project it takes time to gain momentum to design, produce and trial resources of this calibrate on time and within budget. Creative solutions have been driven by a dedicated Project Team who strongly believed in, and supported the importance of developing and trialling an innovative education model of professional learning for staff using NGLSs through five planned and executed stages. As indicated in the Project Team Final Report the outcomes of the professional learning approach was *adopted to allow for individualised and flexible professional learning that works for both the novice and the more experienced academics*:

> ***For the institution*** *– academics engaging in and completing professional development; improved teaching; staff up to date, at the cutting edge and more satisfied; improved culture of learning and teaching; and*

For the academics *– teaching better in NGLSs; up to date; at the cutting edge; getting positive feedback (students and peers); personal satisfaction from teaching well; getting support that is individualised, useful and at the right level; students learning more.*

The approach comprised of six elements composed of the 1) work plan strategy; 2) email strategy; 3) online resources; 4) network meetings; 5) tear-off guides; and 6) posters and bookmarks. Each of these elements enabled staff to be positively involved and encouraged in taking change of their own professional development in using NGLSs.

It was acknowledged that this model needed to implement change within a university system with an academic structure that is often resistant to change. To solve the challenge of working within university systems, innovative and creative solutions were found and trialled successfully. This was achieved by '*using the theories of behaviour economics, gamification, theory of planned behaviour with interventions has greatly informed the approach and how we have implemented it*' and '*a 'pull' rather than a 'push' philosophy was adopted with academic staff*'. The unique and valuable solution of using the '*Springshare*' software that most university libraries use, allowed an efficient and elegant resource to be developed for staff professional learning when previously only used with student library guides. Two Project Team members summed this up as:

The library guide resource is an example of the creative problem solving of a problem of flexible, customizable and movable resources that can be shared nationally (and internationally). The emailing platform is a direct marketing approach from industry. The extensive use of the Qualtrics survey tool to do self assessment and give instant logic based feedback is another solution to how do we respond to these implementation problems agilely and quickly.

Overall most academics have seen the need and value of professional learning for teaching in NGLSs and the way it is communicated in the emails. The resources such as the library guide has had a lot of positive support. Our RMIT librarians are using it as an exemplar for their PD for librarians.

As with any project the time and effort put in by technical staff and academics is substantial. This was evident in the comments made by the Project Team based at the different universities where planned implementation trials proved to be a little more complex than anticipated due to different institutional factors:

Because the concept took longer than anticipated to build and we found it difficult to place it into university systems and processes, it has meant that in the final stages of the project the work pace has become more intense but we will meet the project deadline.

The website design team, eduTAG (Lead University) assisted with user testing

and sustainability of the website resources for delivery in multiple universities. Ongoing user feedback and interviews with academic staff *who teach in NGLSs about the professional development approach is providing feedback and recommendations.*

In most cases the project has rolled out as planned. Our end of things (Trial University) experienced implementation issues at the trial stage. This was caused by *not allocating any resources to do this task, leaving survey implementation and site experimentation in the hands of academics with (the usual) full workload.*

(Trial University) eGuides, while a great concept, the use of these in other universities has been time consuming as we have had to convert elements to suit our needs so there is a need for time to develop this approach to make it operational at other institutions.

(Trial University) Effectively connecting into local systems, practices and approaches – this is important for a sector-wide effect.

To what extent have The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces stated outcomes been achieved?

The Project Team has successfully developed and trialled versions of the model, has built the capacity of people to teach and lead in this space; developed a formal process by which to undertake this training; and trialled and produced a product and an approach available for implementation in the wider sector. A comprehensive set of *e*Guides were produced for universities to customise the model. This has enabled the Lead University to trial, adapt and embed to various degrees the model applied at the lead institution and then provide *e*Guides for the trial universities. The stages of the project have been adjusted acknowledging the '*time to develop the approach and how to make this operational has changed the project stages'*. The table below lists the outcomes achieved by the Project Team within the required timeline and budget which is commendable.

STAGE 1 – ***Project Establishment***	In this phase the project was set-up. Key activities included: • The appointment a Project Manager with strong expertise and experience in education and academic development, including blended learning, to a clear and detailed position description, to ensure overall management, oversight of the project and achievement of outcomes on time and within budget. • The set-up of an interactive dynamic project website to disseminate and support the project and communicate with project collaborators and advisory group members. • A review of relevant CPD and NGLSs literature on contemporary learning, organisational systems and behavioural economics to identify major issues that are unique to academic staff teaching CPD for NGLSs and that need to be considered and addressed (de la Harpe & Prentice, 2011). • The identification, adoption and adaptation of elements of leading national and international CPD programs from other areas such as in Medicine and other allied Healthcare Professions, e.g. Nursing and Medical Radiation Sciences (Henwood, 2004; Kennedy, 2005). • Meetings with the advisory group, mentor and critical friend to discuss, for example, the project methodology and the evaluation framework, and provide advice on literature review areas, design etc.	**October 2011 to March 2012**
STAGE 2 – ***Proof of concept***	• Gathered feedback from staff using NGLs at RMIT University and University of Melbourne about their needs for PD for NGLSs and innovative ideas for how they are best met • Drawn on research and best practice in CPD based on strategies that have been shown to be effective for bringing about change in teacher knowledge and behaviour, and apply to NGLSs • Developed collaboratively and trial flexible 'bite-sized', 'just-in time' and 'just-for-me' CPD activities for staff teaching in NGLSs across RMIT and the University of Melbourne, and develop supporting online "*e*Guide", with materials and policy template • Implemented an embedded practice model for the design and trial phases including local and ongoing support from an educational developer to identify and support professional activities for NGLSs collaboratively with teachers • Provided continuous update on progress through the interactive website allowing interested participants to comment on the project's theoretical framework and resources, as they are developed • Prepared regular updates for CADAD to include in their regular monthly bulletin	**March to December 2012**
STAGE 3 – ***Review***	• Invited CADAD members to provide comments on and critique of the draft resources • Facilitated feedback workshop(s)	**November to February 2013**
STAGE 4 – ***Validate***	• Invited (up to 3) interested universities to trial and validate the CPD 'eGuide' and materials through a call for expressions of interest from DVC(A)s/PVCs(L&T) and invitation through CADAD • Trialled and gathered feedback from participating universities	**February to July 2013**
STAGE 5 – ***Synthesise and adapt***	• Adapted online "*e*Guide" and supporting materials and policy template based on feedback from and the evaluation of the trials • Made materials available on the web for use and adaptation across the sector • Linked from CADAD home page • Prepared reports, journal and conference papers on the project and its outcomes	**August to October 2013**

To what extent are participants satisfied with the design and delivery?

Evaluative feedback was gathered by the Project Team after each event. This feedback was used to refine and improve the delivery process and approach. The data shows that the majority of participants were satisfied with the design and the delivery for most questions. The Lead University has conducted an extensive set of trials with staff. This has enabled the model and the approach to be fully trialled at the Lead University and trialled at four other universities. The approach was an innovative one that allowed a group of participants to '*think outside the square as to how might we adapt this concept*' to their own situation. The Project Team had developed unique and strategically appropriate web-based Quests with the assistance of a psychologist to use the correct language to entice participants to be involved. The concepts of rewards through badges received comments such as it *'opened my mind to the use of badges!'* although not all participants were as positive about '*badges*' and saw them as '*trivial*'. Whilst using the email approach was positively accepted as indicated by this comment *'I keep upper most in my mind the value of 'push/pull' strategies'* to deliver the CPD to staff email boxes.

Comments from the Project Team encapsulated the impact on participants:

> *My sense is that we are all quite pleased with the work and outcomes of the project team, in particular Thembi and Megan.*

Numerous positive comments were gathered from instances where participants found the modules to be very helpful and stated that 'I like that the professional learning approach is time-shifted and consists of a variety of learning methods'. The Lead University was able to show through their implementation that 'school network meetings have been really successful and we have had wonderful feedback about their participation in these'. It was noted by one Project Team member that:

> *As with all professional development, different styles suit different people. We have tried to accommodate for all types of learners in that they can choose a professional learning activity that suits them.*

Another Project Team member summed up their experience by this comment '*I have found this project most exciting. Personally, the gamification aspect of the email approach has been really interesting to see unfold'.*

What, if any, unintended outcomes have been identified?

A number of unintended outcomes have been identified with such a project as '*effectively connecting into local systems, practices and approaches – this is important for a sector-wide effect*' as a major notable point as the trials took place in the Lead and trial universities. Again this was summed up by a number of comments:

> *Much of the information pre-exists within unis, but the challenge is negotiating access, links, etc.*

… large Unis present real hurdles to such tasks, due to a lack of easily identifiable 'gatekeepers'

University systems that don't communicate with each other. We had to use some manual solutions at this point as timetabling, HR, property services, academics don't actually have systems in place that can interact.

The need to design such tools with specialist designers setting protocols, etc, at the very beginning. Building and then transferring such websites across platforms/Unis is problematic.

How might future The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces be improved?

The model had been successfully developed and trialled at the Lead University and the adaption of the model and resources trialled in four other universities inevitably showing there are things that can be improved. On reflection the Project Team felt there was '*there is a real need for such devices, strategies. Reinforced consistently when discussing the project with colleagues'* and that improvements could be made as far as structures and systems:

… it could be improved if the whole university decided to take it on. That is, the Vice-Chancellor and DVC(A) needs to back it and give it the push for Human Resources and the IT departments to change existing processes to include and enable the approach. It is quite a visionary approach and would work well if it is adopted as a grand scale to change how professional development is normally delivered for any topic/area/change. Everyone needs to be on board so that there are changes to academic's workplans, that line managers follow through with staff members on the outcomes of their professional learning and all this needs to be supported by existing university teams and technology.

To what degree has the Model been developed?

A model has been developed and trialled by the Project Team through an iterative process where feedback and synergies of what worked, and what needed refinement over the life of the project, have evolved. The innovative concepts and solutions explored have highlighted the leading edge approaches that were trialled and the importance of such expressed as:

I think it's a way into the discussion about what PD we provide for academic staff. How PD fits into different contexts and makes connections and expectations explicit for both academics and people developing PD and others outfitting the NGLSs.

*W*hile the model was trialled in four universities with varying degrees of success and the implementation issues encountered were solved by the Project Team encapsulates the benefits of collaboration between the universities involved:

Great connections to people at RMIT. I also have appreciated getting a view into how things are done in other places. I still think that there are more commonalities to explore and innovate through, and further cooperative and open work together would be very beneficial in building a robust and sustainable PD approach.

I think the model is pretty developed conceptually, but maybe not so developed at a system level, in order to integrate into local practices. Some systemic view of how, for example, systems could talk to each other in order to automate the email approach (timetabling, room allocation processes, teaching staff allocations etc).

What are the limitations of the Model?

One of the main limitations is the time needed for people to be involved in the process and for staff and for Senior Leaders to understand the value of such a model to drive change. For success such a model must be driven and led from the top of the institution. The model relies on participants learning with colleagues, refining the way they work and being 'accountable to self and others'. Those staff involved needed time to make connections; they needed time management and time to build partnerships.

As with all PD, very little incentive for teaching staff, who are have heavy workloads, to take the time to engage.

Ultimately, such a model needs to be linked to staff university work plans and performance management systems to gain maximum benefit. Key people need to drive the model with time given to staff to develop the approach. The main limitation was summed up succinctly by one of the Project Team members as '*the only limitation is organizational and individual academic's willingness to engage'* and by another Project Team member *'as with all PD, very little incentive for teaching staff, who are have heavy workloads, to take the time to engage'.*

Sustainability of the Project's Focus and Outcomes

This has been a unique and innovative project that has developed a number of different ways of formal and informal learning activities for staff to engage within their own professional learning for teaching in NGLSs. As with any model implementation the success relies on the take-up and support by Senior Leaders with realistic expectations from Leadership of what can be achieved through university systems and structures. Whilst the success of the model was acknowledged, the future of long term plans of implementation across the sector requires more time and effort to successfully implement fully into universities. As indicated through the evaluating and validating of the resources and implementation of the '*e*Guide' in different organisational settings. Such a model must be led by Senior Leaders and embedded into the wider university systems along with staff professional development plans for successful implementation to be assured. It was clear that long term implementation is reliant on Senior Leaders driving the model as acknowledged by these comments made by one of the Project Team when implementing the model in one of the trial universities:

I think the project has resulted in a very valuable, viable product. It requires additional support for implementation. It's the classic case of adding funding to make past funding effective. The real danger is that this initiative will stall without some key people driving it.

Team Leadership

The Project Team reported the leadership was effective and collaborative. The Project Manager reported that she had worked very closely with the Project Leader and Project Team to achieve the outcomes of the project. The Project Leader openly complemented the work of the Project Manager and the key technical Project Team Leader based at RMIT who together had driven the bulk of the innovation of the project and finding innovative solutions through the trials. The Project Leader highlighted the success of the project and stated that '*acknowledgement must go to Thembi and Megan'.*

Having a distributed Project Leadership Team residing at different universities enabled the technology to be used for communications to keep everyone fully connected and informed during the life of the project. In December 2012 the project was moved to Google Documents as a response to one of the recommendations made in the first Evaluator's report. This enabled better access, archiving and sharing of project documents between the Project Team members. Regular teleconferences were maintained throughout the project to keep the Project Team on task and to achieve the outcomes of the project on time and within budget.

Dissemination

A dissemination program has been undertaken by the Project Team including five presentations and three publications:

3 April, 2012	DASSH Network of Associate Deans meeting, Adelaide
4 July 2013	HERDSA Conference, Auckland
12 July 2013	LATICE Symposium, Brisbane
10 August, 2013	The National Forum on Active Learning Spaces, Minnesota
6 Sept, 2013	RMIT Sessional staff symposium, Melbourne

de la Harpe, B., McPherson, M. & Mason, T. (2013). *Not a Waste of Space: Professional Development for Staff Teaching in New Generation Learning Spaces*. HERDSA news article. Available at: http://bit.ly/15X3yY2

Fisher, K. (2013). Transforming Design Thinking Through the Translational Design of Learning and Knowledge *Environments*. In Frielick, S., Buissink-Smith, N., Wyse, P., Billot, J., Hallas, J. and *Whitehead*, E. (Eds.) *Research and Development in Higher Education: The Place of Learning and Teaching, 36* (pp 136 - 152). Auckland, New Zealand, 1 – 4 July 2013.

de la Harpe, B. & Mason, T. (In Press). The future of professional learning for academics teaching in Next Generation Learning Spaces. In K., Fraser (Ed.). *The future of learning and teaching in technology enabled, collaborative spaces,* Journal of international perspectives on higher education research book series.

A number of articles are planned for publication in 2014 in the following journals, *Studies in Continuing Education*, *International Journal of Academic Development*, *Adult Education Quarterly* and *Higher Education Quarterly*. The Project Team have provided the titles of the papers as follows:

1) Academic views on professional development that works for them and the great divide
2) Reflections on designing and trialling a new professional learning approach for academic staff teaching in Next Generation Learning Spaces
3) Does gamification work for academic professional development?
4) Academic staff readiness to teach in a Next Generation Learning Space

Conclusions and Recommendations

Through a dedicated Project Team this project has achieved its outcomes and delivered an innovative Professional Learning model and resources that can be applied more broadly, are applicable and transferable to other universities to assist staff teaching in NGLSs. The importance of such an innovative approach and the learning undertaken by the Project Team cannot be underestimated and is summed up by these comments:

> *I have learnt a significant amount about professional development. It has offered an opportunity to be highly creative and to design something quite unique and forward looking. It has been fantastic to work with wonderful colleagues but it has been an enormous amount of work on top of a significant workload. Without the wonderful team around this project it would have been impossible to achieve.*

Whilst this project has met the overall project aims there is room for more work and as such, this type of innovative work leads itself to a follow-on project to expand the innovation into a wider number of other discipline areas: '*I feel satisfied with design and delivery, but recognize that more work can be done, in some kind of extension project'.*

A number of key principles are provided in the final report on the project. The successful future operation of The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces model at the university level and for wider implementation is dependent on the successful adoption of these principles around the key elements of the adoption of the resources and the management of staff work plans, as well as reliant on the full implementation into university systems and structures:

1) **Resources and Staff Work Plans**

   The Not a waste of space – professional development for staff teaching in Next Generation Learning Spaces website http://rmit.libguides.com/newlearningspaces and the ***e*Guides** allow universities to adapt the resources to their specific situation to train staff in using NGLSs. Successful implementation of such an approach must have time and effort afforded to staff who are managed through their staff work plans to allow them to fully integrate skills learnt into local practices; and

2) **University Systems and Structures**

   To be a viable model this must be fully embedded and supported within the university systems, structure and strategic plans as a sustained and successful ongoing continuous professional development approach.

References

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Appendix 1: Evaluation Questions, Data Collection & Analysis

Key Evaluation Question	Data collection and analysis
To what degree was the ***Not a Waste of Space – PD for staff teaching NGLS*** implemented as planned and funded?	Compare program plan with operational documents and identify implementation issues. Collect stakeholders views on their validity and importance
To what extent are participants satisfied with the design and delivery of the ***Not a Waste of Space – PD for staff teaching NGLS***?	Confirm extent of satisfaction of stakeholders through survey/interviews.
To what extent have the ***Not a Waste of Space – PD for staff teaching NGLS*** stated outcomes been achieved?	Collect evidence against each of the project outcomes.
What, if any, unintended outcomes have been identified?	Identify unintended outcomes and assess their impact on the current cohort and the future of the program.
How might future ***Not a Waste of Space – PD for staff teaching NGLS*** be improved?	Identify issues and suggested improvements from documents and interviews with participants and project team members.
To what degree has the Model for ***Not a Waste of Space – PD for staff teaching NGLS*** been developed?	Collect information to assess degree of development of ***Not a Waste of Space – PD for staff teaching NGLS*** through interviews
What are the limitations of the ***Not a Waste of Space – PD for staff teaching NGLS***?	Identify unintended outcomes/ issues of ***Not a Waste of Space – PD for staff teaching NGLS***, and suggested improvements from interviews with participants and project team members

Appendix 2: Confidential Interview Questions for Stakeholders

Q1 To what degree has the Not a Waste of Space – PD for staff teaching NGLS been implemented as planned and funded?

Q2 To what extent do you feel the participants are satisfied with the design and delivery of the Not a Waste of Space – PD for staff teaching NGLS?

Q3 To what extent have the Not a Waste of Space – PD for staff teaching NGLS stated outcomes and deliverables been achieved?

1. An innovative flexible, 'bite sized', 'just-in time' and 'just-for-me' continuous professional development (CPD) approach with activities and resources that are specifically focused on utilising Next Generation Learning Spaces
2. An adaptable step-by-step online institutional implementation "eGuide" for the sector. The project outcome will, thus, include not only a 'report about' but a practical user friendly online resource for universities that incorporates instructions and validated easily adaptable materials and policy template
3. Active involvement across the sector in the evaluating and validating the materials and implementation 'eGuide' in different organisational settings
4. An interactive website using social networking tools that documents and showcases the life of the project and encourages active engagement of a distributed network of colleagues, and builds on existing and previous ALTC project networks
5. Improved understanding of the impact and financial requirements of providing effective CPD for NGLSs
6. Increased knowledge of innovative ways to support staff CPD for NGLSs across the disciplines
7. More effective use of NGLSs
8. Enhanced academic staff knowledge of and experience in student-centred L&T practices appropriate for NGLSs
9. Positive student experiences and learning outcomes (as evidenced by student feedback data)
10. A number of Scholarship of Learning and Teaching (SoLT) papers for publication in ERA ranked journals that document innovation and excellence in CPD for NGLSs

Q4 What, if any, unintended outcomes have been identified?

Q5 How might future Not a Waste of Space – PD for staff teaching NGLS be improved?

Q6 To what degree has the Model been developed?

Q7 What are the limitations of the Not a Waste of Space – PD for staff teaching NGLS? Are there any issues you think are important and should be aired?

Q8 What main impact(s) has the project had upon you personally/professionally? Are there any claims about this Project that you would like to make?