VARIATIONS IN LEARNING DESIGN ACROSS HIGHER EDUCATION DISCIPLINES

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Abstract

There has been a rapid change in the Higher Education (HE) sector and none has borne the brunt of the change more directly than those designing the learning environments for an increasingly diverse student body. HE educators are first and foremost subject content experts and many have no formal pedagogical, technological or learning design knowledge, yet most are required to design for learning on a regular basis.

This is where the expertise of others with a thorough understanding of the field of Learning Design can play an important role by providing the support needed. Sharing learning designs and teaching approaches that have already been demonstrated to successfully engage students would seem to be a desirable way forward. However, this thesis describes how creating effective learning environments is a process much more complex than simply duplicating a lesson that was successful elsewhere.

The aim of this work was to discover if generic templates could be used to share high quality learning designs across a range of disciplines by answering the question:

> Can generic learning design templates be used to introduce new learning designs, teaching methods and/or teaching activities across disciplines in higher education?

A generic template is "a learning design pattern that is commonly derived by removing the subject content from a successful learning activity and distilling the activity down to its integral pedagogical parts" (Cameron & Campbell, 2010, p. 1915). Learning designs were identified as high quality when students reported them as highly engaging, productive learning experiences and which demonstrated high student retention in Course Experience Questionnaire (CEQ) data (Australian Graduate Survey, 2011).

To successfully answer the question above, an initial targetted review of the literature was undertaken to consider the conceptual issues related to the field of Learning Design. An additional review was conducted to establish the importance of the discipline context in HE learning design. Data were then collected and verified the findings of the literature and existing CEQ data sets to identify the learning designs commonly utilised in the disciplines across the HE sector in Australia[1]. It was determined that the most efficient way to collect this data was to do surveys and then conduct additional interviews. Due to the dynamic nature of the field, the literature was constantly reviewed to inform the overall findings.

The surveys undertaken as part of this research found there were differences in the learning designs, teaching methods and/or teaching activities used across the disciplines in the universities in the study, but not as

[1] At the time of data collection and analysis, CEQ data sets were the best openly available to research student learning. QILT data, specifically Student Experience Survey data, has since become available and future research in this area would utilise these data sets.

distinct as reported by the earlier literature, and previously published data. While the survey samples were very small, it emerged that there is a bias toward the traditional discipline stereotypical learning design, especially in assessment tasks.

While it was found that innovative, creative and engaging teaching and learning is occurring in many tutorial classrooms researched, it is not routinely undertaken as a result of a systematic approach to improve quality throughout the universities in this study. Nor was engaging in widespread, informed discussion about well-researched teaching approaches a common feature of current university practice. While there was general awareness amongst educators surveyed about the importance of responding to student evaluations, changes in learning design were most commonly made without reference to current research or professional advice. The designing for learning process emerged as only a semi-professional activity and that educators most commonly sourced their pedagogical knowledge from colleagues within their own discipline, who, like them, rarely have formal teaching qualifications.

This research confirms that generic learning design templates might provide a means for educators to access a broad range of learning designs but there are barriers to sharing these in the universities in the study. At a time when providing students with a quality learning environment is considered highly desirable, none of the barriers identified seem insurmountable.

This thesis concludes by offering practical recommendations for a range of HE stakeholders about how the learning design process might be employed to improve their learning environment, and how existing teaching approaches affect their students' learning. This thesis was produced using the "*thesis by publication"* format.

Declaration

I hereby declare that this thesis is my own work and that, to the best of my knowledge, it does not contain any unattributed material previously published or written by any other person. I also declare that the work in this thesis has not been previously submitted to any other institution for, or as a part of, a degree.

This thesis was granted approval by Macquarie University Ethics Review Committee (Human Research) and conducted in accordance with the guidelines stipulated (Reference Number: 5201100817D).

Leanne Cameron

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Ernie Ghiglione talked me into leaving teaching for a while to join MELCOE (Macquarie E-Learning Centre Of Excellence), primarily to work on the educational development of LAMS (Learning Activity Management System). That began a journey that resulted in meeting the luminaries of the Learning Design world. Professor James Dalziel was instrumental in revealing a way of thinking about education that simply made sense to me. He later became my PhD supervisor and I thank him for his crucial work in this role, but also for all the opportunities he opened up for me.

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List of Publications

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Paper 1: Cameron, L. (in press). What support can the field of Learning Design offer the Higher Education educator? An expanded version of a paper accepted for development for a Special Learning Design Edition of the *British Journal of Educational Technology*..... 9

Paper 2: Cameron, L. (2009). How learning design can illuminate teaching practice. *The Future of Learning Design Conference Proceedings*. Paper 3. Retrieved from: http://ro.uow.edu.au/fld/09/Program/3 .. 45

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Paper 4: Cameron, L. (2017). How learning designs, teaching methods and activities differ by discipline in Australian universities. *Journal of Learning Design,* 10(2), pp. 69-84. 111

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Chapter 1: Introduction

Since the commencement of this research, the field of Learning Design has continued to evolve. This thesis documents much of that journey. In the early publications, my thinking about how easily learning designs might be shared throughout the HE sector is evident. Since then, the complexity of designing for learning in an increasingly diverse environment has become clearer.

As I was working within an increasingly diverse and developing context, a multi-faceted approach was undertaken to exploring the research question:

> Can generic learning design templates be used to introduce new learning designs, teaching methods and/or teaching activities across disciplines in higher education?

The research findings are reported here in a series of papers that collectively outline the research results (see Figure 1). The thesis begins by providing a theoretical review of the conceptual underpinnings of the Field of Learning Design; an exploration of the Process of Learning Design; and an examination of the resultant products and tools. These findings were then tested with two empirical research studies. Finally, the results were integrated

into recommendations for those stakeholders of designing for learning in the HE environment.

The nature of the process of learning design and the tools employed to support it continue to be developed. With this in mind, this thesis begins with the most recent publication: Paper 1, *"What support can the field of Learning Design offer the Higher Education educator?"*, in which the thesis Rationale, Definitions and Research Questions are validated in light of the changing context of the field.

Paper 2: "*How learning design can illuminate teaching practice"* (Cameron, 2009) introduces the field of Learning Design in detail and explores the variety of ways the term "learning design" is used in different contexts. The concept of sharing and reuse is also introduced, which is an underlying driver to much of the work in the field. With the intention of sharing learning designs, the need to document the learning and teaching became necessary and the challenges of that process quickly become evident.

Where Paper 2 established the field of Learning Design as an important element when reviewing and evaluating designing for learning in the HE environment, Paper 3, "*Giving teaching advice meaning: The importance of contextualising pedagogical instruction within the discipline"* (Cameron, 2013), introduces the important role of the disciplines in academic practice. A review of the literature was undertaken to determine what differences might

be found in learning designs, teaching methods and teaching activities across the disciplines. Published student satisfaction ratings have consistently shown that some disciplines rate much more highly than others. This paper reports that the literature highlights that each discipline has its own history, intellectual style, sense of timing, preference for resources and career paths and assumptions about its educational purpose (Light, 1974). This defines what knowledge is in a field and how things become known. It also defines how knowledge within the discipline is analysed, criticised, accepted or discarded (Shulman, 2005), and ultimately how it is taught.

These early chapters introduce a theoretical context and justification for the study. Chapter 5 outlines how empirical data sets were sought to substantiate the theoretical findings. The overall research design and methodological approach of the research is outlined to illustrate how all findings (both theoretical and empirical) were integrated to produce a cohesive whole.

In Chapter 6, Paper 4: *"How learning designs, teaching methods and activities differ by discipline in Australian universities"* (Cameron, 2017), verified the findings from Scott's Course Experience Questionnaire (CEQ) analysis (2006) and confirmed the currency of the literature about the learning designs typically used in the disciplines in the Australian universities surveyed.

PhD Rationale:

If a high quality learning design can be successfully shared with another discipline/subject, then teaching and learning might be improved across the Higher Education sector.

Current overview of the Australian HE context and the field of Learning Design

Paper 1: *"What support can the field of Learning Design offer the Higher Education educator"?*

Defining the elements of the field of Learning Design

Paper 2: *"How Learning Design can illuminate teaching practice"*

Understanding differences between the disciplines in universities

Paper 3: *"Giving teaching advice meaning"*

Finding: Humanities and Social Sciences typically use engaging learning designs Sciences and Engineering do not always.

Do discipline differences still exist in teaching and learning in the current Australian environment?

Paper 4: *"How learning designs, teaching methods and activities differ by discipline in Australian universities"*

Finding: Discipline differences still exist, most noticeably in formal assessment tasks. Differences also still exist in student satisfaction surveys.

Are academics willing to use effective learning designs from other disciplines?

Paper 5: *"Using generic templates to promote the use of high quality learning designs in Higher Education"*

Finding: Yes, they will share across disciplines but there are some barriers.

Are these findings robust when tested using the Learning Design lens?

Paper 6: *"Exploring the Learning Design Conceptual Map"*

Finding: Yes, the findings fit well with the LD-CM

What tools can be used to share learning designs across disciplines?

Paper 7: *"Planner Tools: Using and Sharing Good Practice"*

Finding: Yes, learning designs can be readily shared using generic templates.

Conclusion

While it can be said that an effective learning design can be successfully transferred across into another discipline/subject using generic templates, designing learning in the HE sector needs to be a contextualised activity.

Figure 1: Structure of the thesis

Chapter 7, Paper 5: "*Using generic templates to promote the use of high quality learning design in Higher Education"* (Cameron, 2107), reports on the surveyed lecturers' responses to adopting new learning designs using generic learning design templates. In Chapter 8, Paper 6: *"Exploring the Learning Design Conceptual Map",* applies the findings of this thesis to the Learning Design Conceptual Map (Dalziel et al., 2012) which emerged as part of the work developed from the Larnaca Declaration (Dalziel et al., 2016).

In the final chapter, Chapter 9, the implications of the research and recommendations are provided. Additionally, directions for future research are outlined. Supporting documentation provided in the Appendices, includes Paper 7: *"Planner tools – Sharing and reusing good practice"* which describes how the primary instruments, generic templates, were used to demonstrate the learning designs.

1.1 CONTEXT

This research focussed on the four major disciplines found in the majority of Australian universities: the Humanities, Social Sciences, Sciences and the Professional Fields. Whilst much of the literature analysed was international (predominantly sourced from the UK and US), the CEQ data sets, survey and interview participants were all based in Australia and the Conclusion and Recommendations concentrate solely on the Australian context.

1.2 AIM AND RATIONALE

Aim:

The aim of this research was to determine if the quality of teaching and learning might be improved by sharing high quality learning designs. High quality learning designs were identified for this research as those which students reported as highly engaging and resulted in a productive learning experience. These learning designs might then be shared with educators who do not have the experience to create such activities. The instrument chosen in this research to deliver these designs was the generic template. A generic template is "a learning design pattern that is commonly derived by removing the subject content from a successful learning activity and distilling the activity down to its integral pedagogical parts" (Cameron & Campbell, 2010, p. 1915). A comprehensive description of the range of generic template scaffolds considered for this project is provided in Appendix 2.

Rationale:

If high quality learning designs can be identified and then successfully shared with another discipline/subject, then teaching and learning might improve across the Higher Education sector. The widespread adoption of effective teaching and learning approaches will promote student engagement[2], productive learning and optimise student retention[3] (Scott, 2006).

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[2] The definition of engagement used in this study was "meaningful student involvement throughout the learning environment" (Martin & Torres, 2016). For a fuller definition, see Appendix 1.

[3] See Appendix 1 for the definition of retention used in this study.

1.3 RESEARCH QUESTION AND RESEARCH DESIGN

The central research question explored in this study was:

Can generic learning design templates be used to introduce new learning designs, teaching methods and/or teaching activities across disciplines in higher education?

To successfully answer the research question, data were needed to verify the findings of the literature and existing student surveys to identify the learning designs commonly utilised in the disciplines across the HE sector in Australia. It was initially determined that the most efficient way to collect this data was to do a broad, large scale survey. However, to obtain data with the depth that was required to fully explore the decisions made by lecturers about their choices of learning designs, it became clear that additional interviews (a qualitative approach) would also be necessary. Therefore, a mixed methods approach was undertaken. However, as the final sample sizes of both surveys (n=14; n=16) and the interviews (n=6) was only very small, the research results cannot be considered to represent the broad HE context as was the initial intention. Yet it does provide an interesting snapshot of a small group of lecturers' practices who are currently designing learning in a number of Australian universities (n=8).

1.4 THESIS OUTLINE

This thesis was produced using the "*thesis by publication"* format. It contains seven publications. Three have been published in high quality peer reviewed journals (Papers 4, 5 & 7), one has been published as a book chapter (Paper 3), and another accepted for publication as a book chapter (Paper 6). Paper 2 was blind reviewed by a number of Learning Design luminaries for publication in the Proceedings of "*The Future of Learning Design Conference"*. The final paper (Paper 1) was accepted for further development in a high quality peer-reviewed journal (see Figure 1 for a visual representation of the entire thesis).

The thesis was conceived to provide an integrated and coherent body of work despite being constructed using individually published papers. For this reason, the Introduction and Conclusion of Paper 3, *"Giving teaching advice meaning"* (Cameron, 2013) was lightly edited to improve cohesion. Chapter 5: "*Methodological Considerations*" and Chapter 9: "*Conclusion*" address the research as a whole. All the papers have been reformatted for this publication for consistency.

Chapter 2: What support can Learning Design offer the HE Educator?

2.1 FOREWORD TO PAPER 1

This paper presents a current high level overview of the issues affecting the Higher Education (HE) context in Australia. It examines a number of the conceptual issues of the field of Learning Design that have continued to evolve since the publication of the earliest papers found in this thesis.

This paper, and a most recent UK publication, "Designing learning and assessment" (Ferrell, Smith & Knight, 2018), affirmed the direction of the thesis findings. Clearly, there is still a need for additional research to fully define the field of Learning Design and to further develop tools (eg, generic templates) to support the learning design process.

2.2 PAPER 1: WHAT SUPPORT CAN THE FIELD OF LEARNING DESIGN OFFER THE HIGHER EDUCATION EDUCATOR?

2.2.1 Introduction

> "Teaching is not rocket science: it is much, much harder than that."
>
> Laurillard (2012, p. 5)

Diana Laurillard's words highlight the complexity of teaching in the current Higher Education (HE) environment: An environment that continues to be subjected to moving goal posts in almost every area. There has been a rapid evolution in the sector (some might say, revolution) and none has borne the brunt of the changes more directly than HE educators as they are faced with the task of designing learning opportunities for their students. This paper explores how the work being undertaken in the field of Learning Design might offer support to those designing learning in the HE sector.

2.2.2 The field of Learning Design

The field of Learning Design combines the key knowledge areas of subject content, curriculum, pedagogy, technology enhanced learning (TEL) and design into a cohesive whole as a means of sharing "best practice" in the learning design process. As the field continues to develop, so too does the support it can offer HE educators. Nearly a decade ago, Cameron wrote that "the field of Learning Design holds the promise of providing educators with a framework that will enable them to design

high quality, effective and innovative learning" (2009, p. 20). Despite a great deal of work being done since, Learning Design has not yet fulfilled this promise and the work to date has not touched the lives of many HE educators outside the field. Additionally, the Learning Design community is still seeking "conceptual unity" when it comes to defining Learning Design elements (Dobozy & Vlachopoulos, 2017) and one of the key challenges of the field is the multiplicity of conceptualisations and definitions concurrently in use (Goodyear & Dimitriadis, 2013; Philip & Cameron, 2008).

What is Learning Design?

While a consistent, concise definition for the field of Learning Design and the associated theories, methodologies and tools is still to be determined, the following definitions have been employed for the purposes of this paper:

In the broadest sense, Learning Design is:

> "A methodology for enabling educators/designers to make more informed decisions in how they go about designing learning activities and interventions, which is pedagogically informed and makes effective use of appropriate resources and technologies. This includes the design of resources and individual learning activities right up to curriculum level."
>
> (Conole, 2013, p. 1).

The learning design Process is:

> "A grounded, rigorous, and creative process of perpetual educational innovation: grounded in a well-defined concrete content of practice, rigorous in its attention to scientific evidence and pedagogical theory, and creative in its approach to generating new solutions to educational challenges." (Mor, Craft & Maina, 2015, p. xviii).

The definition above is an aspirational one and should not be discounted but in reality, the learning design process is more typically as described by Conole & Wills (2013, p. 28):

> "The educator engages with various learning design mediating artefacts to guide their design process, through a creative, iterative and messy process."

The learning design Product:

> "A learning design documents and describes a learning activity in such a way that other educators can understand it and use it in their own context. Typically, it includes descriptions of learning tasks, resources and supports" (Donald, 2009, p. 179).

For a fuller explanation of the different definitions relating to learning design, see Cameron (2009).

At this point, it is important to clarify that the terms “Learning Design” and “Instructional Design” are, at times, used interchangeably in the literature. While there are many similarities, there is a difference and it needs to be articulated here to ensure clarity. The key difference lies in their theoretical origins: “Instructional Design” emerged from a behaviourist perspective with a focus on learning artefacts, activities and methods for large-scale deployment (Smith & Tillman, 1999; Persico & Pozzi, 2015). “Learning Design” originated from constructivist roots and puts much more emphasis on context, the learner experience and the learning process (Maina, Craft & Mor, 2015). The Learning Design community is striving for a collegiate approach of sharing and reuse of learning designs. Additionally, there is an emphasis on student centricity of learning activities and recognition that modifications frequently need to be made to suit individual HE environments.

Tensions now exist within the HE environment that include:

- How “formal” or “informal” should learning be?;
- Should students be learning independently or collaboratively?;
- Should educators be adopting “new” academic practices or remain with those methods they believe have stood the test of time?

2.2.3 Exploring the Factors Affecting Designing for Learning in the HE environment

In the last 30 years the nature of students, funding, technology, and the HE institutions themselves, have dramatically changed. Not all of these changes have been limited to the HE environment: the ready availability of personalised devices has brought vast amounts of information to the fingertips of the general population for the first time in history. These devices provide unprecedented and immediate access to formal and informal personalised learning anywhere, and at any time. This contrasts markedly with the type of learning environments that HE institutions have traditionally offered.

In Australia, a range of key political decisions vastly changed the context in which HE educators have worked in the last 30 years. In the late 1980s, traditional manufacturing industries were being replaced by much cheaper imports which resulted in flagging export markets and rising unemployment which resulted in a period of general economic instability (Meek, 1991). This was one of the factors behind Prime Minister Bob Hawke's famous quote (MoAD, 1990):

> "No longer content to be just the lucky country, Australia must become the clever country."

The Australian government was later influenced by the US Council of Economic Advisors' belief that the economy could be stimulated by improving

the education and the skill level of its workforce (Lowe, 1998). The Australian Government made a start by restructuring the HE environment and in 2008, the influential Bradley Review reported on the success to date. It stated, "there is an international consensus that the reach, quality and performance of a nation's higher education system will be key determinants of its economic and social progress" (p. xi). Additionally, the Organisation for Economic Cooperation and Development (OECD) Report stated that it was "imperative for countries to raise higher-level employment skills to sustain a globally competitive research base and to improve knowledge dissemination" (2008, p. 23).

Consequences of the restructuring of the HE sector in Australia were:

a) Vastly increased student diversity

In 1988 the Dawkins White Paper (DEET, 1998) expressed concern about equity and access in the Australian HE sector as approximately 20,000 qualified applicants could not gain entry to an HE institution. At that time there was a clear distinction between the elite and selective research-intensive universities which were funded for their teaching and research, and the higher volume teaching colleges which were funded for their teaching only (Marginson, 2007). As a result of the recommendations made by the Dawkins Paper, there was a blurring of this divisive line when the government mandated an amalgamation of HE institutions: there were 73 HE institutions in 1987 with an average student population of 5,300, and these became 38 in 1991 with an average of 14,000 students (DET, 2015).

When the Bradley Review (2008) recommended wider access to HE institutions for students from all backgrounds, a target was proposed that 40% of 25-34 year olds were to attain at least a bachelor level qualification by 2020. This was an optimistic goal when the figure at that time was only 29%. To reach this goal, the Review recommended that the HE institutions needed to look to members of groups currently under-represented within the system, that is, those disadvantaged by the circumstances of their birth: indigenous people, people with low social-economic status, and those from regional and remote areas (Bradley, 2008).

Domestic students more than doubled in the period 1989-2014 (420,000) and the proportion of Australians of working age with a bachelor degree or higher has tripled since 1989 to just over 25% (DET, 2015). International students rose from 21,000 in 1989 to over 620,000 in 2017 (ATIC, 2018). The majority of these students are from South East Asian countries whose first language is not English. International students became, and continue to be, an important stream of income for many universities. During this period the provision of education had become Australia's third largest export industry (Bradley, 2008) and has remained so (ATIC, 2018).

As student numbers have grown, so too have their diversity with a broad range of social, economic and academic backgrounds being represented (DET, 2015). All these factors have led to a wide variation in student ability in university classrooms for the first time and an urgent need has arisen for course curricula and teaching and learning strategies to evolve and adapt to

the new diverse student cohorts. Most HE educators themselves were successful in the "traditional" HE classroom and frequently have had no experience with such a variation in learning ability. Few of them have any teaching qualifications to respond to this change (Cameron, 2017). This is where the expertise of those with knowledge of Learning Design can have an important role by providing the pedagogical support needed by this diverse student body. An understanding of the variety of teaching practices and student learning preferences can be invaluable when redesigning courses to meet a diverse student cohort's learning needs.

b) A changing funding model

In 2014, the principal sources of revenue for HE institutions were Australian Government funding (41%), domestic student contributions (22%) and international student fees (16%) with some variation across institutions (DET, 2015).

The OECD noted during this period that Australia was unique in that an increase in private spending on HE (78%) was accompanied by a decrease in public spending (8%), not an increase in the latter as in other nations (Marginson, 2007). In the same period, the number of HE students increased by 31%, so funding per student fell by 30% (OECD, 2005). In the period 1984-2004, the average student-staff ratio rose from 13 to 20 (DEST, 2005). This decrease in investment per student, combined with expanding business functions and non-academic services, resulted in a decline in the resourcing of teaching and research functions (Marginson, 2007). Unsurprisingly, many

institutions responded by increasing class sizes and cutting funds to Teaching and Learning support units.

HE tuition fees for students were removed in 1974 for Australian students but in 1989, a "student contribution" was introduced (the Higher Education Commonwealth Scheme (HECS)). This re-introduction of fees made a university education seem quite expensive (even though there need be no upfront cost to students). Two issues that affect teaching and learning have occurred as a result of this change. Firstly, many students need to work while studying and many are studying full-time while also working long hours (ABS, 2013). Secondly, as students are paying significant sums for their education, they want value for their money and are demanding high quality, engaging teaching and learning resources (The Australian, 2018).

In this deregulated market, institutions are competing for students so positive student evaluations have become very important, as have university league tables. Additionally, quality assurance data are generally sourced from student experience surveys, assessment results, attrition and progression rates (Coates, 2005). This puts additional pressure on HE educators to provide students with high quality, engaging courses. Learning Design expertise can provide valuable assistance when designing learning experiences that engage students and retain them in their studies.

c) Increased accountability and quality assurance processes

The Bradley Review (2008) acknowledged that productivity and efficiency gains followed the changes to centralised governing structures of HE institutions and a more business-like approach but there was concern raised that teaching and learning quality was not being upheld as the sector expanded. One example of the new approach was streamlining course offerings by merging related courses so that one single, more generic course was offered. Concerns about this approach were reported:

> When education is produced as a commodity, autonomous professional input is reduced, so there is less scope for adapting programs to different sites, harder contents are emptied out (Naidoo & Jamieson, 2005, p. 267).

Increasingly designing more generalised subjects has been seen as a cost-effective means of keeping student numbers in specific units viable and the number of specialised subjects declined with a loss of specialisation and personalisation (McCamish, 2016). Savings were also made by an across-the-board subject funding reduction which directly affected resources available for teaching which saw many institutions begin moving some courses online. This could be regarded as a more cost-effective delivery option, but the online environment was not one in which many HE teachers had expertise at that time and concerns about the effectiveness of online learning designs was reported (Sharrar & Bigatel, 2014; Redmond, 2011).

The introduction of the Higher Education Standards Framework as part of the Tertiary Education Quality and Standards Agency (TEQSA) Act of 2011 established the importance of Learning Design in the higher education sector in Australia. Explicit references to Learning Design principles include mention of the "overall coherence" of a course (TEQSA, 2017, Sec 1.7), that courses should be "designed to provide appropriate engagement by students" (TEQSA, 2017, Sec 1.7), and that HE educators delivering a course should "have an understanding of pedagogical and/or adult learning principles" (TEQSA, 2017, Sec 4.2). Additionally, the Framework stated that HE institutions should be monitoring student attrition rates (TEQSA, 2017, Sec 5.4). With this clear focus on course coherence and pedagogical approaches, and how they relate to student engagement and attrition, eliciting Learning Design expertise when designing courses can be extremely beneficial.

Some see any accreditation body that is charged with determining compliance to a national framework as a threat to university autonomy and a threat to a university's independence and academic freedom (Norton, 2011). Universities Australia, the peak body representing the university sector, regarded self-accreditation as a central characteristic of universities globally and losing it undermines their role as independent centres of knowledge and learning.

Some of the factors that affect how HE educators make these decisions are:

1. Curriculum requirements

2. Educator knowledge
3. The collaborative design process
4. Evaluating learning and teaching
5. Student voice

These five factors are explored more fully below:

1. Curriculum Requirements

There is a number of factors related to curriculum that are generally beyond the individual HE educator's control. The institution itself may have over-arching curriculum requirements. One of the most common of these is Graduate Attributes. These are generic qualities and skills the university's students possess upon graduation (Barrie, 2004). These have been frequently used as a defined "point-of-difference" by university marketing departments. Capstone units, a final unit of study that integrates the material presented across a program of study (Macquarie University, 2010), have also become a means of meeting the TEQSA requirement of a "reasonable demonstration of achievement of the overall course learning outcomes" (2011, Std 1.4.4). These capstone units address the criticism that individual study units can appear to be unrelated to students who report they see little cohesion in their course of study.

A trend toward interdisciplinary courses which straddle multiple disciplines has also started to appear. Courses in Environmental Science,

Counter Terrorism and Educational Computing, to name but a few, source content and utilise educators from a number of disciplines within the same course. This has also been noted as a global phenomenon (Fung, 2017; Hernandez-Leo, Moreno, Chacon & Blat, 2014).

While traditionally those disciplines preparing students for a professional career (eg. Law, Accounting, Teaching) have been subject to external agency curriculum requirements, all disciplines are now frequently being measured on their students' employability. Employment outcomes are one of the measures used in the Quality Indicators for Learning and Teaching (QUILT) Evaluation Report (DET, 2018), so HE educators are now also subject to a tension between academic and vocational curriculum content (Goodyear, 2015).

2. Educator Knowledge

In acknowledgement of this new diverse HE environment, an increasing number of tertiary providers are requiring their teaching staff to design and deliver personalised, mobile, technologically enhanced learning environments to their students (Salmon & Wright, 2014). It is now often expected that to be successful, HE educators would possess a comprehensive understanding in a broad range of areas. These might include:

a) Subject content knowledge

b) Pedagogical knowledge (both general and discipline specific)

c) Technology enhanced learning knowledge, and

d) Design knowledge

(Adapted from Shulman, 1987)

These areas will now be explored below:

a) Subject content knowledge

Subject content knowledge, that is, subject or discipline knowledge that is to be passed on to students, is the one area in which most HE educators report they feel confident (Cameron, 2017a). This should be unsurprising as a higher degree in their discipline is usually a pre-requisite to securing an HE entry-level teaching position. While subject content includes basic facts and theories that are foundational to the field, there is commonly a "hidden curriculum" of core values, discourses, dispositions and practices that the field holds true which are rarely presented to students explicitly (Chick, Haynie & Gurung, 2012). This knowledge is embedded in how the subject content is communicated to students and has often been delivered this way for decades. Schwab (1964) refers to this as the "substantive and syntactic structures" of a subject.

Researchers working in the field of Learning Design are studying how this knowledge is passed on to the next generation of students and confirm that it can vary from discipline to discipline (Barnett, 2005; Neumann, Parry & Becher, 2002; Stark & Lattaca, 2009; Trowler, 2009). When the most effective means of learning transfer is determined, these results can

be communicated across the disciplines with the intent of improving learning and teaching across the HE sector. For a more in-depth study of disciplinary differences in HE environment, see Cameron (2013).

b) Pedagogical knowledge

Pedagogical knowledge is what an educator understands about teaching and learning. It involves them determining how to organise the learning environment so they can offer "systematic assistance" in such a way that students can learn effectively (Laurillard, 2012). At the HE level, much of the learning takes place without the direct supervision of their educator (Goodyear, 2015). This presents some pedagogical challenges quite different from those encountered in school settings, especially when the delivery is online. Pedagogy at this level cannot merely be focussed on the learning activities but must also include scaffolding that allows the students to understand the learning outcomes required. Educators need to design a quality learning environment and to communicate activity specifications clearly to their students (Goodyear, 2015).

Ensuring that the learning environment is of high quality in our universities is a challenge when teaching qualifications are rarely included in the essential selection criteria for HE entry-level positions. Despite teaching making up much of the daily workload in these positions, the educators are often left to their own devices to develop pedagogical knowledge (Berthiaume, 2009). A recent study in Australia (Cameron, 2017a) reported that not only did surveyed HE educators not routinely have

formal teaching qualifications, but neither did they engage in regular, informed discussions about teaching and learning principles. Most educators in the study reported they relied heavily on their own experience and student evaluations to suggest learning and teaching improvements. These educators also stated they did not regularly consult the Scholarship of Learning and Teaching (SoLT) literature but gave most credibility to peers from their discipline for advice – most of whom, similarly, had no formal teaching qualifications. Numerous studies have documented similar findings of HE educators making learning design decisions with no evidence base: Judging teaching success was achieved by "the sense that a teaching and learning idea 'just feels right'" (Dalziel et al., 2016, p. 12); "Few participants described their designs as being underpinned by theories of learning"... "You're basically going off the back of what did and didn't work in your experience" (Bennett, Agostinho & Lockyer, 2015, p. 214).

Time for HE educators to develop pedagogical knowledge must compete with developing administrative and research skills which commonly have higher priority in the HE environment. It has been found that opportunities are not being explicitly created for these educators to develop pedagogical knowledge, nor is this knowledge being broadly articulated and shared (Cameron, 2017a). Hence educators are not routinely building on the work of others in teaching practice as would naturally be done with their subject knowledge (Laurillard, 2012). More disappointingly, without exposure to current Scholarship of Teaching and Learning (SoTL) research, educators commonly default to traditional

practices without recognising the need for change (Cameron, 2017a). This results in innovation in pedagogy rarely becoming a priority for them (Armellini & Aiyegbayo, 2010) so their teaching practices may not change substantially throughout their career (Persico & Pozzi, 2015).

As the results of the research in the area unfold, the case is becoming clear that HE administrators need to prioritise the value of pedagogical knowledge with their educators and provide them the time to engage with the concepts. This is emerging as one of the keys to the success of engaging students in their programs.

c) Discipline specific pedagogical knowledge

There is evidence that there are generic principles of effective teaching and learning that can be applied across disciplines, eg. building on students' prior knowledge, communicating with clarity, managing cognitive load and effective assessment techniques (Bull, 2014; Berthiaume, 2009; Scott, 2006; Barnett, 2005). SoTL research continues to develop the field's knowledge base. However, there are also aspects of a discipline that are infused not only by what is taught, but by *how* it is taught (Bull, 2014). These discipline specific pedagogies were coined as "Signature Pedagogies" by Shulman (2005, p. 54):

> "They implicitly define what counts as knowledge in a field and how things become known. They define how knowledge is analysed, criticized, accepted, or discarded."

Discipline specific pedagogy is not always determined by what is most effective, but rather by what is most accepted (Bull, 2014) and these methods sometimes persist even when they are no longer effective (Shulman, 2005). Simply recognising these pedagogies exist and that they influence existing practice and student learning outcomes, can lead to an improvement in pedagogical practice. Currently, most educators' design practice is implicit and practice-based, focussing primarily on discipline content (Conole & Wills, 2013). Goodyear (2015) believes that traditional pedagogies are no longer sustainable in the modern HE context and that evidence-informed, creative design-based strategies will be needed if institutions are to accommodate, and ideally anticipate, changes in the HE environment. This flags the importance of educators' recognition of the need to embrace new design and delivery methods (Salmon & Wright, 2014) and Learning Design research might provide the evidence which will inform these educators.

d) Technology enhanced learning knowledge

Designing learning with technology makes aspects of teaching visible that were previously taken for granted in a face-to-face learning environment (Beetham, 2007). Much of the early learning design research was focussed on how technology could assist the learning design process.

This branch of work has become known as Technology Enhanced Learning (TEL).

The area developed in two ways: the first was the construction of computer systems to orchestrate the delivery of learning resources and activities for computer-assisted learning. The second was to find effective ways of sharing innovation in TEL practice (Mor, Craft & Maina, 2015). The latter includes tools for visualisation/documentation of the learning design, for fostering dialogue and sharing between educators, and others for guidance and support throughout the learning design process (Conole & Wills, 2013). The challenges of visualisation will likely become more acute as technology-supported learning designs become richer and more complex (Maina, Craft & Mor, 2015).

There is now a wealth of technologies that can be used to promote different pedagogical approaches and enable students to interact with resources in engaging ways, as well as enabling them to communicate and collaborate with their peers and educators. Unfortunately, some educators are overwhelmed by the vast range of tools now available and/or they lack the necessary technological literacy skills to make informed design decisions would enable them to create authentic and engaging learning environments (Conole & Wills, 2013).

Learning Design researchers have a strong background in the evaluation of the various elements of the TEL space. Over the years many tools have been developed to facilitate the learning design process but few have been widely accepted by the broad HE educator community. Experience continues to demonstrate that designing for learning is largely a bespoke enterprise and tools rarely save more time than that taken to learn how to use them.

e) Design Knowledge

Traditionally, designing for learning in the HE environment was solitary work (Cameron, 2017; Parker, Patton & O'Sullivan, 2016) and rarely would lesson preparation go beyond thinking about content. Educators did not often invest time in the design phase nor see themselves as designers.

However, in industry, design thinking has been recognised as a means to solving complex and ill-defined problems and has been trialled with success in educational settings (Koh, Chai, Wong, & Hong, 2015). Design thinking begins by empathising with, and understanding the needs and motivations of, the client. It is commonly a collaborative process that encourages innovation and risk taking. It gives the designer permission to fail and learn from previous attempts (IDEO, 2012).

Currently most HE educators do not have the knowledge or tools to work through the learning design process in an innovative and systematic way (Goodyear, 2015). Using design thinking, educators work collaboratively and use empathy, observation and reflection when designing for their students' learning. This assists them to create innovative and effective learning environments that are more likely to engage their students (Maina, Craft & Mor, 2015). Further research is needed so that these methods can be articulated and communicated to HE educators and to ensure support tools are developed to scaffold the process.

4. The collaborative design process

If we acknowledge that a thorough understanding of each of the knowledge areas described above is required to design a high quality learning environment, then a collaborative approach to designing learning would seem beneficial. HE educators are first and foremost subject content experts, so if they could be encouraged to work with learning designers or instructional designers who have pedagogical, technological and learning design expertise, then more innovative and engaging learning activities and practices might be created (So, Kotovsky & Cagan, 2015; Quinnell et al., 2010).

Designing learning environments collaboratively can bring together those with different expertise to share ideas around the designs, negotiate them and contribute to the design (Dobozy & Vlachopoulos, 2017). These conversations encourage peer learning by challenging beliefs as team members move from an individual perspective to a collective one (Burrell, Cavanagh,

Young & Carter, 2015). The learning design process then becomes an educative one. This new knowledge subsequently becomes part of the educator's future practice (Quinnell et al., 2010). One of the most powerful benefits of collaborative learning design is that many of the key stakeholders (eg., lecturers, tutors, administrators, students) can be directly involved in the design and then will have some investment in making it a success. Additionally, they will have an inherent understanding of how the design was derived and can continue to test and make revisions while maintaining the integrity of the initial design.

Employing tools to support a collaborative learning design process is still far from common but some interesting examples are beginning to appear, such as LdShake (Hernandez-Leo, Mereno, Chacon & Blat, 2014) and SyncrLD (Derntl, Nicolaescu, Terkik & Klamma, 2013). These can establish social network and sharing across teams and institutions (Mor & Craft, 2012).

There are several well-established workshop programs that implement collaborative learning design processes. When done effectively, the collaborative process approach to Learning Design can be transformational for those designing learning. It allows them to work as part of a learning and teaching network to actively build social engagement and share design ideas and adapt them to their own contexts (Dobozy & Vlachopoulos, 2017). Three examples used by a number of the surveyed lecturers are briefly outlined below, but this is by no means an exhaustive list of the workshops available.

Carpe Diem Workshop

The Carpe Diem process is a 2 day face-to-face workshop that "provides a structured framework for course teams to understand, design, develop and implement e-learning designs" (Reushle, S. as cited in Salmon & Wright, 2014, p. 58). Its purpose is to address the pedagogical challenges identified by the design team using a rapid proto-typing and storyboarding approach. All participants are encouraged to be fully involved for the full two days so they can equally contribute (Salmon & Wright, 2014).

ABC (Arena Blended Connected) Workshop

The ABC is a process of designing or redesigning courses and/or modules in a 90-minute hands-on workshop where teams discuss and create storyboards of student activities, including all assessment. It aims to "open up areas of dialogue among faculty members, students, professional staff and others and to cultivate new possibilities for practice" (Perovic, 2015). It is designed to result in creative, original ideas for innovative learning design.

Design, Develop, Implement (DDI) Workshop

DDI is "a team-based learning design process that is activity based, iterative, forward-looking and grounded in everyday educational practices situated in a supported social learning environment" (Seeto & Vlachopoulos, 2015, p. 2). A team can comprise of anyone with an interest in developing learning designs that work with what is practical in context, rather than on a

theoretical view of what could be effective in theory in the future. The process begins by applying Design Thinking and reflecting on their students' needs.

While each of the three workshop programs briefly outlined above take a collaborative approach to designing learning, the initial process varies markedly in the length of the intervention. For example, the ABC workshop is concluded in a 90 minute session, whereas the DDI favours a sustained iterative approach that typically transpires over at least a six month period.

Learning Design research is continuing to explore how the learning design process is best undertaken and what level of investment in time has the best long term disruptive (positive) effect on educator practice. What has become clear, however, is that when the learning design process occurs in a collaborative environment, the community practice can have a marked and positive impact upon the design process and its outcomes (Masterman, 2013).

5. Evaluating learning and teaching

Quality assurance requirements, including the measurement of student engagement and attrition has led to a focus on measurement of learning and teaching goals. As many HE institutions are utilising learning management systems, huge amounts of data about student characteristics and behaviour are being collected. The field of Learning Analytics, "the measurement, collection, analysis and reporting of data about learners and their contexts" (LAK '11, 2011) is developing the means to utilse these data sets (Bennett et al., 2015).

However, the data collected from the learning analytics tools is not currently meeting the HE educators' needs for the evaluation of learning designs (Lockyer, Heathcote & Dawson, 2013). Developing a close dialogue between the two fields (Learning Design and Learning Analytics) could result in the learning design process developing a formative iterative loop during implementation and a more evidence-based evaluation process.

6. Student voice

At a time when maintaining student numbers is crucial to any institution's survival, student evaluations reporting their satisfaction and engagement with their experience have resulted in a power shift. The student experience is now an extremely important indicator. Numerous studies report that a link exists between student satisfaction, student retention rates and the way their learning was designed (Gilardi & Guglielmetti, 2011; Radloff, 2011; Schaefer & Konetes, 2010; Scott, 2006; Braxton, 1995; Franklin & Theall, 1995).

This presents HE institutions with a conundrum: Learning can be hard at times so students may not always be the best judge of their own learning experience and what helps them achieve their potential in their studies (Rienties & Toetenel, 2016). What experiences lead students to write in glowing terms in their course evaluations might not be what the HE educator considers as a valuable learning experience. This highlights the importance of the educator knowing, understanding and discussing their students' learning

and how Design Thinking is valuable. Empathy is a powerful tool when designing learning that will be considered appropriate, authentic and productive to all concerned.

If we acknowledge the effectiveness of the design process, then we recognise that understanding the needs of the student is essential. Those designing learning need to know the characteristics of the students they are about to design learning for. As studies by Stark (2000) and Bennett et al. (2015) found, design decisions are strongly influenced by the perceived characteristics of the students but on what data are those designing learning basing their information? By collating student data about an incoming cohort, it should be possible to inform the educator.

Courses need to be designed to ensure students are engaging with their studies and completing them in a timely manner. Research on student engagement is underpinned by the constructivist view that education is fundamentally about students constructing their own knowledge and it is the role of the educator to generate the conditions to stimulate and encourage student involvement in their learning (Umbach & Wawrynsk, 2005). This highlights the changing role of the HE educator who can no longer afford to simply transmit knowledge to passive students but must be more deeply involved in scaffolding students' thinking and how they develop the new kinds of skills they will need for their future (Laurillard, 2012). Educators need to move the focus from delivering content to designing for the student learning experience (Mor, Ferguson & Wasson, 2015). For many HE educators this will

involve a totally different approach to how they prepare their student learning activities and is where the learning design process could offer significant support.

2.2.4 Supporting HE educators in the learning design

The focus of the field of Learning Design is not the discipline content but the actions employed by the educator to help students achieve the desired learning outcomes, while acknowledging that students learn better when they are actively involved (Cameron, 2009). As an area of research, the field of Learning Design includes both gathering empirical evidence to better understand the design for learning process and the development of a range of resources, tools and activities to support this. Underlying this is the stated belief that the ultimate goal of the field of Learning Design is to convey great teaching ideas among educators in order to improve student learning. The successful sharing of good teaching ideas can lead not only to more effective student learning but also to more efficient preparation for learning activity (Dalziel et al., 2016).

The purpose of educators undertaking the Learning Design activity is to make the process visible so the elements might be discussed, deconstructed, evaluated, revised and subsequently reused and/or shared (Conole & Wills, 2013). Ideally this would be undertaken as an educative activity that would make future design efforts more effective and efficient.

The representation/documentation of a learning design is a key feature in the learning design process and it aims to support educators in three ways: it can help guide the educator's learning design thinking; it helps make the design explicit and shareable with others; and it provides a way of representing and articulating the design process (Conole & Wills, 2013). The representations are intended to facilitate the learning design process and help educators think beyond subject content to the learning activities and the holistic student experience. Despite the development of a range of representations of practice and resources in textual, graphical and/or digital form, the field of Learning Design is yet to find "the canonical drawing or notation; that music and architecture have" (Mor, Craft & Maina, 2015, p. xvi). There is still a need for a method of representation that allows the learning designer to describe their learning designs in a concise and unambiguous way so they are sharable and can be readily implemented.

2.2.5 Generic Designs

There are general teaching pedagogies that transcend HE discipline specific learning environments and there are also examples of high quality discipline specific learning designs. It is also known that many HE educators designing learning environments for their students do not have a thorough grasp of all knowledges previously outlined that are required to design high quality learning environments in the HE sector. Marrying these seemed to be a logical approach.

Many of those who design learning have not embraced the concept of others designing their learning for them. The field of Learning Design is littered with attempts to share learning activities designed by others. While a good deal of funding was deployed building learning design/resource repositories (eg. JORUM (UK), MERLOT (US), ALTC Exchange (Aust)), their usage was never widespread in the general HE teaching community and many of these repositories have been closed or significantly wound down.

Bower describes the problem faced by those working in the field of Learning Design (2017, p. 153), "the Learning Design Field is faced with a conundrum. It advocates the creation of generalized and transferable learning design patterns, while simultaneously recognizing that deep consideration of context is deemed essential for high quality learning design."

While educating all those designing learning at the HE level so that they are able to design high quality learning is an ideal solution to this issue, it is not a practical one. It has been previously mentioned that designing collaboratively is one means of being able to access the knowledges required for designing learning. However, even keeping these "experts" up-to-date with the latest technological and pedagogical advances is a challenge.

One means of addressing this challenge is to try to find a way of communicating the knowledge required to design high quality learning. Hence

there is a circling back to the need for visualisating and documenting learning designs.

There has long been a search underway for a means of distilling the key elements of a good learning design, so that the design can be read, interpreted and adapted for reuse in another context by an independent HE educator. If this could be achieved in a way that is accessible to them, a short cut can be created to the knowledge needed to produce high quality learning environments.

While the perfect model is currently still elusive, a number of researchers have been working on ways of doing this. The "model" learning design must be in a form general enough to be transferable and not so specific that it is meaningless in other contexts.

In the Cameron study (2017a), the Learning Activity Management System (LAMS) Pedagogical Planner was used to create "generic templates" that allowed HE learning designers to see how a design worked to a point where they agreed they would be able to reproduce it with their own students. A generic template was defined as, "a learning design pattern that is commonly derived by removing the subject content from a successful learning activity and distilling the activity down to its integral pedagogical parts. It represents the underlying structure so that content and resources can be added to customise the template" (Cameron & Campbell, 2010, p. 1915).

This approach recognises that content and pedagogy can be separated in a learning design so that pedagogy can be shared. These designs can then be used as a pedagogical framework in the learning design process, with the educator adapting the design to suit their own context (Bennett et al., 2004).

A similar concept, "patterns", exists in the field of architecture. A pattern, "describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice" (Alexander et al., 1977, p. 1).

Using a similar approach, Mor, Mellar, Warburton & Winters (2014) have published a set of practical design ideas that provide solutions to a range of learning needs that can be modified and developed. Each pattern is accompanied by design narratives and possible applications which illustrate how they can be adapted to these new situations.

Dobozy and Vlachopoulos (2017) have recently introduced the concept of a "blue print" for design. They do not see a requirement for them to capture every nuance of a lesson or sequence of lessons. Rather, the generic blue print provides only sufficient description to inform the educator of the pedagogical intent.

Walmsley (2015) has achieved success using a simple template in a word processing document. Textual descriptions do not exhibit the technological advantages of a machine-readable version but make the pedagogic points more simply, in terms of context, problem, solution, and illustrative diagram. The disadvantage of the machine-readable template is that although it can reproduce the learning design and run it online, the educator may find it difficult to adapt (Laurillard, 2012).

However, even if a means is found to efficiently share learning designs that have been proven highly effective, fully informed choices still need to be made by the educator at the local level as to how suitable they are in their original form. Therefore, an understanding of the aforementioned "knowledges" will still be advantageous.

Even if a definitive means of documenting learning designs is created, a variety of studies have reported that while educators are able to interpret specific learning designs created by others, the most valuable and rewarding part of the collaborative process is the discussion that arises from exploring the design, after which the designer can modify the design to suit their own context (Lockyer, Heathcote & Dawson, 2012; Bennett et al., 2015, Cameron, 2017a).

In a collaborative design process, design patterns are drafted, shared, critiqued and refined (McAndrew, Goodyear & Dalziel, 2006). In this way, the

value of the experience of exploring the learning design is not on sharing the design itself, but sharing the ideas around the design, deconstructing its purpose, and then the construction of a new design redesigned for their specific context (Dobozy & Vlachopoulos, 2017).

While this process is recognised as an educative one for all those involved in the design process, it also has the potential of developing a learning and teaching community that can offer ongoing support.

2.2.6 Conclusion

This paper has outlined a range of factors that has influenced how HE educators make decisions when designing for learning. Most importantly, it has identified that the make up of the core component of the HE education environment – the student body - has changed dramatically: They are no longer the elite, but a mass market with diverse backgrounds and needs. This has had a significant impact on the types of learning designs that are considered effective and engaging for students.

By implementing design thinking and collaborative approaches to designing learning, and utilising the latest in TEL approaches, the knowledge uncovered by the field of Learning Design has the potential to assist HE educators improve the quality of teaching throughout the HE sector. Whilst the collaborative learning design process has been proven to be a means of

successfully educating HE educators in the learning design process, this is not a widespread practice. Nor is the use of generic templates or patterns.

The development of the field of Learning Analytics suggests that evaluation of learning designs might produce empirical data that will assist designers improve the quality and effectiveness of the learning designs being delivered. This knowledge can provide the opportunity for educators to deconstruct their existing teaching strategies and allow them to reflect on their own practice. Learning Design research can document expert practice and scaffold innovative learning activities which in turn can allow these to be shared and/or reused.

Continued research is required to fully develop the field of Learning Design. While there is more to learn about how HE educators design for learning, this paper has outlined ways in which the field can currently provide them support in the learning design process.

Chapter 3: How LD can illuminate teaching practice

3.1 FOREWORD TO PAPER 2:

This paper provides a variety of definitions of Learning Design in the context of the Higher Education sector. In order to understand how generic design templates might be effectively utilised, the different meanings of "Learning Design" need to be outlined, and their role in the broader "design for learning" environment to be clearly understood.

At the time the following paper was published (2009), there was a belief that in the near future learning designs would be able to be readily digitised and effective learning designs would be easily shared throughout the Higher Education sector using a simple download to a desktop computer. Lessons could be simply "played" for students. In the years since, the complexity of the task of designing for learning has meant that while technology has continued to assist in learning and teaching in higher education, we are not seeing widespread use of "plug-and-play" off-the-shelf learning designs that seemed to be imminent at the time of writing this paper.

This does not mean that there has been little progress in the development of the field of Learning Design during in the intervening years, as was outlined in Paper 1. Learning design conceptual frameworks, workshops and tools continue to be developed and they have been reported as being helpful to those

designing learning (Bower & Vlachopoulous, 2018, Smyth, 2012; Kali, Goodyear & Markauskaite, 2011). These processes seem particularly valuable in deconstructing pedagogical knowledge for educators with little or no formal teacher training. They encourage educators to explore, and often visualise, learning designs, teaching strategies and activities which illustrate the relationship between curriculum aims, context, content and assessment (Charlton, Magoulas & Laurillard, 2012). Learning Design workshops provide professional development opportunities for educators to improve their confidence and competence to design and deliver in a variety of environments (Salmon & Wright, 2014). They also share activities that promote higher levels of collaborative learning and higher-order thinking in their students, which in turn increases student engagement through active, student-directed learning (Zhang & Laurillard, 2015; Smyth, 2012). The relationship between this type of student engagement, student learning and student attrition has been established (Pike, Smart & Ethington, 2011; Scott, 2006).

An important point should be made here. Goodyear & Dimitriadis (2013, p. 2) stress that 'learning cannot be designed – it can only be designed for'. They highlight that educators can "design *things* that help other people learn" (Goodyear & Dimitriadis, 2013, p. 2) but there is a gap between what has been designed and the activities in which students participate.

What continues to come through the literature related to teaching in the HE sector, is that taking the time to learn about, practise, develop and evaluate quality learning and teaching is key to designing engaging learning (Leonard,

Fitzgerald & Riordan, 2015). However, it is often prioritised after research skills and pressing administrative tasks (Laurillard, Charlton, Craft et al., 2011).

3.2 PAPER 2: HOW LEARNING DESIGN CAN ILLUMINATE TEACHING PRACTICE

The field of learning design holds the promise of providing teachers with a framework that will enable them to design high quality, effective and innovative learning experiences for their students. By creating the possibility of deconstructing their existing teaching strategies; aiding reflection on their own practice; documenting and scaffolding innovative learning activities; and sharing and reusing expert practice, learning design has the potential to improve the quality of teaching throughout the higher education sector. A key challenge for the future of Learning Design is to continue to bridge the gap between rich, descriptive models and technologies (such as IMS-Learning Design specification), and the everyday practice and understanding of teachers. This paper highlights the distinctions between the central concepts, such as the differences between a formal learning design framework, the active teacher process of creating a learning design, and the requirements for creating, transmitting and adopting effective learning designs with an aim to improve student learning.

Teaching has often involved some element of lesson design, however, with e-learning, the need for intentional design becomes more obvious and

pressing. With the use of technology, learning activities require forethought and an explicit representation of what learners and teachers will do. New technologies make aspects of teaching visible that were previously taken for granted (Beetham, 2007).

3.2.1 What is learning design?

Learning design has a predominant focus on technology but it can cover a more general field than just technology (Dalziel, 2008). It is a term that bridges both theory and practice and encompasses both a systematic approach with rules based on evidence and a set of contextualised practices that are constantly adapting to circumstances (Beetham & Sharpe, 2007). Because the term "learning design" has come to have a variety of meanings, it will be useful here to carefully define each, consistent with recent convention (Dalziel, 2005; Britain, 2004):

1. Learning Design (capital "L" and "D") as is implemented in the IMS-Learning Design Specification[4]
2. Learning design as a broad general concept (the process)
3. Learning designs as a product of designing learning.

[4] The IMS Learning Design specification supports learning technology developers with interoperability when developing tools to support online learning. Further information can be found at http://www.imsglobal.org/learningdesign/index.html

3.2.2 Learning Design

(capital "L" and "D") as is implemented in the IMS-LD specification

Without consistent and compatible ways to describe teaching strategies, designers will experience unnecessary difficulty in:

- Documenting teaching strategies and materials
- Establishing and adhering to prescribed procedures for assuring the consistency of that documentation
- Re-using elements of existing teaching materials (IMS GLC, 2006)
- Guaranteeing portability between learning platforms.

A learning design, modelled using the language described in the IMS-LD Specification, captures who does what, when and using which materials and services in order to achieve particular learning objectives. The Specification describes the constructs of the language and gives a binding in XML. The XML document instance is "loaded into" an IMS-LD-aware application and "played".

The IMS-LD specification has been designed to facilitate the creation and use of learning content and support material in such a way that it can be exchanged and reused by others (Koper, 2006). An important part of this definition is that pedagogy can be conceptually abstracted from context and content, so that exemplar pedagogical models can be shared and reused (Koper & Olivier, 2005).

However, despite significant activity and enthusiasm toward developing this specification for describing learning designs, the researchers have yet to find ways to describe learning designs so that teachers in mainstream education can easily understand and apply them. IMS-LD is a complex specification and the Best Practice Implementation Guide produced by IMS to assist educators in understanding how to use it is a difficult document for the average teacher to read and understand (Britain, 2004). The current representations of IMS-LD are generally not meaningful to mainstream practitioners and few examples have been generated (Neumann & Oberhuemer, 2009; Oliver & Littlejohn, 2006).

Numerous tools have been developed so that teachers might document their teaching. Falconer & Littlejohn (2009) have divided these into two categories: the executable design that can be processed automatically by a machine; and the inspirational design that clearly illustrates the pedagogical ideas of the designer but are not machine readable. However, none of these tools have successfully realised the model Koper envisioned for the IMS-LD Specification.

3.2.3 Learning design as a broad general concept (the process)

Koper uses the phrase "learning design" (without capitals) when referring to the process of designing units of learning, learning activities or learning environments (Koper & Tattersall, 2005). Yet it is crucial that any definition of "learning design" includes a means of describing learning activities (Conole,

2009) so that they can be shared and reused. Therefore, a more comprehensive definition is, "a representation of teaching and learning practice documented in some notational format so that it can serve as a model or template adaptable by a teacher to suit his/her context" (Agostinho, 2006, p. 3). This is a commonly agreed meaning (Conole, 2009; Masterman, 2009; Miao et al., 2009; Britain, 2004) and one that will be adopted throughout this paper. However, Goodyear & Yang (2009) dislike the term "learning design" because they feel it subtly suggests that designers are helping learners abdicate their responsibility for learning so they prefer the term 'educational design'. Goodyear (2005) also emphasises the iterative and cyclical nature of the design process. His point is an important caution to the use of learning design to ensure it does not undervalue the role of an active learner.

The term "design for learning" coined by Beetham & Sharpe (2007) overlaps in meaning with "learning design" in that it focuses on activity-centred learning, activity sequences and shareability. "Design for learning" focuses primarily on the activities undertaken by learners, only secondarily on the tools or materials that support them (Beetham, 2007). Therefore, in terms of process, "design for learning" restricts itself to "the process by which teachers – and others involved in the support of learning – arrive at a plan or structure or design for a learning situation" (Beetham & Sharpe, 2007, p. 11).

3.2.4 Learning designs as a product of designing learning

Koper & Tattersall (2005) use the phrase "the learning design" when describing the result of the learning design activity conducted by teachers (Koper & Tattersall, 2005). The documentation of learning designs has been implemented by classroom teachers for many years. Commonly known as "lesson plans", they are regularly produced by teachers, often as a requirement of the formal accreditation documentation process. JISC (2006, p. 1) define a learning design as, "an outcome of the process of designing, planning and orchestrating learning activities as part of a learning session or programme".

We will adopt a more comprehensive definition provided by Donald et al. (2009, p. 1211):

> "A learning design documents and describes a learning activity in such a way that other teachers can understand it and use it in their own context. Typically, it includes descriptions of learning tasks, resources and supports."

A learning design may be of any degree of granularity, ranging from a course to an individual activity. The scope of the design is determined by the learning objectives to be met (Falconer, et al., 2007). If a learning design is shared with another teacher, and it can call upon that other teacher's existing knowledge of context, or experience, then the activities need only be described briefly. But if the pedagogy or context is unfamiliar to that teacher, then the new scenario will need be described in great detail. This is a factor that limits

the potential usefulness of learning designs for changing practice (Falconer et al., 2007).

A learning design can communicate more than just the sequence of activities; it can also express the relationship between the activities. This relationship reflects the pedagogic intent of the design and communicates why these particular activities are to be delivered in this way (Falconer & Littlejohn, 2009).

3.2.5 The Design Process

There are many different descriptions of learning design processes. Laurillard (2006, p. 2) stated simply that the design process is "determining what it takes to learn and how the learning process needs to be supported if we are to be sure the learner can learn." Beetham and Sharpe (2007) provide a broad overview of the design process:

- Investigation: who are my users and what do they need? What principles and theories are relevant?
- Application: How should these principles be applied in this case?
- Representation or modelling: What solution will best meet users' needs? How can this be communicated to developers and/or directly to users?
- Iteration: How does the design stand up to the demands of development? How useful is it in practice? What changes are needed?

Britain's "Key Activities in Learning Design" (2004) provides a more prescriptive list:

- Define learning objectives
- Develop narrative description of learning and teaching scenario
- Create learning activity workflow from narrative description
- Assign resources, tools and people to activities
- Running (real-time)
- Learner support and on-the-fly adaptation
- Reflecting (including sharing outputs for peer reflection)

3.2.6 Using learning design to illuminate teaching practice

Learning design is a descriptive model that allows teachers to unpack the learning design process by separating the content from the pedagogy. As seen from the comments below, it encourages teachers to reflect in a deeper and more creative way and see how they design and structure activities for learners (Britain, 2004).

> *"it made me look at the content from a learner's perspective, so that I could ensure that the elements would be engaging and easy to understand, as well as accomplishing the learning that I want the learner to achieve"*
> *(teacher comment in Masterman, 2009, p. 233)*

> *"thought about the place of the teacher and the role of the teacher"*
> *(teacher comment in Masterman, 2009, p. 233)*

"I've never really thought about all of this"

(teacher comment in Bennett et al., 2008, p. 36)

This approach makes the relationship between practice and the underpinning theory more explicit, and, as Conole argues (Conole & Fill, 2005), this should enable teachers to make more theoretically informed choices of tools and resources used to support learning.

The focus of the framework is not the discipline content but the activities employed by the teacher to help students understand that content, acknowledging that students learn better when they are actively engaged. Learning design can describe many different pedagogies rather than prescribe any one specific teaching or learning strategy (Dalziel, 2009; Koper, 2001).

Once teachers realise they can separate content from the learning design, they can be introduced to the concept of the generic learning design. It is proposed that generic learning designs could serve as a pedagogical framework to support teachers in creating learning experiences, with the teacher adapting the learning design, specifying the particular activities and choosing or creating the resources and supports needed to suit his/her learners (Bennett, et al., 2004).

Also called "practice models" they are common, but decontextualised, learning designs that are usable by practitioners (teachers, managers, etc.)

(Falconer & Littlejohn, 2007). Practice models should be a representation of effective practice and are intended to inspire teachers to adopt effective pedagogical approaches, and support them in doing so, by promoting sharing and reuse of effective designs. They have many potential uses: they describe a range of learning designs that are found to be effective, and offer guidance on their use; they support sharing, reuse and adaptation of learning designs by teachers, and also the development of tools, standards and systems for planning editing and running the designs (Falconer, Beetham, et al., 2007). The use of the term "model" or "exemplar" is intended to indicate a further level of abstraction from the learning activity or sequence that was originally designed (JISC, 2006). However, many of the things that teachers most want to know about when assessing designs for reuse, such as rationale, assessment policies, reflection and evaluation, and student outputs and feedback, are scarcely covered, if at all, in most existing representation forms (Falconer et al., 2007).

When looking at a design to inspire and hence change practice, teachers need to get some insight into how they and their students would operate effectively within the confines of the design. The situations in which teachers are most likely to be effective are those which require flexibility. That is, where the problems are ill defined and/or where rapid decisions need to be made (Falconer, Beetham, et al., 2007).

There is little incentive for a teacher experienced in one teaching method to change to a new practice in which they will be a novice with little indication

of how they might ever become anything else. When teachers are in the position of learners as they change their practice, the formation of a community and dialogue around a practice is essential to helping to internalise the practice so that it can be performed competently (Falconer, Beetham, et al., 2007). The learning design framework can provide a means to have this dialogue.

However effective a learning design may be, it can only be shared with others through a representation. The issue of representation of learning designs is, then, central to the concept of sharing and reuse. To adapt, share and/or reuse learning designs, they will need to be documented. An aim of learning design is to find a shared language for describing educational activity structures that can be easily used by typical teachers (Dalziel, 2009).

A key aim of the IMS-LD specification is to make reuse possible, and yet it has not been a simple matter for software systems to represent learning designs in a way that is both powerful and flexible and also easy to understand and manipulate. The design needs to be described at a sufficient level of abstraction that it can be generalised beyond the single teaching and learning context for which it was created, but not at such an abstract level that the pedagogical value and richness is lost (Britain, 2007). And as Masterman and Vogel (2007) point out, few teachers are prepared to invest time and effort to create learning designs that are reusable (Britain, 2007).

Explicit notation of a design will allow integration across systems and enable more precise measurement of quality (Koper, 2001) and comparisons. A detailed articulation of teaching and learning procedures would provide a more solid foundation for experimental/comparison-based educational research (Dalziel, 2009). Any resultant improvements in educational research may help us identify those contexts where genuine differences in student learning can be found and hence which learning designs are deserving of greater attention.

Another central idea of learning design is that learning activities may be sequenced or otherwise structured into a learning workflow to promote more effective learning (Britain, 2004). Learning designs can predetermine the order in which the content will be presented, how it will be integrated in learning support services, how it will be sequenced, and how it will be assigned to students in a lesson (Knight, Gasevic & Richards, 2005).

3.2.7 Conclusion

The field of learning design holds the promise of providing teachers with a framework that will enable them to design high quality, effective and innovative learning experiences for their students.

By creating the possibility of deconstructing their existing teaching strategies; aiding the reflection of their own practice; documenting and scaffolding innovative learning activities; and sharing and reusing expert

practice, learning design has the potential to improve the quality of teaching throughout the higher education sector.

A key challenge for the future of Learning Design is to continue to bridge the gap between rich, descriptive models and technologies (such as IMS-LD), and the everyday practice and understanding of teachers. This paper has drawn attention to subtle distinctions between central concepts, such as the differences between a formal learning design framework, the active teacher process of creating a learning design, and the requirements for creating, transmitting and adopting effective learning designs so as to improve student learning. Deeper analysis of the links between these concepts should provide further foundations for the adoption of learning design by typical educators.

Chapter 4: Giving teaching advice meaning

4.1 FOREWORD TO PAPER 3:

The previous papers established the field of Learning Design as having much to offer when reviewing and evaluating designing for learning practice in the HE environment. This paper introduces the important role of the disciplines in academic practice. The particular focus of the paper is to link the practice of designing for learning with the demands of the discipline and how this might affect the sharing of learning designs using tools such as generic templates.

The paper was published as a chapter in a book designed to provide an understanding of designing learning in online, blended and/or distance educational environments. For this reason, the Introduction and Conclusion of the paper has been lightly edited to remove the overt references to these specific learning environments.

The literature reviewed in the paper was generalist in nature so applied directly to all modes of delivery in the higher education sector. Since writing this paper (2011 but published in 2013), research has continued in this area but as the later chapters in this thesis reveal, HE educators' practice is not changing rapidly. Salmon & Wright (2014, p. 53) cite three separate studies confirming that most academics are still "embedded in the culture of teaching in their disciplines and usually start by teaching how they were taught"

(Gregory & Salmon, 2013; McQuiggan, 2012; Garcia, Arias, Murri & Serna, 2010). Discipline stereotypical behaviour was also reported by Pike, Smart & Ethington (2011) when they investigated the relationships between student engagement, learning outcomes and the disciplines.

However, since the time of writing, there has also been renewed interest in Shulman's concept of "signature pedagogies". This includes two books devoted to the discussion about the universal principles of effective teaching and learning versus "signature pedagogies" to be found in the disciplines (Bull, 2014; Chick, Haynie & Gurung, 2012). The existence and role these "signature pedagogies" have in the way a discipline is taught needs to be recognised but challenged to ensure tradition does not over-shadow new and innovative teaching practices.

Pages 63-86 of this thesis have been removed as they contain published material. Please refer to the following citation for details of the article contained in these pages.

Cameron, L. (2013). Giving teaching advice meaning: the importance of contextualizing pedagogical instruction within the discipline. In B. Tynan, J. Willlems, & R. James (Eds.), *Outlooks and opportunities in blended and distance learning* (pp. 50-65). IGI Global.

DOI: 10.4018/978-1-4666-4205-8.ch004

Chapter 5: Methodological considerations

5.1 FOREWORD

To this point, the thesis focussed on the theoretical justification for taking a Learning Design approach to this research, in particular, how learning designs can be shared across disciplines using generic templates. What follows in the thesis from this point are the empirical studies undertaken to verify the findings from the literature. This chapter outlines the research design and methodology employed in the thesis to ensure the cohesion of all the components is clear.

While a Methodology section is included in all the research papers, these were, by necessity, brief and did not address the thesis as a whole. This chapter discusses in detail the research design and the issues that needed to be considered in this multi-faceted study. It also addresses the coding, ethics and limitations of the complete thesis.

While this approach will result in some repetition, it was felt that its inclusion was necessary to ensure the integrity of the complete thesis was outlined. A visual summary of the complete research design (Figure 2) has also been included in the chapter.

5.2 RESEARCH QUESTIONS

Central research question:

Can generic learning design templates be used to introduce new learning designs, teaching methods and/or teaching activities across disciplines in Higher Education?

To effectively answer this question, it was broken down into sequential parts and data for the analysis were derived from these sources:

Sub question 1:

What learning designs, teaching methods and/or teaching activities are currently being used in Australian universities?

Data Sources: CEQ data analysis (Scott, 2006), CEQ data (2010-2012)[5], the literature (refer Cameron, 2013); "*Current Use*"[6] Survey Question 8; Pilot interview Questions 1, 2, 3 and 4; Interview Questions 1, 2, 3 and 4.

[5] It should be noted that at the time of data collection, Quality Indicators for Learning & Teaching (QILT) Student Experience Survey (SES) data was not available (the first QILT Report was published in 2013). Summaries of the tables used can be found in Appendix 3 and 4.

[6] A full list of the "Current Use" survey questions can be found in Appendix 6.

Summary of Findings:

Survey participants report they are using a wide range of learning designs, teaching methods and/or teaching activities currently, however, their peers are using a selection more consistent with that identified in the literature and CEQ analysis as typical of their discipline.

Sub question 2:

Are there differences in the learning designs, teaching methods and/or teaching activities used across the disciplines? If so, why?

Are there variations in learning designs between subjects because there are fundamental differences in the disciplines or, is this as a result of how learning approaches have been embedded over time?

Data Sources: CEQ data analysis (Scott, 2006), CEQ data (2010-2012), the literature (refer Cameron, 2013); "*Current Use*" Survey Questions 7, 8, 9, 10, 11 and 13; *"Intro to LD"*[7] Survey Questions 1, 2 and 3; Pilot interview Questions 1, 2, 3, 4 and 5; Interview Questions 1, 2, 3, 4, 5, 6, 7, 8, 9 and 12.

Summary of Findings:

There are differences in the learning designs, teaching methods and/or teaching activities typically used across the disciplines, but not

[7] A full list of the "Intro to LD" survey questions can be found in Appendix 7.

as marked as indicated by the literature and the CEQ data. Choices of formal assessment tasks appear to be more ingrained and related to the traditional development of teaching in individual disciplines. Regardless of discipline, lecturers appear to have a degree of autonomy over their choice of learning designs, teaching methods and/or teaching activities.

Sub question 3:

Are there any barriers to sharing learning designs, teaching methods and/or teaching activities across the disciplines?

Data Sources: CEQ data analysis (Scott, 2006), CEQ data (2010-2012), the literature (refer Cameron, 2013); "*Current Use*" Survey Question 6, 10, 11, 12, 13 and 14; *"Intro to LD"* Survey Questions 3, 4 and 5; Pilot interview Question 6; Interview Questions 10, 11, 12, and 13.

Summary of Findings:

There are some perceived barriers, but our participants report sharing is occurring regularly.

5.3 THE RESEARCH PARADIGM

A paradigm is a "basic set of beliefs that guide action" (Guba, 1990, p. 17). It informs the research practice and shapes its implementation (Creswell, 2003).For this project, an understanding about how lecturers design and learn

about new learning designs was required. It became more obvious as the study progressed that the lecturers' views, understandings and reasonings behind decisions were complex. For this reason a Social Constructivist approach was adopted. It was required that questions be broad and general so the processes and meanings behind the participants' actions was able to be determined. Much of what the participants were doing required an understanding of their historical and cultural settings (Cresswell, 2003). This approach allowed the researcher to gain a more comprehensive understanding of the context within which the work of the participants was being undertaken.

5.4 THE MIXED METHODS SEQUENTIAL EXPLANATORY APPROACH

To answer the questions above, data were needed to verify the findings of the literature and existing student survey data, and identify the learning designs commonly utilised in the disciplines across the higher education sector in Australia. To collect this data, a broad, large scale survey was deemed appropriate (a quantitative approach). However, in reality, the number of participants agreeing to participate was quite small (n=14+16+2+4). Additionally, to collect data with the depth that was required to fully explore the decisions made by lecturers about their choices of learning designs, it became clear that additional interviews (a qualitative approach) would also be necessary.

Therefore, the decision to include both kinds of data within this study was made as neither quantitative nor qualitative methods were considered

sufficient to provide a detailed and comprehensive picture of this very complex environment. When used together, the quantitative and qualitative methods complemented each other and allowed for a more comprehensive analysis by taking advantage of the strengths of each.

The Mixed Methods Sequential Explanatory design (MMSE) was settled upon for collecting and analysing the data because this design could accommodate the multiple surveys and interviews needed to verify the findings about discipline differences found in the literature and existing student surveys. This design involves integrating both quantitative and qualitative data within a single study with the aim of gaining a better understanding of the research problem (Tashakkori & Teddlie, 2003; Creswell, 2005). It typically uses qualitative results to assist in explaining and analysing the findings of an initial quantitative study. Themes of interest are drawn from the initial study, then are targeted in the interviews that follow. These interviews and their analysis are able to refine and explain the survey results by exploring interviewees' views in depth (Tashakkori & Teddlie, 1998; Creswell, 2003).

The MMSE design used in this study consisted of two distinct data collection stages: Phase 1: Quantitative data collection (two online surveys) followed by Phase 2: Qualitative data collection (interviews). During the analysis of the survey data, themes emerged requiring further enquiry. The interview questions were then developed by the researcher in order that these themes could be explored. In this way, the qualitative phase findings (Phase 2) built on the first two surveys (Phase 1) and then the data produced from both phases were combined in the final data analysis.

5.5 THE ROLE OF THE RESEARCHER

Throughout this study, the researcher had two roles. The first was as an active participant in the international Learning Design community. During the research period, I was conducting workshops demonstrating the use of various pedagogical planners and outlining their value in the field of Learning Design. Many of the participants attended these workshops prior to participating in the project. It is therefore recognised that I had a particular bias toward certain approaches to learning design. For this reason, particular care was taken to ensure that the surveys were sent out a significant time after the workshop and participants were advised that anonymity was assured. Secondly, during the interview phase, if an interviewee was particularly well known to researcher, an independent interviewer was employed to document and record these interviews.

Due to my deep involvement in the field of Learning Design, I acknowledge bias was a constant threat to the results, so questions, notes and analysis was consistently monitored for these effects.

5.6 PROCEDURE AND TIMELINE

5.6.1 Procedural Issues with the Mixed Methods Sequential Explanatory Approach

One of the most significant advantages of using the MMSE design was the opportunity it provided for the exploration of the themes that arose from the

online surveys in the interviews. The most significant limitation of this design is the length of time needed to collect and analyse each round of data.

Using this design raised a number of methodological issues. The issues of priority, implementation and the integration of the quantitative and qualitative approaches needed to be resolved (Creswell, 2003). Therefore, a decision had to be made as to:

- which approach, quantitative or qualitative (or both) was to have more emphasis in the study design;
- establish the sequence of the quantitative and qualitative data collection and analysis; and,
- determine where the integration of the quantitative and qualitative approaches occurred in the study (Tashakkori & Teddlie, 1998; Creswell, 2003).

5.6.2 A Visual Representation of the Procedure

A convenient way to visually represent all the nuances of the study design was sought for conceptual purposes and to provide a better understanding by both potential readers and reviewers. The following flowchart (Figure 2) was developed to illustrate the sequence of the research activities in the study and the timeline of the study. The model outlines the data collection and analysis procedures and lists the outcomes from each. The table also indicates the extent of each phase and where the integration of the results of both the quantitative and qualitative phases occurred in the design.

Phase 1 – Quantitative Data Collection and Initial Analysis			
Operation	**Procedure**	**Product**	**Timeline**
Quantitative Data **Collection** – Survey 1 *'Current Use'*	Identify participants Obtain permissions Cross-sectional online survey (n=14)	Survey "Current Use" quantitative data	Nov 2011
Quantitative Data **Analysis** – Survey 1: *'Current Use'*	Data screening Data analysis	Descriptive statistics Graphs Themes requiring further exploration	June 2012
Quantitative Data **Collection** – Survey 2 *'Intro to new LDs'*	Identify participants Obtain permissions Hold workshop Cross-sectional online survey (n=16)	Survey "Intro to new LDs" quantitative data	June 2012
Quantitative Data **Analysis** – Survey 2 *'Intro to new LDs'*	Data screening Data analysis	Descriptive statistics Graphs Themes requiring further exploration	July 2012
Integration of Quantitative and Qualitative Phases	Use quantitative results (Themes) to: Develop interview questions, Select potential interviewees, Design qualitative data collection protocols	Interview questions Potential interviewee list Data collection protocols	July 2012

Phase 2 – Qualitative Data Collection and Analysis			
Operation	Procedure	Product	Timeline
Qualitative Data **Collection** – Pilot Interviews	Identify participants Obtain permissions Pilot Individual in-depth interviews (n=2) Prepare LD models Email follow-up	Audio recordings, Interview table, interview transcripts, interviewers' notes and reflections	June 2013
Qualitative Data **Analysis** – Pilot Interviews	Coding and thematic analysis Theme development Revise questions and process	Coding notes, Analysis notes, Codes and themes Coded interview data (in NVivo)	June 2013
Qualitative Data **Collection** - Interviews	Identify participants Obtain permissions Individual in-depth interviews (n=4) Email follow-up	Audio recordings, interview transcripts, interviewers' notes and reflections	July 2013
Qualitative Data **Analysis** – Interviews	Coding and thematic analysis Within case and cross-case Theme development	Coding notes, Analysis notes, Codes and themes Coded interview data (in NVivo)	Nov 2014
Integration of Quantitative and Qualitative Results	Summarisation, interpretation and integration of the Quantitative and Qualitative results	Write up of analysis Conclusions, Implications Future research	Dec 2014 – July 2015

Figure 2: Visual Model for Mixed Methods Sequential Explanatory Design Procedures

Adapted from model in Ivankova, Nataliya V., John W. Creswell, and Sheldon L. Stick (2006): "Using mixed-methods sequential explanatory design: From theory to practice.", *Field Methods* 18.1, p. 16.

5.6.3 Priority

The priority of the approach taken (quantitative, qualitative or both), is depends on the interests of the researcher, the audience for the study, and/or what a researcher seeks to emphasize in the study (Creswell & Plano Clark, 2011). In this study, priority was given to each of the Phase 1 quantitative data (online surveys). The subsequent Phase 2 qualitative data (interviews) were used for further investigation of the themes that were previously identified in Phase 1.

5.6.4 Implementation

Implementation refers to where the quantitative and qualitative data collection and analysis come in the design sequence: one following another, or concurrently (Green, Caracelli & Graham, 1989; Creswell, 2003). In this study, the data were collected in two consecutive phases. In the first quantitative phase ("Current Use" survey) the goal was to confirm the findings from the CEQ analysis and the literature about discipline differences and determine if there were any barriers to sharing learning designs across disciplines[8]. The second survey of the study ("Intro to LDs") was designed to determine how easily generic templates[9] could be interpreted and used. Phase 1 data were

[8] At the time of data collection and analysis, CEQ data sets were the best openly available to research student learning. QILT data, specifically Student Experience Survey data, has since become available and future research in this area would utilise these data sets.

[9] "Generic learning design template' was defined in the Introduction as "a learning design pattern that is commonly derived by removing the subject content from a successful learning activity and distilling the activity down to its integral pedagogical parts. It represents the underlying structure so that content and resources can be added to customise the template.

then analysed to determine which themes required further investigation in the Phase 2 interviews.

5.6.5 Integration

Integration refers to the stages in the design where the mixing or integration of the quantitative and qualitative methods occurs (Green, Caracelli & Graham, 1989; Tashakkori & Teddlie, 1998; Creswell, 2003). In the MMSE design, the quantitative and qualitative phases are connected in the intermediate stage when the results of the data analysis in the first phase of the study inform or guide the data collection in the second (qualitative) phase (Hanson, Creswell, Plano Clark, et al., 2005).

In this study, the two phases were connected when developing the interview questions and protocols. In this way, the qualitative phase relied on the quantitative results for direction. Both quantitative and qualitative approaches were again integrated at the final analysis stage.

5.7 PARTICIPANTS

Although the participants were not the same individuals in each component of the study, they were required to have similar characteristics: they were discipline experts primarily responsible for regularly designing learning at a higher education institution. Each sample was to have representation from each of the four disciplines previously defined (ie. Humanities, Social Sciences, Science and the Professional Fields) and be

distributed across a range of universities. To make identification of participants' discipline clear to the reader, they have been identified (Humx) for Humanities; (SSx) for Social Sciences; (Scix) for Science and (PFx) for Professional Fields, where "x" is a number allocated to differentiate between participants in the same discipline. All participants taught undergraduate students, half of the participants also taught post-graduate courses. Most commonly teaching took place in face-to-face classes but also in blended mode. The teaching experience of the participants was also deliberately selected to be wide-ranging (6 months-30 years).

The study results confirm Stark & Lowther's (1990) finding that when designing learning, lecturers tended to fall into two categories. The first category (to which most of our participants' responses indicated they belonged) view their teaching role as promoting student engagement, growth or skill acquisition, and they work hard at creating successful learning experiences for all their students. Most importantly, they do not feel confined to using only learning designs, teaching methods and/or teaching activities traditionally used in their discipline.

The second category of academic identified in Stark's work, use only learning design decisions that are strongly discipline-identified, subject content-centred, and these lecturers view their roles as transmitting and replicating knowledge as it is traditionally done in their discipline. A number of our participants clearly identified a number of their peers in this category.

5.8 INSTRUMENTS

The study, survey and interview questions conducted as part of this study were approved by The Faculty of Human Sciences Human Research Ethics Sub-Committee under the title, "Variations in Learning Design across Higher Education disciplines" (Reference No: 5201100817). The study consisted of three components:

- An initial online survey ("*Current Use",* n=14) to confirm the findings from the CEQ analysis (Scott, 2006) and the literature about the learning designs typically used currently in the disciplines; and to explore participants' opinions about sharing learning designs;
- A second online survey (*"Intro to new LDs",* n=16) specifically targeted the participants' responses to adopting new learning designs using generic learning design templates; and
- Interviews (n=2 (pilot) + n=4) designed to confirm the learning designs the interviewees typically used, explore the interviewees' knowledge of the designing for learning process, their understanding of learning design representations, and how feasible it was that they be adopted.

5.8.1 Additional Tools Used

- CEQ raw data sets[10] provided additional information for the final analysis.

[10] A range of CEQ data was downloaded from:
http://www.graduatecareers.com.au/research/start/agsoverview/ctags/ceqo/

- The LAMS Pedagogical Planner was used to demonstrate learning designs during the interviews. It provided a scaffold that guided the participants through the learning designs. Planner tools were being introduced to assist designers "visualise" their designs. A full discussion of the available planner tools that were available around the time of data collection, and their value, is outlined in Appendix 2.

A more detailed description of each phase of the study follows:

5.9 PHASE 1: QUANTITATIVE DATA COLLECTION

5.9.1 **Online Survey 1: 'Current Use'**

Although typical learning design usage patterns within the disciplines has previously been reported from the literature (Cameron, 2013), the goal of this first survey ('Current Use'- Appendix 5) was to determine if Australian lecturers' behaviours were consistent with those findings. To elicit consistent responses from time-poor lecturers and provide an easily accessible means of participation, an online survey was created in SurveyMonkey (www.surveymonkey.com). All information obtained by the survey was anonymously provided.

The "Current Use" survey consisted of 14 questions, of which 8 were multiple choice, 4 were short answer and two required a more extended response. This survey sought to determine what learning designs lecturers were currently using, how typical they thought the use of these designs was in

their discipline and whether their use had an established history in that discipline. Additionally, information about whether learning designs were discussed and shared between faculty members in the discipline was also sought.

This "Current Use" survey consisted of 3 sections:

Section 1 described the participants: Their discipline (Q1); usual mode of teaching delivery (Q2) and typical student group size (Q3). This section also detailed the teaching experience of the participants (Q4), and from where they derived their teaching knowledge (Q5).

Section 2 reported on participants' responses to questions about the characteristics of the teaching in their discipline: How they teach (Q7) and how "typical" this is in their discipline, both currently (Q8) and historically (Q9).

Section 3 specifically targetted participants' design experience (Q6,Q10); and their experiences of sharing learning designs (Q11,Q12,Q13,Q14).

5.9.2 **Themes to emerge from the "Current Use" survey**

The following themes emerged during the analysis of the "Current Use" survey. They were deemed worthy of further in the interviews:

- Discussions with peers are considered very valuable, even though most of their peers do not have any formal teaching qualification either - Q12[11];
- How do they learn about improving their teaching/different learning strategies? - Q4, Q12;
- Do they ever read the teaching and learning literature? - Q12;
- How might really successful learning designs be promoted? - Q13;
- Explore the barriers to sharing - Q10, Q11.

5.9.3 **Online Survey 2: "**Intro to new LDs**"**

A second online survey ("Intro to new LDs" - Appendix 6) was created in Survey Monkey to specifically target lecturers' responses to working with generic learning design templates, and how receptive these lecturers were to using them to share learning designs across the disciplines. The survey was completed by 16 participants immediately following a half-day workshop demonstrating how learning activities could be designed using generic templates and shared. The workshop content included exploring the field of Learning Design and introduced the generic template concept[12] (see Appendix 7 for the full workshop agenda).

11 This number indicates which interview question addresses this issue in the interviews that followed.

12 For more information about generic templates and specific learning designs used, refer to Cameron (2009), Cameron (2010) and Cameron (2010a).

The first question in the "Intro to new LDs" online survey identified the participants' discipline, and two questions dealt directly with the participants' responses to the generic templates (Q2 and Q3). Question 4 inquired about the pedagogical support provided within the templates and the final question addressed the issue of sharing learning designs with other lecturers (Q5).

5.9.4 **Themes to emerge from the "Intro to new LDs" survey:**

The following themes emerged during the analysis of the "Current Use" survey. They were deemed worthy of further exploration in the interviews:

- A new/different learning design can trigger how a lecturer might try something different – Q4[9], Q12;
- Designs used frequently/overused may become tedious – Q1, Q2, Q3, Q4;
- Establishing a community of practice (formalising chance encounters with peers - what might this look like?) – Q12, Q13;
- How to share best practice – Q10, Q11, Q12, Q13;
- Sharing versus competition – new mindset – Q10, Q11, Q12, Q13;
- Designs are not good enough to share – Q3, Q10, Q11, Q12, Q13.
- Not willing to change or learn new things – Q10, Q11.

5.9.5 Phase 2: Qualitative Data Collection - Interviews

As is consistent with a MMSE design, in the second phase of the study qualitative methods were used. The themes that emerged from the two earlier online surveys were investigated in six in-depth interviews. The semi-

structured interview questions (Appendix 8) were designed to confirm the learning designs the interviewees typically used, explore in depth the interviewees' knowledge of the designing for learning process, their understanding of learning design representations, and how feasible it was that they be adopted.

Multiple sources were used for collecting the interview data:

- Audio recordings of the interviews;
- Interview transcripts;
- Interviewers' notes of interview responses to the learning designs as they were demonstrated (in tabular format - Appendix 7); and
- Interviewers' reflection notes of interviewees' general responses to the interview.

The options for case selection in the second Phase of the MMSE design include exploring a few typical cases or following up with outlier or extreme cases (Caracelli & Greene, 1993; Creswell, 2005). In light of the small number of interviews, the intention in this study was not to be wholly representative of the entire higher education sector but simply to provide a variety of views. For this reason, all six lecturers who volunteered, were interviewed.

In-depth Interviews

Two pilot interviews were undertaken where 6 semi-structured questions were asked and 13 generic design templates were presented to each interviewee (Appendix 9). The pilot interviews lasted 2-1/2 hours and the introduction and

explanation of so many new templates were extremely complex. While the discussion that surrounded this activity was very rich, towards the end of the interview the interviewees' responses were less effusive and sometimes confused. On reflection it was determined that such a large range of generic templates was not necessary. In future interviews the number of templates demonstrated was reduced to only one generic learning design template with which the interviewee was unfamiliar. Despite this change, the subsequent interviews were productive in eliciting rich responses but much more efficient in time and effort.

5.10 ANALYSIS

After collection, the quantitative data (online surveys) were documented, tabulated and presented in graphical form. Short answer and extended response questions were read closely and the themes that would benefit from further exploration in future interviews were recorded for consideration. The qualitative data (interview transcripts, recordings and notes) were coded in line with the coding manual in NVivo10 by both researchers. This included Interviewer Comments recorded during and after the interviews. Interviewee comments were reported verbatim wherever possible to remain faithful to the interviewee's meaning.

The final analysis utilised data collected in a fully integrated way, regardless of when, or in what form, it was collected. A summary mapping of the data sources can be found in Figure 2.

5.11 CODING

After the pilot interviews (n=2), scheduling issues determined a very small interview window was available. For this reason, a second interviewer was utilised so that two interviews could occur simultaneously (n=4). Interview questions were discussed and reviewed by both interviewers before they took place to ensure integrity. To maximise reliability, each interview was recorded and transcribed verbatim and notes made by the interviewers throughout, and immediately following, the interviews. The transcriptions were sent back to the interviewees for review. A thematic analysis of the text data was conducted on two levels, within each case and across the cases, using QSR NVivo 10 to code for themes. A simple coding manual was developed to include descriptions of possible categories being coded. The researcher analysed all the interview data. Regular cross-checking was employed at each stage: how the data was being represented, displayed and coded, as well as interpretations. Findings from the different methods of analysis were integrated in memos in the software.

5.12 ETHICS

Ethical Considerations

Informed consent was obtained from all participants for all aspects of the data collection. Both online surveys were introduced by the researcher and the voluntary nature of participation stressed. The first question on both surveys briefly outlined the nature of the research and indicated that responses could be used for this study. At that point, and at any other throughout the surveys,

participants had the option to withdraw without any penalty. As participants could complete the surveys online at their leisure, no pressure should have been felt by participants to complete the surveys. All survey data was collected anonymously and confidentially online. No personal information that could have led to identification was ever sought nor collected.

The six interviewees signed a hard copy Consent Form (Appendix 4) which the interviewers read through with them to ensure they understood all aspects of their involvement and their right to withdraw from the interview at any time without penalty. All information was identified by code at the time of the interview so was collected in a way that ensured interviewees could not be identified and all research data were securely stored.

5.13 LIMITATIONS

The intention of the study was to achieve a comprehensive understanding of what learning designs were currently being used in each of the four identified disciplines in Australian universities. Whilst the data collected in the "Current Use" survey provided a detailed description of what study participants were teaching across the disciplines in at least 8 different institutions in Australia, the total sample sizes (n=14) could not be considered comprehensive. Similarly, sample sizes were small when exploring participants' opinions regarding the likelihood of them adopting new learning designs by using generic templates (n=16 for "Intro to LD use" survey and n=6 in-depth interviews). The sample sizes could only be considered to provide a

snapshot of practices among the participants in those institutions involved directly in the study.

Additionally, a concern was felt that our participants may not be "typical" of lecturers in their disciplines. In the "Current Use" survey 100% of the respondents described themselves as an "innovative teacher" and prior to the "Intro to LD use" survey, participants had attended a workshop focussing on learning design. By attending a learning design workshop, it is likely these lecturers had an active interest in innovative teaching so these participants may not be a truly representative sample of the general teaching population in their discipline. An attempt to mitigate this made by asking these lecturers to also report on the practices of their peers. However, in light of the fact that sharing was reported as not being a widespread behaviour among lecturers, this may be of limited value.

For the purposes of manageability in the study, all teaching subjects were grouped into four disciplines categories (see Cameron, 2013, for rationale). It is recognised that detail is often lost when data are averaged into single categories and further examples of this are provided in the closing chapter. In his analysis of CEQ data, Marsh (1987, p. 262) offers the following warning:

> "In general, student ratings should not be summarised by a single response to a single item or an unweighted average response to many items. If ratings are to be averaged for a particular purpose, logical and empirical analyses specific to the purpose should determine the

weighting each factor received, so that the weighting will depend upon the purpose."

In all forms of data collection in the study, the participants were self-reporting. As professional educators, these participants may have wanted to be seen to be flexible, adventurous and innovative so they may have exaggerated the range of their learning designs. To test and validate these results, a study examining assessment tasks and unit outlines for the courses they designed is planned for the future.

Chapter 6: The learning designs in Australian universities

6.1 FOREWORD TO PAPER 4:

This paper was written for an Australian peer reviewed journal. The focus of this paper was the findings of the first survey of the study, "Current Use" which surveyed educators from six Australian universities. Themes were drawn from the survey results and questions developed for further exploration in the interviews that followed. The findings reveal that there was a wide range of learning designs, teaching methods and activities used by the study participants across all disciplines in the surveyed universities but there remains a partiality to the traditional stereotypical activities, especially in assessment. This aligns with both the local and international literature, and Scott's CEQ analysis (2006).

6.2 PAPER 4: How learning designs, teaching methods and activities differ by discipline in Australian universities

This paper reports on the learning designs, teaching methods and activities most commonly employed within the disciplines in six universities in Australia. The study sought to establish if there were significant differences between the disciplines in learning designs, teaching methods and teaching activities in these Australian universities, as was reported in Scott's Course Experience Questionnaire (CEQ)[13] analysis (2006). Although it found a broad range of teaching approaches were used in all disciplines by study participants, it emerged that there was still some bias toward the traditional discipline stereotypes, which in some cases has been found to negatively affect student engagement.

Additionally, while there was a general awareness amongst study participants about the importance of responding to student evaluations of teaching, improvements to teaching and learning practice were most commonly adopted without reference to current research or professional advice, and rarely was advice sought outside their discipline. Although a small-scale study such as this could not be said to be wholly representative of the higher education sector in Australia, these initial findings might indicate a need for administrators to acknowledge the role of quality teaching in maximising student engagement and its relationship to student retention by

[13] It should be noted that the Quality Indicators for Learning & Teaching (QILT) Student Experience Survey (SES) Report (first published in 2013) now provides a more focussed picture of teaching and learning in the Australian Higher Education sector.

encouraging the study of learning and teaching as a routine part of lecturers' practice.

6.3 INTRODUCTION

The introduction of the Higher Education Standards Framework[14] as part of the Tertiary Education Quality and Standards Agency (TEQSA) Act of 2011[15] has firmly established the importance of Learning Design in the higher education sector in Australia. Explicit references to learning design principles include mention of the "overall coherence" of a course (TEQSA, 2017, Sec 1.7); that courses should be "designed to provide appropriate engagement by students" (TEQSA, 2017, Sec 1.7); and that academic staff delivering a course should "have an understanding of pedagogical and/or adult learning principles" (TEQSA, 2017, Sec 4.2). Additionally, the Framework outlines that higher education institutions should be monitoring student attrition rates (TEQSA, 2017, Sec 5.4).

With this clear focus on course coherence and pedagogical approaches, and how they relate to student engagement and attrition, it is timely to revisit Geoff Scott's analysis of the CEQ data, *Accessing the Student Voice* (Scott, 2006), which identified the factors that students reported as promoting their

[14] See www.teqsa.gov.au/teqsa-contextual-overview-hes-framework for more information on the Higher Education Standards (HES) Framework

[15] See <www.teqsa.gov.au/about> for more information on the Tertiary Education Quality and Standards Agency (TEQSA)

engagement with the teaching in Australian universities. Scott (2006) found a positive correlation between particular learning designs, teaching methods and activities and student engagement but also noted differences between disciplines. The teaching approaches that were most favourably correlated were more "typically" used in some disciplines than others.

The research outlined in this paper sought to establish whether differences between the disciplines in learning designs, teaching methods and teaching activities, as reported by students in the CEQ in Scott's analysis in 2006, still exist in the current Australian higher education context. In order to provide another perspective, confirmation was also sought from academic staff delivering course content in six Australian universities. It was determined that if the situation remained to be as the students described, the learning designs, teaching methods and activities that have been shown to positively influence student engagement in one discipline might be explored as to their possible adoption by all disciplines to increase student engagement.

6.4 DEFINITIONS

Throughout this paper, the term "disciplines" will be used to refer to "a body of knowledge with a reasonably logical taxonomy, a specialised vocabulary, an accepted body of theory, a systematic research strategy, and techniques for replication and validation" (Donald, 2002, p. 8).

For the purpose of generalising common traits, "disciplines" will be collectively described using Stark and Lattuca's (2009) "Typical Grouping of Academic Fields." They are:

- *Humanities* (e.g., Classics; Literature; History; Modern Languages; Music; Philosophy.)
- *Social Sciences* (e.g., Anthropology; Economics; Geography; Political Science; Psychology; Sociology)
- *Sciences* (Anatomy; Biology; Chemistry; Computer Science; Geology; Maths; Physics)
- *Professional Fields* (e.g., Architecture; Business; Communications; Education; Engineering; Nursing; Social work)."

In this paper, the term "learning designs" will be used as defined by Donald, Blake, Girault, Datt, and Ramsay (2009). In this definition, a learning design "documents and describes a learning activity in such a way that other teachers can understand it and use it in their own context. Typically, it includes descriptions of learning tasks, resources and supports" (p. 180). A summary of a number of terms used in this thesis can be found in Appendix 1.

6.5 LITERATURE

Whilst there is a substantial amount of research on disciplinary differences in learning designs, teaching methods and activities in the higher education sector, much of the foundational work began to emerge over 20 years ago. Ratings of student satisfaction with their teaching in the UK, the US and Australia at that time reported that some disciplines rated more highly

than others. For example, the teaching experienced in the Humanities and Social Sciences was consistently more highly regarded than that in the Sciences (Cashin & Downey, 1995; Franklin & Theall, 1995). Additionally, Braxton (1995) contended that academics in the Humanities and Social Sciences showed more interest in students' learning, student development and general undergraduate education than did lecturers in the Sciences.

During this period, it was also reported that courses with higher student participation and feedback were associated with higher student satisfaction ratings. A heavy reliance on examinations and low frequency feedback grading methods were associated with lower student satisfaction ratings (Franklin & Theall, 1992). The Sciences were commonly found to base a high percentage of the student grade on weekly quizzes and exams whereas the Humanities emphasised essays, short answer papers, journals and attendance (Franklin & Theall, 1992). At that time, the Sciences did not score highly in these student satisfaction surveys, as student preference was for classes that were structured to maximise student engagement and collegial interaction (Light, 1974).

Ten years later, Neumann, Parry and Becher (2002) and Scott (2006), reported little change in regard to teaching and learning in the disciplines. For example, formative assessment was common in the Humanities and the Social Sciences and was considered preferable for student satisfaction to the emphasis on exams that was still common in the Sciences; while the Professional Fields routinely concentrated on projects, presentations and the

quality of class participation. Student engagement and attrition rates reflected these findings (CEQ, 1999-2006).

Shulman (2005) identified the "signature pedagogies" that can be found in professional education: a "set of assumptions about how best to impart a certain body of knowledge and know-how" (p. 55). He noted that these were pervasive and sometimes persisted even when they were no longer effective. This was attributed to the fact that lecturers in higher education most often had no formal teacher training so usually taught as they had been taught themselves.

More recently, Salmon and Wright (2014) cited three separate studies (viz., Gregory & Salmon, 2013; Garcia, Arias, Murri & Serna, 2010; McQuiggan, 2012) confirming that academics are "embedded in the culture of teaching in their disciplines and usually start by teaching how they were taught" (p. 53). Discipline stereotypical behaviour was also reported by Pike, Smart and Ethington (2011) when they investigated the relationships between student engagement, learning outcomes and the disciplines.

6.6 METHOD

The investigation reported in this paper employed a mixed methods research design with the aim of gaining a comprehensive understanding of the current Australian context. A decision was made to include both an online

survey and interviews in the study because neither was considered sufficient to provide a detailed and comprehensive picture of what is a very complex environment. When used in combination, these instruments complemented each other and allowed for a more robust analysis, taking advantage of the strengths of each (Greene & Caracelli, 1997; Tashakkori & Teddlie, 1998). The investigation addressed three research questions:

- What learning designs, teaching methods and/or teaching activities are currently being used in Australian universities?
- Are there differences in the learning designs, teaching methods and/or teaching activities used across the disciplines?
- Are there any barriers to sharing learning designs, teaching methods and/or teaching activities across the disciplines?

Phases of the study

The study data was collected in two phases:

Phase 1: Online Survey

An online survey was designed to confirm the findings from the Scott's (2006) CEQ analysis and the literature about the teaching approaches typically used currently in the disciplines to provide a broad understanding of the research problem. This approach sought to determine from those delivering

the content, what learning designs, teaching methods and/or teaching activities they were currently using; how typical they thought the use of these were in their discipline; and whether their use had an established history in that discipline. Additionally, information was also sought about whether learning designs and teaching methods were discussed and shared between lecturers in the discipline. Themes of interest were drawn from the survey and then targeted in the interviews that followed.

Phase 2: Interviews

The interviews that followed were designed to refine and explain the survey results by investigating the findings in more depth (Creswell, 2003; Tashakkori & Teddlie, 1998). That is, to determine why the learning designs, teaching methods and activities were typically used and to explore the interviewees' (lecturers) knowledge of the designing for learning process.

Learning designs in current use

Although typical patterns of use of learning designs within disciplines had previously been reported in the CEQ analysis (Scott, 2006) and confirmed in the literature (Cameron, 2013), this survey was conducted to determine if current Australian lecturers' behaviours were consistent with those findings from the previous decade.

Phase 1: Online Survey

The challenge to recruiting survey participants was the difficulty in contacting them as the oft-used route of the researcher sending out an offer via teaching and learning mailing lists, teaching and learning conferences, and prior professional development courses would mean the participants had most likely been influenced by teaching and learning innovations from outside their discipline. Hence, the sample size of the survey was small (*n*=14) but was representative across each of the four disciplines previously defined, viz., Humanities (*n*=4), Social Sciences (*n*=3), Science (*n*=3) and the Professional Fields (*n*=4). Participants in the survey represented six Australian universities from four states (15% of Australian universities). Five of the six universities were based in capital cities while the other was located in regional NSW.

All participants taught undergraduate students, 10 also taught post-graduate courses. They most commonly taught face-to-face classes (*n*=14) but also frequently taught in the blended mode (*n*=12, 85.71%). Each participant taught groups of 15-30 students whilst 5 also lectured large groups (90+). The teaching experience of the participants ranged from 1 year to 28 years. To make identification of participants' discipline clear to the reader, they have been coded as "Participant Humx" for Humanities, "Participant SSx" for Social Sciences, "Scix" for Science, and "PFx" for Professional Fields, where "x" is a number allocated to differentiate between participants in the same discipline.

The survey consisted of three sections:

Section 1: The source of pedagogical knowledge

This section was designed to determine how lecturers' pedagogical knowledge about teaching and learning was obtained. Participants were provided a list of possible options (including "Other") from which to choose and they could select more than one option. A total of 50 responses were given (refer Figure 3). "Students' feedback" was a major source of how the survey participants determined how engaged the students were with their teaching. "Trial and error" and "Self-evaluation" were the next common sources of pedagogical knowledge, which suggests that teaching in a university can be an autonomous activity. This is further supported by the fact that in all but one case, how the subject content is delivered is at the lecturer's own discretion.

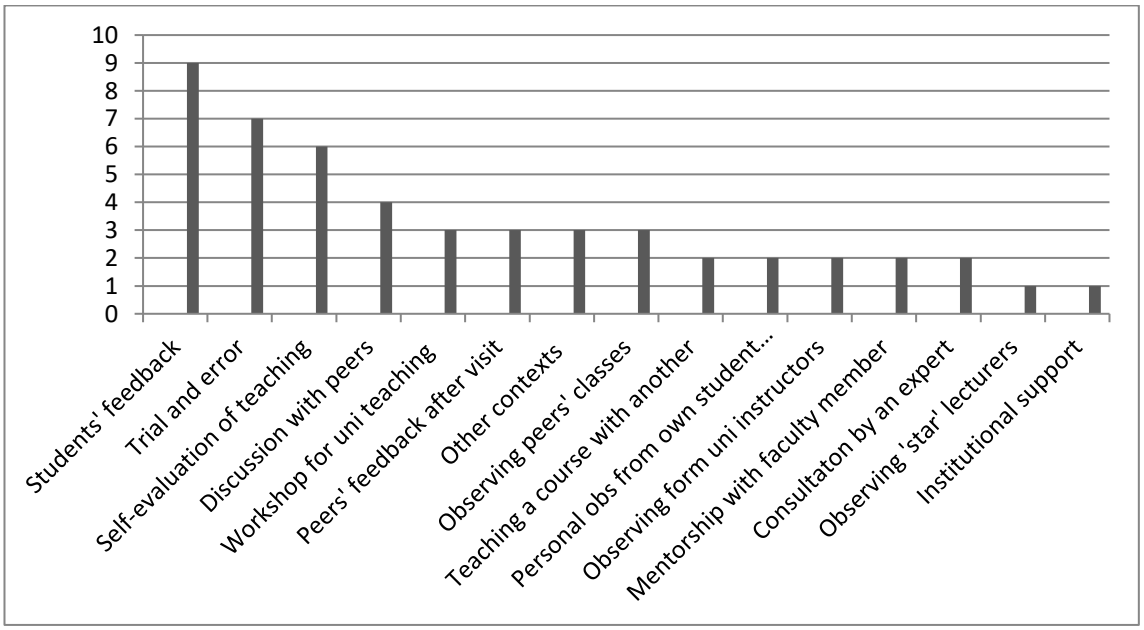

Figure 3. Source of pedagogical knowledge

The next cluster of results about the source of teaching knowledge was "Discussion with peers," "Observing peers' classes," "Peers' feedback after classroom visit" and "Observing former university instructor." Thirteen of the 14 participants (92.86%) reported discussing learning designs, teaching methods and teaching activities regularly with peers.

Interestingly, only one participant credited a centralised teaching and learning professional as a source of improving teaching knowledge ("Institutionalised support"). The reluctance of lecturers to seek out these professionals for pedagogical support with their teaching has been previously recognised (Cameron, 2013). This has implications as to how the promotion of sharing high quality learning designs, teaching methods and activities might be conducted. The findings here suggest that contextualised peer mentoring and just-in-time learning might appeal more to these lecturers than advice from centralised teaching and learning unit staff.

Section 2: The characteristics of the teaching currently performed

The CEQ analysis (Scott, 2006) and the literature (Braxton, 1995; Cameron, 2013; Cashin & Downey, 1995; Franklin & Theall, 1995; Neumann, et al., 2002) report that there are differences between the disciplines as to which learning designs, teaching methods and teaching activities are most commonly employed. The aim of the survey questions in this section was to confirm (or otherwise) discipline differences in the current Australian context.

The survey participants were asked to report what learning designs, teaching methods and teaching activities they had used in the last 12 months (refer Figure 4).

All survey participants, regardless of discipline, reported regularly using lecture and class discussion methods. These methods are traditionally associated with teaching at university level so this was an anticipated finding. However, what was surprising was the wide range of other teaching activities reported by the participants across *all* disciplines. Each participant reported using two or more of the following teaching activities: Case study, Problem-based learning, Inquiry-based learning, Role play, Debating, Brainstorming, Peer tutoring, Collaborative learning, Research, Field trip/excursion and Laboratory experiments.

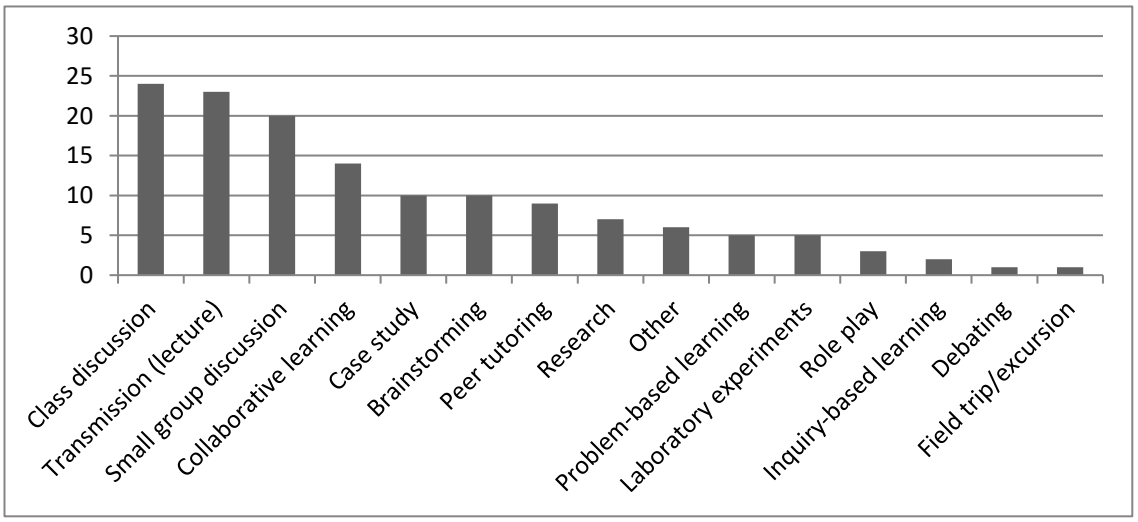

Figure 4. The learning designs, teaching methods and teaching activities used by participants in the previous 12 months

Participants were also asked "What are the learning designs, teaching methods and teaching activities you use most frequently?" and "What do you consider are the *benefits* of using these?" The results showed the participants were very aware of the importance of student engagement. Responses included:

> *Forums and interactive lectures. There is real benefit in interactivity.* (Participant Hum1)

> *I use class discussion and hands-on activities. The benefits are that the students are involved in the learning experience.* (Participant PF3)

> *I believe in students' generating their knowledge and understanding in collaboration with each other at their own pace. (Participant SS2)*

Finding a broad range of learning designs, teaching methods and teaching activities in common usage in the Humanities and Social Sciences was to be expected, as reported in the literature (Braxton, 1995; Cameron, 2013; Neumann, et al., 2002). However, the Sciences and the Professional Fields have been acknowledged as being much more conservative in their teaching methods (Cameron, 2013; Donald, 2002). The most interesting finding in this study was that one of the participants from the Sciences nominated they used Role Play and Debating (the discipline previously reported as being the most traditional in teaching strategy). This clearly demonstrates that the teaching behaviour reported by the Science survey participants is at odds with the literature.

As our participants *all* answered the question, "Do you consider you are an innovative teacher?" in the positive, a conclusion could be drawn that the sample may be an atypical group. To guard against this eventuality, and to provide a more comprehensive picture, participants were also asked about the teaching methods and activities they observed were commonly used by their peers who taught alongside them in their discipline (Table 1). These results were more in line with what was reported in the literature.

An earlier thought that this study's participants are an unusually innovative group is supported by these findings that the teaching undertaken by their peers is more consistent with the literature (see participants and peer comparison data in Table 2). Our participants reported more variety in learning designs, teaching method and activities in their own teaching, than that of their peers.

The participants from the Sciences, reported their peers most commonly used the lecture, class discussion and sometimes laboratory work in their teaching. In the Professional Fields, Problem-based Learning, Case Study and Small Group Discussion were common but in the Humanities and Social Sciences, a much broader range of teaching methods and activities were employed. These included Case study, Inquiry-based learning, Debating, Brainstorming, Peer tutoring, Collaborative learning (SS) and Research activities (Hum).

Table 1. *The learning designs, teaching methods and teaching activities most commonly used by participants' peers by discipline (in order of frequency)*

Activity	Hum	SS	Sci	PF	Total
	n=4	*n*=3	*n*=3	*n*=4	*N=14*
Transmission (lecture)	4	3	3	4	14
Class discussion	4	3	3	4	14
Small group discussion	4	3	0	3	10
Brainstorming	4	3	0	0	7
Peer tutoring	4	3	0	0	7
Research	4	0	0	0	4
Case study	2	0	0	2	4
Inquiry-based learning	2	2	0	0	4
Collaborative learning	0	3	0	0	3
Laboratory experiments	0	0	3	0	3
Other	0	2	0	0	2
Role play	1	0	0	0	1
Debating	1	0	0	0	1
Problem-based learning	0	0	0	1	1
Field trip/excursion	0	0	0	0	0

As the literature also refers to certain traditions of teaching methods within disciplines (Cameron, 2013; Kolb, 1981; Neumann, et al., 2002; Shulman, 2005), participants were asked to report on what learning designs, teaching methods and teaching activities have been used for a long time in their discipline. Participants were provided a list of possible options (including "Other") from which to choose and they could select more than one option. In an attempt to verify this information, a further question asked participants to report on their own university experiences as students. These findings indicated much less variety and a more conservative teaching approach in the past (see Figure 5).

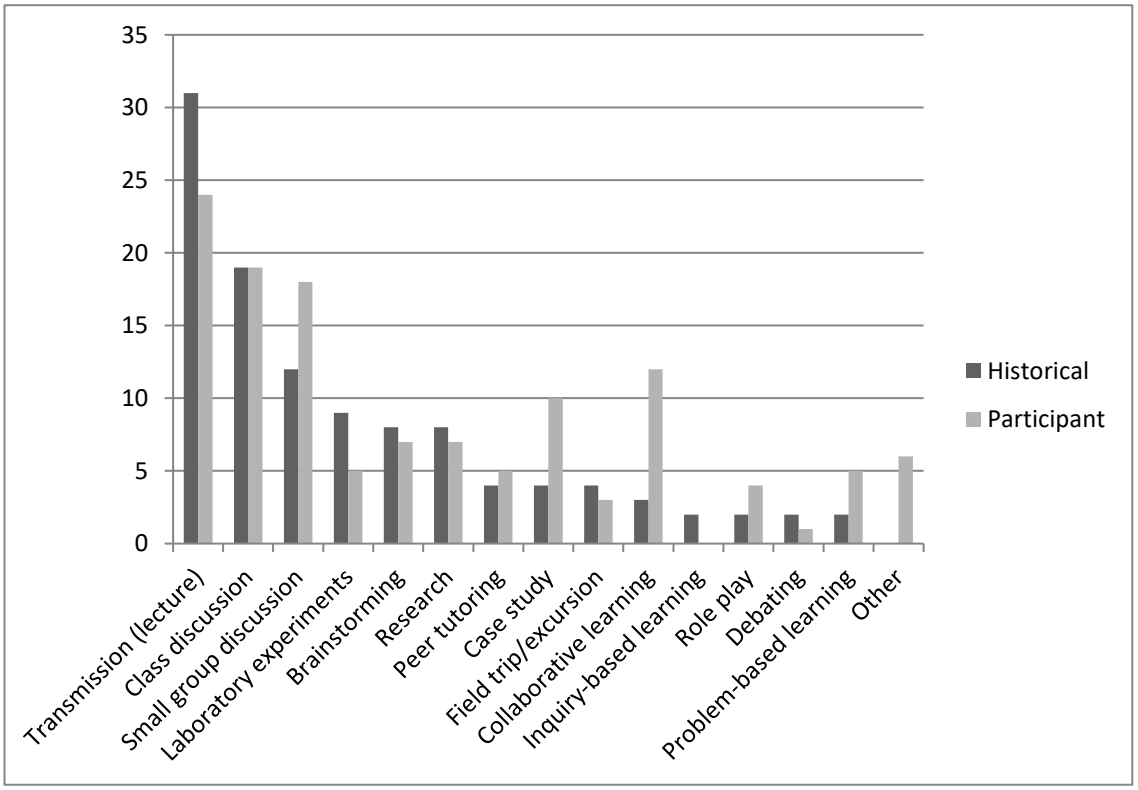

Figure 5. Comparison of learning designs, teaching methods and teaching activities used historically

Table 2. Comparison of the learning designs, teaching methods and teaching activities most commonly used by survey participants compared to peers in their discipline

Activity	Participants (N=14)	Peer
Transmission (lecture)	14	14
Class discussion	14	14
Small group discussion	10	6
Brainstorming	7	2
Peer tutoring	7	0
Research	4	3
Case study	4	1
Inquiry-based learning	4	1
Collaborative learning	3	2
Laboratory experiments	3	3
Other	2	0
Role play	1	0
Debating	1	0
Problem-based learning	1	1
Field trip/excursion	0	1

Section 3: Sharing learning designs, teaching methods and teaching activities

Seven of the 14 (50%) participants reported they regularly shared learning designs, discussed teaching methods and teaching activities with colleagues. Five (35.71%) reported they sometimes shared. Only two respondents (14.29%) reported they either rarely, or never shared learning designs, discussed teaching methods or teaching activities (refer Figure 6).

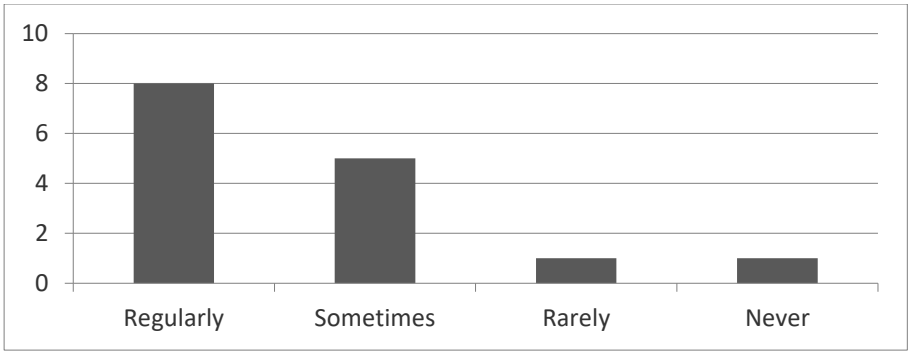

Figure 6. Sharing of learning designs, teaching methods and teaching activities with colleagues

All participants confirmed that sharing is a common practice *within* the discipline for them but not common *across* disciplines. The reason may be as simple as not having convenient access to lecturers from other disciplines. In fact, one respondent reported that "meeting other teachers is the biggest barrier to sharing."

The responses to the question, "Are there any barriers to sharing learning designs, teaching methods and/or teaching activities across the disciplines?" results fell into four main categories: (i) time; (ii) students, particularly student

expectations; (iii) change, particularly in regard to support from colleagues for change; and (iv) knowledge, particularly a lack of knowledge. The second and third categories directly related to resistance to change. Figure 7 represents the number of participants who nominated each of these identified barriers to sharing. They could nominate more than one barrier.

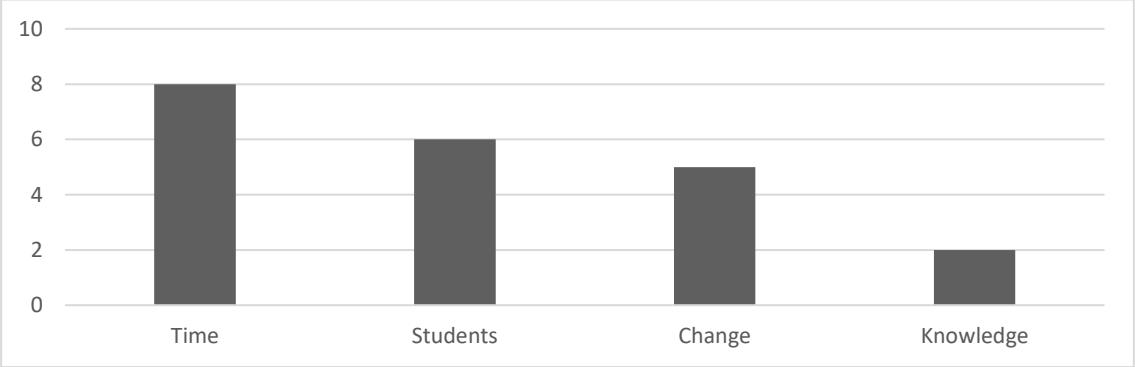

Figure 7. Barriers to sharing learning designs, teaching methods and/or teaching activities across the disciplines

i. Time.

The majority indicated that experimenting with teaching takes time. Eight participants cited "workload issues" and/or "lack of time" as a barrier.

ii. Students' expectations.

On a number of occasions, participants reported the opposition to new teaching methods came from the students. (This was also reported in the interviews.) In a climate when positive student evaluations are highly regarded when applying for promotion positions, this can be a real barrier to sharing innovative practice:

It takes time to change what you do and often students are resistant to change. (Participant Hum1)

Students don't know how to adapt. (Participant SS1)

iii. Little support from colleagues to change

A number of participants stated that they felt quite alone when they wanted to try innovative teaching strategies and activities, with colleagues listed as a barrier to sharing teaching methods and activities:

No-one wants to let go of the old ways. (Participant Sci3)

Experienced teachers who think they know better are barriers. (Participant Hum1)

iv. Lack of knowledge

Two respondents reported they simply did not know enough about new strategies to understand how they could be implemented in their classroom:

I don't know how to apply the new methods. (Participant PF1)

6.7 THEMES TO EMERGE FROM THE SURVEY

Major themes emerged from the survey and were determined as worthy of further exploration in the interviews. The first was that a broad range of learning designs, teaching methods and activities are currently in use in all disciplines throughout the higher education sector in Australia. With only one

exception, participants reported complete autonomy with their choice in teaching approaches employed to deliver content. Additionally, most participants spoke of the value of student engagement, knowledge generation and interaction.

Participants also reported that discussions about learning designs, teaching methods and activities with peers in their own discipline were considered very valuable, even though, like them, most of their peers did not have any formal teaching qualifications. This result was consistent regardless of the teaching experience of the participant. More information about the nature of these conversations was sought to determine if it was their peers' common understanding of the nature of their discipline that made these discussions so valuable, or whether it was simply an issue of ready access. This has important implications as to how readily teaching methods, activities and assessment tasks could be shared across the disciplines.

Phase 2: Interviews

In the second phase of the study, the themes that emerged from the earlier survey were investigated in in-depth interviews (*n*=6). The semi-structured interview questions were designed to confirm the learning designs the interviewees typically used; explore the interviewees' knowledge of the designing for learning process and determine how learning designs, teaching methods, activities and assessment tasks were discussed and shared with

others outside their own discipline. The interviews ranged from 1-2 hours in duration. The intention at this point in the study was not to be wholly representative of the entire higher education sector but simply to provide a variety of views from a range of disciplines.

Interview participants

Although the interviewees were not the same individuals as responded to the earlier online survey, they were required to have similar characteristics in that participants were academics responsible for designing for learning. Eleven lecturers were invited to be interviewed as part in the project - six agreed. The interviewees came from two universities in Sydney (Australia) and their teaching experience ranged from 6 months to 30+ years. They were distributed among the disciplines as follows: Humanities (*n*=2), Social Sciences (*n*=2) and the Professional Fields (*n*=2). There were no participants from the Science disciplines. Numerous attempts were made to procure interviewees from the Sciences but an interview about their teaching did not appeal to any of the many lecturers approached.

6.8 FINDINGS FROM THE INTERVIEWS

Lectures and tutorials were the most commonly described mode of delivery for all interviewees with 1 or 2 hours of lectures + 2-3 hours of smaller group tutorial per week per cohort being the typical model. In all but two cases, lectures were described as “stand and deliver” sessions whereby the lecturer

primarily used this time for the transmission of content knowledge and general administration detail. Acknowledgement was made of the low engagement of many students with the traditional lecture format.

> *We are looking at ways to get students to come to lectures, maybe taking a roll ... but others are just putting them online because the students don't turn up.* (Interviewee SS1)

The two lecturers who did not describe their lectures this way, spoke of breaking the large group into smaller ones, and conducting small group activities as part of the larger lecture. However, all interviewees commented on the low attendance rates and lack of student engagement with the traditional lecture format:

> *I know that students can't cope with lectures for too long*. (Interviewee Hum1)

> *I feel I have to put on a show, use lots of humour, cartoons, to keep them entertained – otherwise they can't keep their concentration going. Or they don't keep coming*. (Interviewee Hum2)

The interviewees reported the most innovative teaching occurred in tutorials. Whilst three of them spoke of often conducting "traditional"

tutorials, whereby the students were asked to pre-read material that was discussed as a group, there was a wide range of other learning designs, teaching methods and teaching activities being employed. Case-based learning (CBL) was mentioned by both Professional Field interviewees and one of those from Social Science as being an important part of tutorials:

> *We always start with this [CBL] and move on to understanding the theory from the focus on the case.* (Interviewee SS1)

> *Problems require higher order thinking and allow students to engage with issues.* (Interviewee PF1)

> *In each case the students also look at alternative scenarios and predict what could happen. They need to provide a hypothesis and the draw conclusions.* (Interviewee PF2)

Role play, SWOT (Strength, Weakness, Opportunity, Threat) analysis, presentations and a great deal of small group work were also learning designs mentioned as being used in tutorials by the interviewees. Assessments, however, tended to conform to the discipline stereotype commonly found in the CEQ analysis (Scott, 2006) and the literature (Cameron, 2013; Franklin & Theall, 1992; Neumann, et al., 2002). The Social Science and Humanities interviewees used essays while the Professional Field studies favoured projects, exams and field experience. (There were no Science lecturers interviewed.)

There is an exam, just short answer and essay topics. (Interviewee SS1)

There is a test at the end – to see how effective their processes have been, and check the performance for the whole semester. (Interviewee Hum1)

Approaches to designing for learning varied. Three of the six interviewees commonly worked with others to develop units, using a variety of personally developed models:

We start work with a theme, and together we work around that. (Interviewee Hum1)

We teach using a socio-cultural theoretical approach that looks at different issues using social justice as a frame. We start with first principles and then develop activities out of that. (Interviewee SS2)

Two interviewees developed all teaching activities alone, only rarely discussed learning designs, teaching methods, activities and assessment tasks and stated this approach was fairly typical in their discipline (PF and SS) and were quite comfortable with this process. However, another interviewee, in his second year of teaching, did not discuss his teaching activities with others and was not confident with this approach (PF):

I'm just feeling my way. I even entered this study to hear more about teaching. (InterveiweePF1)

Only one interviewee had ever sought learning design assistance from a centralised teaching and learning unit in the university, despite all participants acknowledging that their own university had such a unit. That interviewee was quite happy to employ the innovation discussed at this professional learning event:

I attended a workshop and learnt about a different way to teach large groups. I am very keen to try the model that was laid out for us. (IntervieweeSS1)

Whilst only three of the six interviewees commonly worked co-operatively with others to develop learning designs, teaching methods, activities and assessment tasks, five reported they had regular discussions with others in their own discipline about their teaching. Only one of the interviewees had had such a discussion in recent times with someone outside their own discipline – and this had been an informal conversation in a corridor.

All interviewees could articulate barriers to sharing new and different

learning designs, teaching methods, activities and assessment tasks, both within, and across disciplines. They most commonly mentioned students' adverse reactions to innovative teaching approaches, such as problem-based learning, as being a barrier. Meeting student expectations was spoken about regularly during these interviews.

> *Student attitudes. They want to be spoon fed, as opposed to them being responsible for their own learning. We like to try to develop their independence and critical thinking but they don't like to be asked to think.* (Interviewee SS1)

> *There is an expectation that appears to come from their schooling that the content will be provided for them and they will simply have to answer a few comprehension questions to get through.* (Interviewee PF2)

Lack of time for meetings and peer disinterest were also mentioned for skepticism that sharing learning designs, teaching methods, activities and assessment tasks across disciplines might be a productive venture.

> *Term time is busy, semester breaks are for research. At this time creative teaching is not really a priority for others.* (Interviewee SS1)

> *I want to work with my classes better. But it doesn't seem so important to others. They have other things they want to do*. (Interviewee Hum1)

6.9 DISCUSSION

In order that they conform to the 2013 Higher Education Standards Framework, Australian higher education institutions are being audited to ensure their teaching and learning is of high quality. Explicit references to learning design principles include mention of the "overall coherence" of a course (TEQSA, 2017, Sec 1.7), that courses should be "designed to provide appropriate engagement by students" (TEQSA, 2017, Sec 1.7) and that academic staff delivering a course should "have an understanding of pedagogical and/or adult learning principles" (TEQSA, 2017, Sec 4.2).

Despite this, participants in this study reported the use of teaching approaches in some disciplines that are not conducive to high student engagement. The CEQ data analysis (Scott, 2006) outlined the learning designs, teaching methods and activities that students find engaging and reports which disciplines in Australian universities are most successful at employing these. Sharing this research widely among academics might provide a good foundation to improving teaching and learning across disciplines in the higher education sector.

This study also found that widespread, informed discussion and the sharing of teaching and learning principles is not routinely taking place in all disciplines in the surveyed universities. While there was a general awareness amongst study participants about the importance of responding to student

evaluation of their teaching, changes were most commonly adopted without reference to current research or professional advice. The fact that many of the colleagues whom participants consulted about their teaching had no formal teacher training was established in the interviews. Designing for learning emerged from this study as only a semi-professional activity. This finding adds some credence to Biggs's (2003) assertion that good teachers in a university are often simply "gifted amateurs."

Additionally, ensuring that teaching and learning is of high quality in our universities (as TEQSA requires) is a challenge when qualifications in teaching and learning are not always in the essential selection criteria for higher education entry-level positions. Clearly the way forward is complex. The major findings from this study highlight a problem: It has been established that the learning designs, teaching strategies and activities that have been proven to be highly engaging for students are not being shared across disciplines and that lecturers most commonly sourced their pedagogical knowledge from their colleagues within their own discipline. Similarly, neither was centralised teaching and learning units being accessed to source this knowledge.

It can also be concluded that developing an understanding of generic teaching and learning is not sufficient for high quality teaching and learning practices in the individual disciplines. This highlights the importance of the relationship between discipline content knowledge and pedagogical process. Shulman (1986) described three categories of content knowledge: subject

matter content knowledge, pedagogical content knowledge, and curricular knowledge. Berthiaume (2009) took a more integrated approach with his Model of Discipline-specific Pedagogical Knowledge (DPK) for university teaching. This describes the relationship between a lecturer's knowledge base for teaching, disciplinary specificity and their beliefs about knowledge (Fry et al., 2009).

Regardless of the approach taken, the TEQSA Teaching and Learning quality requirements flag a need to elevate the profile of the scholarship of learning and teaching and the associated field of learning design that focusses on the study of teaching, learning and curriculum. From the evidence gained in this study, the call to introduce innovation, creativity and other soft skills, such as key graduate attributes, is being answered in many higher education tutorial classrooms. However, it is not always being undertaken as a systematic approach. What has emerged is that teaching and learning decisions are commonly being made by lecturers without familiarity of current research into practices of teaching, learning and curriculum.

6.10 CONCLUSION

While a study of this scale cannot be wholly representative of the entire higher education sector, it has provided a variety of views from a range of disciplines in six universities in Australia. It has been found a broad range of teaching approaches are used by the participants in this study and there is still

some bias toward the traditional discipline stereotypes, especially in assessment. It was found that innovative, creative and engaging teaching and learning is occurring in many tutorial classrooms but it is not being undertaken as a result of a systemic approach to quality throughout the institutions.

This study highlights the challenge of ensuring that high quality course design is developed when widespread, informed discussion of well-researched teaching approaches is not always embedded in university practice. To ensure high quality teaching and learning in all classrooms, the scholarship of learning and teaching needs to be an integral part of lecturers' teaching practice and it follows that institutions have a responsibility to provide "opportunities to improve their teaching" (TEQSA, 2017, Sec 4.2). This study also highlights the value of the study of the scholarship of learning and teaching across all disciplines and the role it might potentially have in improving student engagement and retention.

Chapter 7: Using generic templates

7.1 FOREWORD TO PAPER 5

This paper was submitted for publication in a British journal after attending a conference in the UK where it was clear that sharing practice was an issue of high interest. The published paper outlined the findings of the second survey of the study, 'Intro to Learning Designs (LDs)'. As with the earlier survey, themes were drawn from the results and further questions explored these in interviews that followed. The findings in the paper confirmed that generic learning design templates could be a useful tool to share learning designs, teaching approaches and activities in the Higher Education environment. However, work completed since has indicated that the collegiate, educative process undertaken when exploring these templates in workshops, may have contributed to their success.

7.2 PAPER 5: Using generic templates to promote the use of high quality learning designs in higher education

Designing for learning in the higher education sector is a complex task, especially in light of the increasing diversity of the student body. With research pointing to an inverse relationship between student engagement and attrition rates, lecturers need to be mindful of a wide range of student ability levels, socio-economic backgrounds, learning styles, and specific curriculum requirements when designing for their students' learning. Learning design is a professional activity for which many of our academic staff are not trained.

This current study took a mixed methods approach to explore whether generic templates (a learning design pattern to which subject content can be added) could be used to share well-researched, high quality learning designs across a range of disciplines. The results revealed that generic learning design templates can provide a means for lecturers to access a broad range of learning designs but there are barriers to sharing these in the higher educational sector. At a time when providing students with a quality learning environment is considered highly desirable, it might be time these barriers were addressed. By using generic templates, lecturers might be encouraged to explore new learning designs and reflect on how their existing teaching approaches affect their students' learning

.

7.3 INTRODUCTION

The Course Experience Questionnaire (CEQ) researches elements of the higher education experience of Australian university graduates. It focuses on the graduates' perceptions of course quality, their self-rated skill levels, and their overall satisfaction with their course (for more information, see http://www.graduatecareers.com.au/research/surveys/ Australian graduate survey). In an analysis of the CEQ, Scott (2006) reported differences between the disciplines when graduates evaluated the quality of the teaching they experienced during their university studies. A review of the literature confirms this is not a "one-off" occurrence nor is it limited to Australia (Cameron, 2013). Several studies report that a link exists between approaches to teaching that inform learning design and student satisfaction (Braxton, 1995; Franklin & Theall, 1995; Scott, 2006) and between approaches to teaching and retention rates (Gilardi & Guglielmetti, 2011; Radloff, 2011; Schaeffer & Konetes, 2010). When used in this paper, "approaches to teaching" refers to all the aspects of the teaching process that inform designing for learning, ie learning designs, teaching methods, teaching strategies, teaching activities and/or assessment tasks. When referring to 'learning designs', the comprehensive definition provided by Donald will be used (2009, p. 180):

> "A learning design documents and describes a learning activity in such a way that other teachers can understand it and use it in their own context. Typically, it includes descriptions of learning tasks, resources and supports."

Courses with high student satisfaction ratings tend to be those in which their lecturers emphasise outcomes, other than a requirement to simply learn facts or concepts; employ teaching activities in addition to the lecture, and utilise assessment methods other than exams. In short, courses that use activities and assessment methods that engage students actively are generally associated with higher student ratings. Ratings of university students' satisfaction with their teaching in the UK, the US and Australia have consistently shown that some disciplines score much better than others. Generally, the teaching experienced in the Humanities and Social Sciences is more highly regarded by students that those in the Sciences (Cashin & Downey, 1995; Franklin & Theall, 1995; Neumann, Parry & Becher, 2002; Scott, 2006). These findings have recently been confirmed to be consistent with the current Australian context (Cameron, 2017).

Scott's CEQ analysis (2006) and the literature reviewed also identified which approaches to teaching were most typically used in the disciplines that scored well for high student engagement, productive learning and optimised student retention. It was also noted that these approaches were not used regularly in the disciplines that scored poorly. The premise of this current study was to determine if the underlying pedagogies of these effective teaching approaches could be distilled into generic teaching strategies that could be successfully shared across all disciplines. These approaches to teaching might then facilitate more engaging teaching and learning throughout all disciplines in the higher education sector, which in turn would improve student retention rates.

This approach relies on the assumption that there are generic principles of teaching and learning that can be applied across disciplines (Barnett, 2005); a view that has been challenged by those who believe that what constitutes effective pedagogy in one discipline may not necessarily work in another (Donnelly & Crehan, 2011).

In recent years there has been a shift away from generic educational development in universities to discipline-based approaches which acknowledge the specific and contextualised needs of the disciplines (Young, 2010). Berthiaume (2003) reviewed a body of research that suggested that in order to be effective, higher education learning design may have to be discipline-specific. From this he produced the "Model of Discipline-specific Pedagogical Knowledge (DPK) for university teaching" (Fry, Ketteridge & Marshall, 2009, p. 219) which illustrated the integral role disciplines play in designing learning. While a detailed exploration of the model is outside the scope of this paper, the model highlights the significant influence of discipline on learning and teaching in higher education.

When undertaking this study, the complex relationship between teaching practices, subject and content was recognised, however, like Shulman (2005), it is proposed in this paper that many different modes of teaching and learning can be found that are not unique to a particular discipline. This approach does not dismiss the importance of pedagogical content knowledge, which involves lecturers having an understanding of what effective teaching is in their own discipline (Shulman, 1986).

Although an academic must have pedagogical content knowledge in order to develop effective teaching activities in that discipline, it has been found that effective teachers in all disciplines had a tendency to use similar learning designs, teaching methods and/or teaching activities (Shulman, 1986). In fact, Gibbs (2000) states that many teaching methods described as discipline-specific are used widely across the disciplines and take much the same form regardless of the context. This suggests that generic pedagogic activities and methodologies can also be successfully employed when they are interpreted and used appropriately by discipline experts.

Context of the Study

To test this premise, this study was undertaken following Learning Design workshops at which the concept of "generic" learning design templates and the vocabulary of the Learning Design field were introduced. At the workshops a "generic learning design template" was defined as "a learning design pattern that is commonly derived by removing the subject content from a successful learning activity and distilling the activity down to its integral pedagogical parts. It represents the underlying structure so that content and resources can be added to customise the template" (Cameron & Campbell, 2010, p. 1915). Specifically, workshop participants were introduced to the LAMS Activity Planner tool.

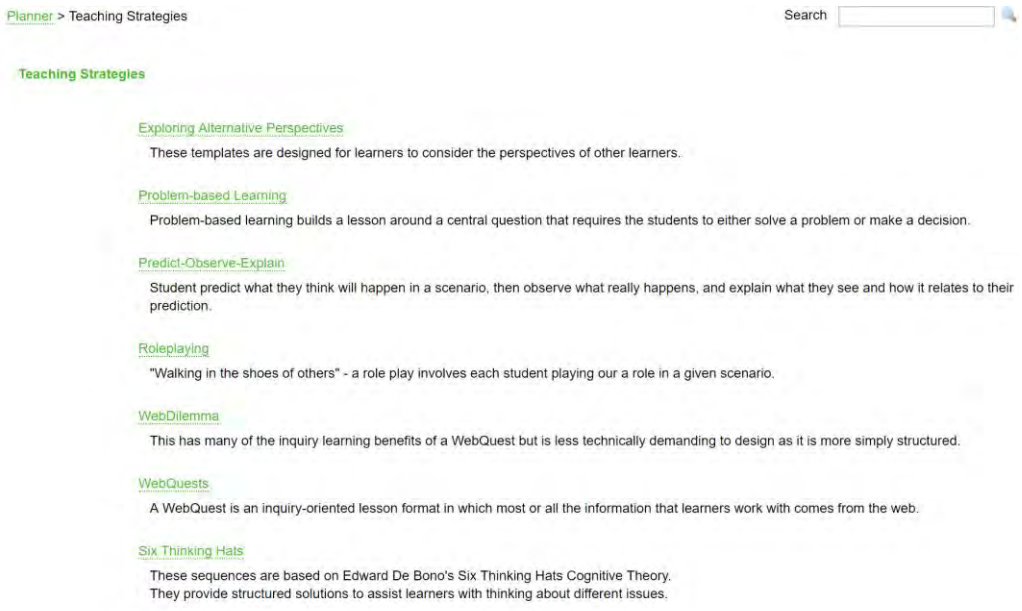

Figure 8. A screenshot of the teaching strategies available in the LAMS Activity Planner

The Planner is a visual authoring environment that allows design ideas to be presented in a way that demonstrates how learning designs, teaching methods and activities would be implemented with students. For a more detailed description of the LAMS Planner, see Cameron 2010. Figures 8, 9 and 10 are examples of the generic templates explored in the workshops.

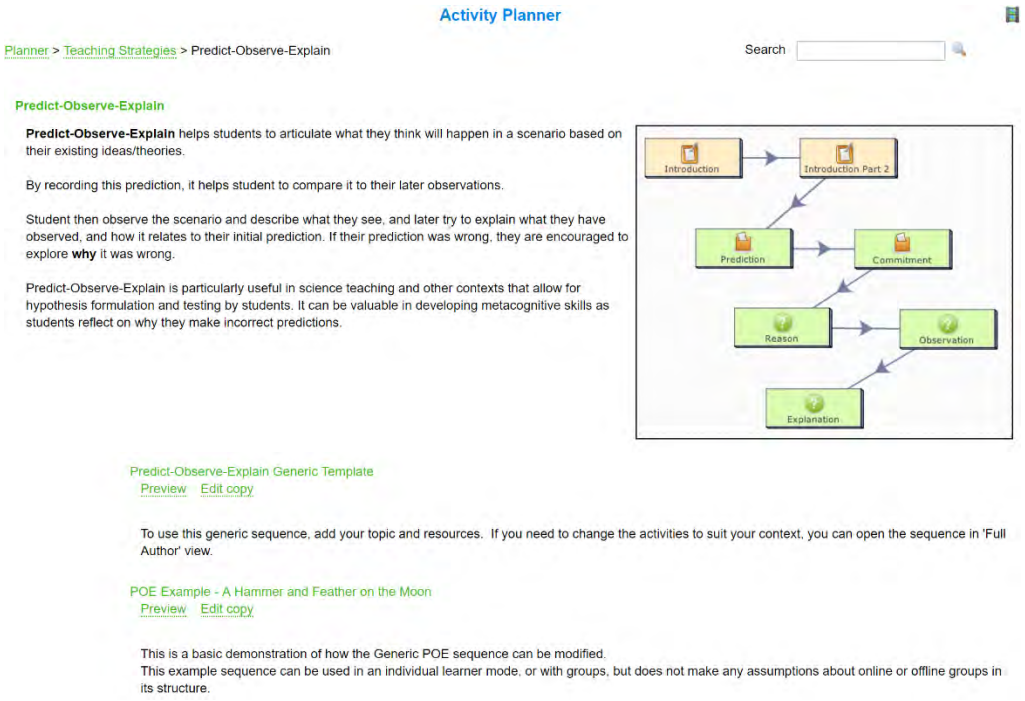

Figure 9. A screenshot of Predict-Observe-Explain (P-O-E) Introductory page

The three-hour workshops were regularly sponsored by the central Learning & Teaching Centre of a Sydney University and they were open to anyone in the sector interested in exploring Learning Design in the Higher Education context. Typically, 20 lecturers from a wide range of Australian universities, disciplines and teaching experience attended. During a workshop, participants explored several existing learning designs, teaching methods and activity templates. Initially, participants were introduced to a learning design with which none of them were familiar (in this instance, Predict-Observe-Explain – for a more detailed explanation of this learning design, see Kearney, Treagust, Yeo & Zadnik, 2001).

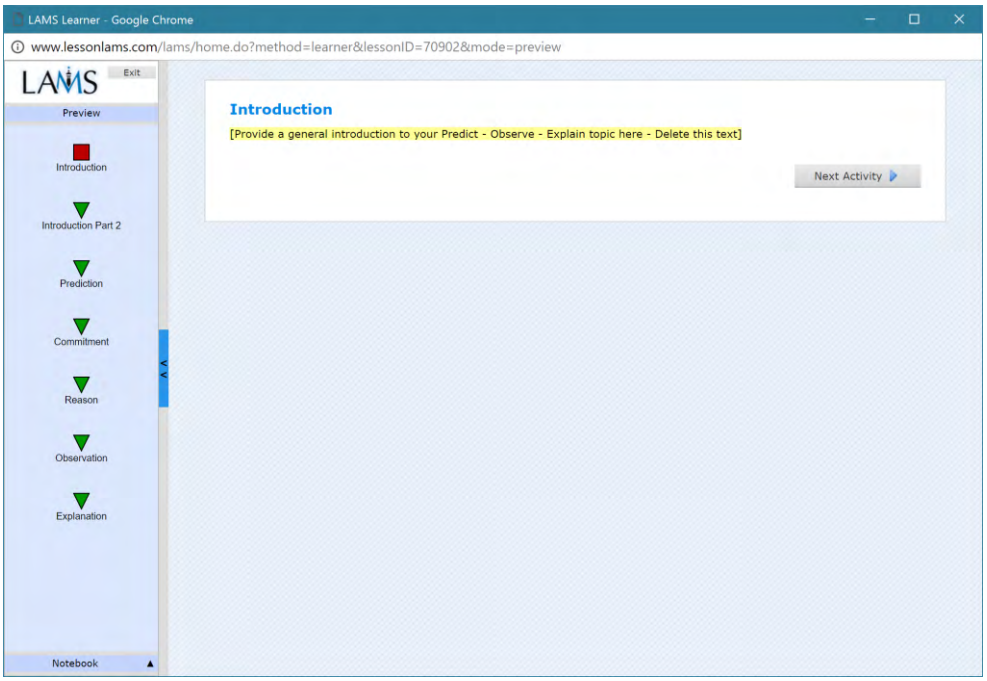

Figure 10. A screenshot of how specific subject content is added to the generic template for P-O-E

This was a demonstration of how readily the participants could become familiar with a new learning design and how new learning designs might be shared throughout the sector. The concept of how content and pedagogy can be isolated in a learning design was also introduced to demonstrate how a "generic learning design" could be used to share the pedagogy.

An integral part of the workshops was that participants contributed in a number of whole group discussions where the implications of the use of generic learning design templates were discussed in detail. The facilitator ensured this analysis was well-balanced, involved all participants' own personal experiences, and covered a wide-range of authentic and practical considerations around designing learning in the higher education sector.

7.4 METHODOLOGY

7.4.1 Research Question:

The central research question explored in this study was:

Can generic learning design templates be used to introduce new learning designs, teaching methods and/or teaching activities across disciplines in higher education?

To answer this question, it was determined that the most efficient way to collect data was by means of a broad survey across the sector. However, after reviewing the survey results, it was clear that to fully explore the responses made by lecturers about their choices of learning designs, additional interviews would also be necessary. In this way, mixed methods were used which allowed for a more comprehensive analysis by taking advantage of the strengths of both quantitative and qualitative methods (Creswell, 2005; Tashakkori & Teddlie, 2003). The study was undertaken with the approval of the Faculty of Human Sciences Human Research Ethics Sub-Committee, Macquarie University, Australia.

The research design consisted of two distinct data collection stages: Phase 1: An online survey, designed to draw out how open the participants were to adopting new learning designs using generic learning design templates; and what barriers they saw to sharing learning designs across the disciplines. This was followed by Phase 2: Interviews to explore survey themes further and to determine how feasible it was that generic learning designs

could be adopted or adapted into their own teaching context. Data from both phases were used in the final analysis.

7.4.2 Phase 1: Online Survey Participants

Of the 20 workshop participants, 16 agreed to participate in the survey. This sample included representatives from each of the four discipline groupings, ie. Humanities (3), Social Sciences (2), Science (3) and the Professional Fields (8), however, upon analysis, participants' responses did not vary by their discipline. Disciplines were defined as four subject groupings. Humanities, Social Sciences, Science and the Professional Fields. For a more comprehensive discussion about how these disciplines groupings and teaching models are derived, see Cameron (2013). All information obtained by the survey was anonymously reported. To differentiate between respondents, each respondent was given a label: Respondent1 through to Respondent16.

Participants in the survey represented six Australian universities from four states. Five universities were from large capital cities, the other was located in regional NSW. All participants taught undergraduate students at a recognised university, 10 of whom also taught post-graduate courses. They most commonly taught face-to-face classes (14) but also frequently taught in the blended mode (12). Every participant taught groups of 15-30 students, whilst 5 also lectured large groups (90+). The teaching experience of the participants ranged from 1 year to 28 years. The survey data was analysed for frequency of responses and recurring themes that would benefit from additional exploration.

7.4.3 Phase 2: Interviewees

The five major themes that emerged from the online survey were investigated further in interviews (n=6). The semi-structured interview questions were designed to explore these and confirm the learning designs the interviewees typically used; the interviewees' knowledge of the designing for learning process; their understanding of learning design representations; and how feasible it was that they be adopted in their own discipline.

The interviewees came from two Sydney universities and their teaching experience ranged from 6 months to 30+ years. Interviewees were distributed among the disciplines as follows: Humanities (2), Social Sciences (2), Science (0) and the Professional Fields (2). Numerous attempts were made to procure an interviewee from the Sciences but an interview about teaching did not appeal to anyone of the many approached.

Continued access to the survey participants was not possible so the interviewees were not the same individuals as responded to the survey. However, to maintain consistency, the interviewees were required to have similar characteristics to the original survey participant: they were to have recently participated in the Learning Design workshop, and be lecturers who designed learning in the higher education sector. Eleven lecturers were invited to be interviewed as part in the project - six agreed. The intention at this point in the study was not to be wholly representative of the entire higher education sector but simply to provide a variety of views.

All interview documentation was coded at the time of interview so information obtained was anonymously recorded. The coding pattern adopted reflected the discipline of the interviewee, eg Hum1 – indicates Humanities interviewee 1, Social Sciences (SS), Humanities (Hum), Professional Fields (PF).)

To maximise reliability and provide depth, two initial pilot interviews were conducted to test the interview questions designed by the author. They utilised a wide range of learning designs presented in generic template form. In the pilot interviews, 6 semi-structured questions were asked and 13 generic learning design templates were demonstrated with each interviewee. In the subsequent four interviews, the number of templates demonstrated was reduced to 4 possibilities to reduce interviewee fatigue. The analysis that followed the interviews further explored the themes that emerged from the survey results.

7.5 FINDINGS

7.5.1 Phase 1: Online Survey

Question 1 of the survey established the discipline for which each participant mainly designed learning. These ranged broadly across the disciplines: Humanities (3), Social Sciences (2), Science (3) and the Professional Fields (8). Question 2 was used to confirm all participants understood, and could use, the generic learning designs templates that had

been introduced in the workshop they had just attended. All 16 participants successfully completed this question.

When asked in Question 3, “Might using templates to share good teaching practice work in your teaching area?”, 11 of the 16 participants agreed (69%) and 4 other participants indicated they ‘might be used’. Their comments included:

> *I may consider using some of these templates with staff to broaden their understanding.- Respondent1*

> *Possibly - saves time from designing from 'scratch'- Respondent5*

> *To some extent. Must try out and be convinced first- Respondent10*

Only one participant responded in the negative:

> *Not necessary. It's more appropriate to just share your learning activity because the sequences are designed based on specific case studies which we use for teaching – Respondent8*

Question 4 asked participants, “Were there things you didn’t like about using the templates?”. Five replied there was nothing they didn’t like, three made comments that they would like to trial it in their workplace before commenting and two participants offered no response. Other comments included:

Depends on capability of the author and usefulness of learning- Respondent2

There is not enough faculty that is sharing their materials for higher education. – Respondent12

A bit too constrictive, but good as a starting point. – Respondent14

The final two questions of the survey aimed to build upon existing work about enablers and barriers to sharing learning designs (Philip & Cameron, 2008). Participants were asked initially about enablers (Q5), "Can you suggest ways of scaffolding and supporting the sharing of learning designs, teaching methods and teaching activities?" Multiple responses were permitted so more than 16 answers were recorded. Seven participants chose not to answer this question (44%).

a) *Establishing Community (n=7)* – Developing a Community of Practice – The majority of participants saw benefits in establishing a "community of practice" where learning designs could be shared and discussed.

Getting Faculty members who have been successful in using teaching activities to share their experiences as short F2F sessions or as a video, as that will help each other learn.

I think that through collaboration we can all benefit

Communication is always the barrier and letting people know when there was something new.

b) *Training (n=2) -*

Offering further formal training

I'd love some more workshops on this.

c) *Repository (n=2) - A*

Establishing a local learning design repository

There seems to be already quite a lot of models out there.

It'd be nice if teachers could be updated on such sites

d) *Champions (n=1) - A*

Endorsing a senior academic as a 'champion

The final question of the survey addressed the issue of barriers to sharing learning designs. Participants were asked, "What do you think are the barriers to sharing learning designs, teaching methods and teaching activities?" Once again, participants could make multiple responses (the same 7 participants chose not to answer this question). Comments could be grouped into five major themes:

a) *Time (n=8)* - A lack of time to work on new learning designs (including documentation to make them accessible to others);

Time, time and time. No experience or no knowledge

"People are busy in their own world; research, winning grants etc. The rewards to putting time on teaching is generally less than the rewards one gets through investing in research.

b) *Change* (n=6) - Faculty do not want to try something new;

People not willing to learn new things, being set in their own ways

Entrenched practices

Mindset of individuals, and perceptions of certain learning design models of individuals.

c) *Culture (n=4)* – There is no established culture of sharing in their community ("competitiveness" was mentioned three times);

Competitiveness. Especially in academia, the need to be "the teacher of the year", as a means to receive both financial and merit bonuses, prevent teachers from sharing materials.

More collaborative spirit would ensure better learning for more students, but that seems to be an ideal contradictory to yearly KPIs academic teachers have to fulfill.

Not the culture

Need open mind & not afraid to fail when implementing new teaching method.

d) *Author rights (n=2)* – Some respondents listed concerns about intellectual property and copyright;

Intellectual property

It needs to consider copyright of designer

Copyright issues

e) *Lack of experience with learning design* (n=2) – There was some concern about a lack of skill in the area of learning design.

Concern that they are difficult to implement.

Lack of experience makes it harder.

I'm not sure others on the staff have the background to adapt these learning designs.

7.5.2 Phase 2: Interviews

Questions 1, 2 and 4 of the two pilot interviews and Questions 1-4 of the four following interviews asked interviewees to describe their teaching. Lectures and tutorials were the most commonly described mode of delivery, with 1 or 2 hours of lectures and 2-3 hours of smaller group tutorial per week the typical model. Whilst three of the lecturers spoke of often conducting "traditional tutorials" whereby the students pre-read material that was discussed as a group, there was a wide range of other learning designs, teaching methods and teaching activities being employed, such as role play, problem-based learning, inquiry-based learning.

Interviewees were asked in Question 3: "Do you use any of these learning designs? Would you consider using them? Why?/Why not?". To determine interviewees' level of understanding of the learning designs gained from the generic templates they were shown four generic learning designs: Exploring Alternative Perspectives; Problem-based learning; Web Dilemma and Predict-Observe-Explain. Lecturers were asked to identify a learning design they had not previously seen. For each interviewee, the learning design selected was the "Predict-Observe-Explain" (P-O-E) model which was then used in each of the interviews to answer Questions 5-9. For more information about the P-O-E learning design, see Kearney, Treagust, Yeo & Zadnik (2001).

All six interviewees said they could see how the new learning design worked from seeing the generic learning design template demonstrated (Q13). Additionally, each agreed they could reproduce this approach to teaching in their classroom, if required, despite not ever been exposed to this particular learning design before. Four interviewees agreed they might try P-O-E in their own classes now they had been introduced to it:

> *I really like the idea of this. I might try it. (PF1)*

> *But we do ask students to predict what happened in the cases we present so this more formalised approach is really appealing. I might try this one. (PF2)*

Two interviewees were less enthusiastic about ever using this particular learning design (P-O-E) in their own teaching:

> *I've never seen this before but I can see it could be quite effective in the right instance – can't think of a circumstance I could use it. (Hum2)*

> *Too difficult to set up. We don't really have anything to use it with anyway. (SS1)*

However, despite not considering that this particular learning design would be useful in their own teaching, these interviewees were able to understand how the design worked from the generic template demonstration.

All interviewees could articulate barriers to sharing learning designs when asked: "Discuss any barriers to sharing learning designs in your institution. Are there ways to remove these barriers?" (Q10 & 11). Their responses fell into four main categories:

a. *Student resistance* - Students' adverse reactions to innovative learning designs, such as problem-based learning, was mentioned commonly as being a barrier (5/6 interviewees). Meeting student expectations was spoken about regularly during these interviews.

> *Student attitudes. They want to be spoon fed, as opposed to them being responsible for their own learning. We like to try to develop their independence and critical thinking but they don't like to be asked to think. (SS1)*

> *There is an expectation (by the students) that appears to come from their schooling that the content will be provided for them and they will simply have to answer a few comprehension questions to get through. (PF2)*

b. *A lack of time to get together to share* – All interviewees mentioned having time to develop new learning designs and then finding the time to meet colleagues to share them was a barrier.

Lack of time, is the reason we seem to do what we did last Semester again this Semester without discussing it with anyone. (Hum1)

The mutual benefits are not articulated or appreciated by the Management. If they gave us the time to get together to talk about our teaching – I would do it in a flash. Why wouldn't we want to be better teachers, but quality teaching doesn't seem to be a priority at the moment. (SS2)

c. *Communicating new learning and teaching ideas* – Interviewees were not exposed to new innovative teaching practices regularly. One interviewee spoke of an "Office of Teaching and Learning" discussion group they attended previously at another university but he had not heard of anything like this at his current university. No-one spoke of communities of practice being organized to formally discuss teaching and learning practice unless it involved the introduction of a new technology.

Communication is always the barrier and letting people know when there is something new. (Hum1)

We heard in an IT workshop about an American model where lecture content was online and the students worked in small groups in the lecture time. (SS2)

The responses from respondents to the question of sharing personal learning designs indicated they were concerned that their work would be judged harshly and were unlikely to put up work-in-progress.

d) *There is no sharing culture* – Four of the interviewees mentioned that there was no collaborative or co-operative culture at their university.

Sharing? It's not the culture around here. (SS1)

I took over unit after a staff member had moved on. Even in that instance there was a rolling of the eyes when I asked other staff for suggested learning activities. It was as if they thought I wanted to use their hard work to take a short cut for my own. I was told, 'We do our own work here. (PF2)

Interviewees were then asked, "From where does your teaching ideas come?" (Pilot interview Question 5, Interview question 12). All six responded that they had learnt about new learning designs from other lecturers but mainly from teaching with these lecturers on a course. Two of the interviewees said they had had a discussion with a peer that prompted a change in teaching approach and one lecturer mentioned attending an IT workshop. Simple trial and error and student feedback was how they all reported they evaluated their teaching success.

Sharing classes with fellow teachers is usually when I tried some new methods or technologies.

Feedback from students is always the important input to improve my learning design.

All interviewees provided a number of ideas when asked, "How might learning designs be shared?" (Pilot Interview Question 6, Interview Question 13). Their responses can be categorised into three main areas:

- Encouraging informal conversations with peers and colleagues (n=6)

- A community of practice, workshops or short videos where lecturers who have been successful in using new learning designs could share their experiences (n=5);

- A centralized university site that was frequently updated, that provided new learning designs and teaching ideas (n=2).

Finally, all interviewees said they could see how generic learning design templates demonstrated for them could be used to share new learning designs:

This is what we should do more of. We could introduce an example to others. (PF2)

I could use this to try some new type of designs in tutorials (PF1)

I don't know why we don't use this, and why others don't use it. (SS2)

7.6 DISCUSSION

From the combined data three major themes emerged: The source of participants' design ideas; the usefulness of generic templates; and the barriers to sharing.

7.6.1 The source of participants' design ideas

This study's respondents relied heavily on student evaluations to suggest learning and teaching improvements and they did not regularly consult the learning and teaching research. Additionally, the findings support what the literature suggests: That lecturers seeking guidance about teaching tend to give most credibility to peers from their discipline (Cameron, in press; Gibbs, 2000). Similarly, our results can confirm lecturers are often sceptical of what they may see as banal generic education advice delivered by centralised learning and teaching centres (Kreber, 2009). Nor do they avail themselves of expert assistance when planning courses, even if it is readily available and they rarely read educational literature (Knight, 2004; Stark & Lattica, 2009). Instead, these lecturers attempt the complex and challenging task of effective teaching with no training, and do not often go on to formally develop their teaching skills. This highlights a need to establish a means of transmitting accurate and current teaching and learning information to all lecturers across all universities. This study suggests that allowing lecturers to explore well-

researched learning designs delivered by generic templates is one way to address this issue.

7.6.2 The usefulness of generic templates

As a means of illustrating a new learning design, our interviewees unanimously agreed that the generic learning design template allowed them to see how the new design worked. Most importantly, they confirmed they would be able to reproduce it in their classroom if required, despite not ever been exposed to this particular learning design before. This would indicate that this tool could be very valuable in sharing new learning designs.

Scott's CEQ survey data analysis (2006) identified the learning designs and teaching approaches that optimise student engagement: The students rated interactive, practice-oriented, problem-based learning methods and resources more highly than the more traditional 'sage on the stage', knowledge-transmission methods associated with traditional lectures. (For a more detailed report of these findings, see Scott, 2006).

If much of the student engagement is built into the learning design as some suggest (Scott, 2006; Toohey, 1999), then generic learning design templates may help lecturers improve student engagement and the effectiveness of their teaching. By documenting high quality learning activities and the means by which student achievement can be accurately assessed, engaging learning designs and teaching can be shared. This study clearly

indicates that sharing learning designs using generic learning design templates is possible.

There are documented examples of learning designs which apply the most recent research into learning but they are not always well-known outside their discipline (Cameron, 2013). This study confirms that generic learning design templates provide lecturers with a means of accessing a wide range of learning designs. It is hoped that they might encourage lecturers to explore new learning designs, and use this experience to re-evaluate their teaching, question their existing teaching methods and search out reasons for the effects of their teaching on their students' learning (Cameron, 2010).

A number of well-resourced projects have been developing a means of efficiently bringing learning designs to the educational community with limited success to date: Design, Develop, Implement (Seeto & Vlachopoulos, 2015); The Learning Designer (Bower, Craft, Laurillard & Masterman, 2011); LAMS Pedagogical Planner (Cameron, 2008); QUT's Design Templates (Heathcote, 2006). While the technology being employed to deliver these is becoming increasingly streamlined, there appear to be some barriers to their success. These may include the barriers to sharing learning designs that have been identified in this study.

7.6.3 The barriers to sharing

If improved student engagement is one of the benefits of sharing innovative and creative learning designs and teaching approaches across the

disciplines, it seems reasonable, therefore, to expect that the sharing and reuse of good teaching methods and exemplary learning designs would be common practice. It was confirmed in this study that sharing is a common practice by our participants within the discipline, but not as common across different disciplines. However, barriers to this practice were identified, and participants indicated that many of their peers did not participate in this practice.

The barriers to sharing were clearly identified as existing on a number of levels: lecturers being unaware and/or averse to change, university administration not allowing enough time for course development and students being uncomfortable with some innovative methods. The literature also cites a concern with standards, licensing and the tension between academic culture and the desire to share and reuse resources (Campbell, 2003; McNaught, 2003; Pennell, 2007). McGill, Currier, Duncan and Douglas (2008, p. 4) state that the culture of higher education institutions may be a significate barrier to sharing: "there is little tradition or articulated desire for sharing learning materials in the sector" ... "current practice is not characterised by the sharing of learning materials or team work".

The participants themselves were able to propose solutions to each of these issues: They identified many could be addressed by creating an active and positive community of practice within their university where lecturers could share learning design innovation. This would require a shift in the culture at some institutions to one that fosters collaboration and cooperative learning design. The time this requires would require an acknowledgement by the university administration of the value of such endeavours. Until this has

been provided, the opportunity to share learning designs using generic templates may be limited.

7.7 CONCLUSION

At a time when student engagement is considered highly desirable, there is evidence that generic templates can be valuable in facilitating the learning design process. If lecturers are encouraged to share and reuse high quality learning designs, they might look at their teaching differently and apply what they find in different assessment and instructional methods (Cameron & Campbell, 2010). For some lecturers this process may be affirmation of their current practice but Scott's CEQ analysis (2006) clearly outlines there is room for improvement in the higher education sector when it comes to student engagement and opportunities for improved student retention.

Engaging and effective teaching requires lecturers to have a knowledge of a variety of teaching techniques, be mindful of different student ability levels, socio-economic backgrounds, the range of learning styles and specific curriculum requirements when designing for their students' learning. Therefore, to be effective, they need to draw upon current learning and teaching literature - not just traditional teaching approaches. Sharing learning designs and teaching approaches that have already been demonstrated to engage students would seem to be a desirable way forward. This study has determined that one means of doing this could be by using generic learning design templates.

Chapter 8: The Learning Design Conceptual Map

8.1 FOREWORD TO PAPER 6

The Larnaca Declaration on Learning Design was a document created at a meeting of Learning Design experts in Larnaca, Cyprus in September, 2012. A number of complementary tools were developed as part of this project. The Learning Design Conceptual Map (LD-CM) was an attempt to capture the broader education landscape and how it relates to the core concepts of Learning Design. Upon the publication of Paper 3: "Giving teaching advice meaning: The importance of contextualising pedagogical instruction within the discipline" (Cameron, 2013), a request was made to "test" the map using the examples provided in the paper, without alteration.

This is the resultant paper in which the LD-CM has been unpacked and used to represent the three "typical" instances of learning designs presented in original paper. It is a first attempt at determining whether the LD-CM can illustrate a clear understanding of the theory and practice of designing for learning in these disciplines.

As the ultimate aim of Learning Design is to share good teaching ideas among teachers in order that students may learn more effectively (Dalziel, 2012), it is hoped that this chapter will promote this aim by helping teachers visualise their current teaching practices. This would encourage teachers to look within and beyond their local context in order to identify their own

disciplinary practices more clearly to determine what might be adopted or adapted to produce effective teaching and learning approaches for their students.

8.2 PAPER 6: EXPLORING THE LEARNING DESIGN CONCEPTUAL MAP (LD-CM)[16]

Each discipline in higher education has its own history, intellectual style, sense of timing, preference for resources and assumptions about its educational purpose (Berthiaume, 2009). The way learning design decisions are influenced by this discipline-grounded perspective, and the various ways the disciplines address key curriculum components, has been previously investigated (Cameron, 2013). In this paper the "typical" learning design approaches used by three different disciplines are explored. Patterns of teaching, learning design and assessment within a discipline are often well-established and there is not always any incentive for change (Adams & Buckland, 2000). These designs can reflect traditional approaches that have been maintained and passed on from one teacher to the next, partly because teachers are not always routinely engaged with the theory and research on learning and teaching outside their own field. This can result in little questioning of the established traditions of pedagogy within a discipline (Cameron, 2013; Trowler, 2009; Neumann, Parry & Becher, 2002; Franklin & Theall, 1992; Shulman, 2005; Hativa, 1997). There may not be an inherent pedagogy in some disciplines, only those that have traditionally been taught (Gibbs, 2000).

[16] The concept of the LD-CM arose from a meeting of Learning Design experts in Larnaca, Cyprus on Tuesday 25th September 2012 and subsequent discussions (hence the name "Larnaca Declaration"). The core contributors to these ideas were: James Dalziel, Grainne Conole, Sandra Wills, Simon Walker, Sue Bennett, Eva Dobozy, Leanne Cameron, Emil Badilescu-Buga and Matt Bower.

Learning designs within any discipline should be flexible and context dependent, not fixed or 'hard-wired'. Effective teachers can accommodate a range of styles in the demands they make of students and they will often use a range of pedagogies (Cameron, 2013; Neumann, Parry & Becher, 2002).

As different disciplines have quite varying student satisfaction with their teaching strategies (Cameron, 2013, Scott, 2006), the aim of this chapter is to compare and contrast a number of discipline learning designs. "Typical" learning designs will be mapped to the Learning Design Conceptual Map (LD-CM), a tool that was developed to illustrate the many facets of learning design. This analysis will highlight differences and similarities between the teaching strategies, theories and practice employed by different learning designs in the disciplines. In this way, variations between the disciplines can be explored (Trowler, 2009) with the aim of discovering whether learning and teaching strategies could be productively transferred among the disciplines (Franklin & Theall, 1992).

Lecturers in higher education might benefit from a framework of learning and teaching that takes into account the role of their discipline yet goes beyond the simple acquisition of knowledge (Donald, 2002). If the ultimate aim of the field of Learning Design is to share good teaching ideas among teachers, as suggested by Dalziel (2012), it is hoped that this chapter will promote this aim by helping teachers deconstruct their own current teaching practices. It is hoped this will encourage teachers to look within, and beyond, their local context. This will enable them to identify their own disciplinary practices more

clearly and help them determine what learning designs might be adopted, or adapted, to produce more effective and engaging teaching and learning experiences for their students.

8.3 EXPLORING THE LEARNING DESIGN CONCEPTUAL MAP TO ANALYSE LEARNING DESIGNS

Please note that the original descriptive text describing the components of the Learning Design Conceptual Map (Dalziel et al., 2012) has been reproduced here in italics for clarity.

In this chapter, the Learning Design Conceptual Map (LD-CM) (see Figure 11) has been employed to help explore why a lecturer in a particular discipline comes to teach in a specific way at a given moment. (For a more in-depth explanation of the LD-CM, see www.larnacadeclaration.org). The LD-CM focuses on the core Learning Design concepts of Guidance, Representation and Sharing, while illustrating the many related issues that affect decisions that are being made when designing for learning. Using "typical" examples from three disciplines, the LD-CM has been used to investigate how assumptions about theory and the learning environment relate to teaching unit design, classroom activities and student engagement.

The LD-CM can also be used to illustrate how research informs pedagogical theories and approaches, and how these might inform teaching and learning activities. At the level of the individual learning designer, these

connections can help clarify decision-making, and, in turn, demonstrate how these decisions connect pedagogical theory, research, student characteristics and context, in order to promote effective student learning. At a higher level, the LD-CM can be used to explore the link between research and practice, in order to facilitate judgements about effective learning.

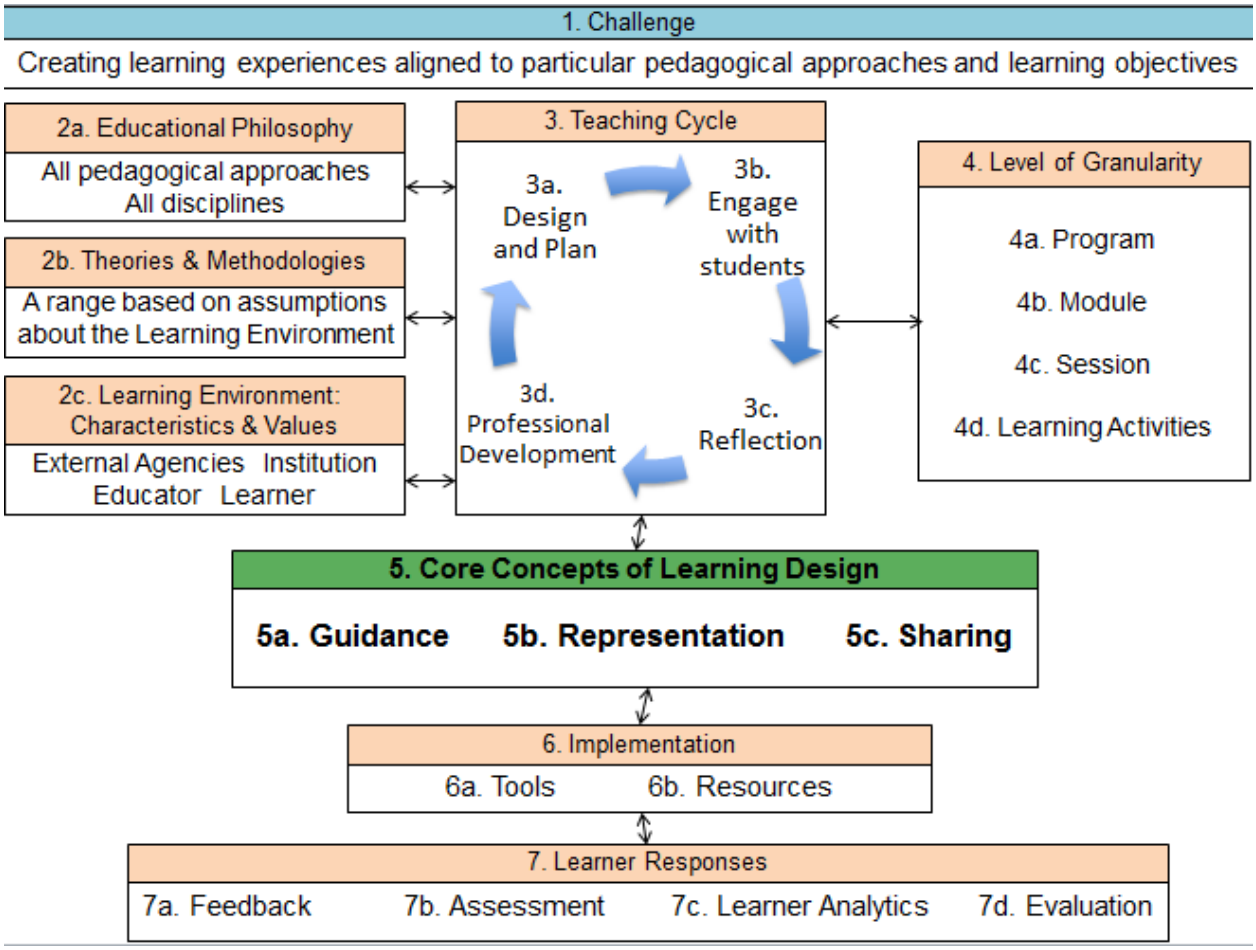

Figure 11: Learning Design Conceptual Map (LD-CM)

8.4 DECONSTRUCTING "TYPICAL" LEARNING DESIGNS USING THE LEARNING DESIGN CONCEPTUAL MAP (LD-CM)

What follows is the deconstruction of "typical" Learning Designs using the Learning Design Conceptual Map (see Figure 11). These designs from three broad discipline groups (Sciences, Professional Fields and Humanities & Social Sciences) have been mapped to illustrate how lecturers from these disciplines think about designing, planning and implementing their educational activities. Each component of the LD-CM, has been addressed individually to fully explore all aspects of the Map.

1. The Challenge

1. Challenge
Creating learning experiences aligned to particular pedagogical approaches and learning objectives

The overall statement of the challenge is "creating learning experiences aligned to particular pedagogical values and objectives". This vision of the general educational challenge has been phrased in a way that is applicable to many different contexts regardless of the particular pedagogical approaches of that context.

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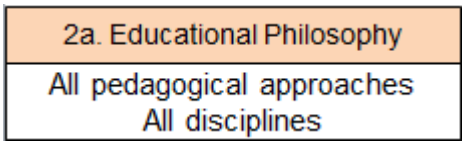
The approach starts by using the LD-CM where a chosen pedagogical approach can be described in the Educational Philosophy box. This choice is, ultimately, informed by evidence from the Theories and Methodologies box immediately below it, which deals with evidence from educational research. Different kinds of research evidence frequently provide support for different pedagogical theories – for example, quantitative analysis of small tasks might be used to support particular types of direct instruction theories, whereas broad qualitative analyses of student skills on reaching the end of their education might be used to support constructivist theories.

In practice, the actual pedagogical approaches and learning objectives are heavily influenced by the Educational Philosophy of the teacher, of which discipline has a major impact (Cameron, 2013). However, they are also determined by the Characteristics and Values of external agencies (such as government and professional bodies), institutions and teachers (and indirectly, students), together with the Educational Philosophy and Theories and Methodology that are relevant to any given educational context. Hence the top left section of the LD-CM provides a structure for analysing the broader educational context and how it impacts on representations of teaching and learning activities – these three components are discussed below.



2a. Educational Philosophy

This component of the LD-CM recognises the explicit or implicit pedagogical theories that underlie decisions about teaching and learning. It

has previously been established that discipline has a major impact via the pedagogical choices of teachers (Cameron, 2013), but policy decisions at higher levels (such as educational institutions or government education departments) can also affect educational philosophy. For example, the Professional Fields often require program/course approval from their professional bodies.

Different teaching approaches are used for different subjects, and at different stages in learning. Certain kinds of learning may benefit more from direct instruction approaches (e.g., language learning, basic mathematics), whereas other kinds of learning may benefit from collaborative or constructivist approaches (e.g., 21st century skills). However, to highlight our point we have chosen to illustrate those most "typical" to the disciplines.

Pedagogical content knowledge in a discipline involves having an understanding of what makes the learning of specific topics easy or difficult, the conceptions and the preconceptions that students are likely to bring with them to the learning of those topics (Shulman, 1986). It goes beyond knowledge of subject content to the dimension of subject pedagogical knowledge for teaching. Grossman (1990) describes four specific aspects of pedagogical content knowledge: conceptions of the purposes for teaching given subject matter; knowledge of the instructional strategies useful for teaching given content; knowledge of students' understandings and knowledge of the curriculum. Teachers who develop learning designs that focus on these aspects ensure close attention is paid to learning organisation, preparation, instructional skill and clarity of delivery. These teachers are likely to benefit

from decreased student attrition and greater student learning (Braxton, 2000).

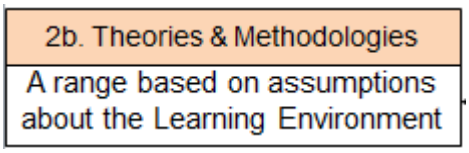
However not all teaching in higher education or further education environments is done with the best pedagogical reasoning in mind. "Signature" pedagogies of disciplines often exist simply as a consequence of tradition but they are pervasive (Shulman, 2005). They implicitly define what counts as knowledge in a discipline and how things become known. They define how knowledge is analysed, criticized, accepted, or discarded in that discipline. The pedagogies define the functions of expertise in a field, the locus of authority, and the privileges or rank and standing. They can even determine the architectural design of an educational institution which in turn serves to perpetuate these approaches (Shulman, 2005). Teachers draw heavily upon their own background and expertise to make learning design decisions using their discipline as a foundation for content selection, arrangement and conceptual integration. The local context also influences these planning decisions, ranging from the strong influence of student characteristics to the much weaker influence of facilities, resources and campus support services (Stark & Lowther, 1990).

How discipline content is taught is linked inextricably to the way knowledge is generated within the discipline and to how the discipline functions (Gibbs, 2000). Stark and Lowther (1990) concluded that teachers' learning design styles could be broadly grouped into two discipline-related categories: the first, those teachers whose decisions are discipline-identified, content-centred, and who viewed their roles as transmitting and replicating

knowledge. The second group consists of teachers who are less discipline-identified but instead see themselves as sharing interests and perspectives with colleagues in their discipline and who view their role as promoting student growth or skill acquisition. We will be concentrating on the practices of the former group in this analysis.

There is a sharp division between the facts-concepts-problem-solving goals (typically found in the Sciences) and the oral and written communication-creativity-social-self skills goals (primarily associated with the Humanities & Social Sciences) (Franklin & Theall, 1992). The learning design implications of sequential curricular content (most commonly found in the Sciences) elicit more of a consensus about the material to be taught, and put more pressure on teachers for coverage of the curriculum of each course. In contrast, the dynamic subjects (Humanities & Social Sciences) more readily present opportunities for change in educational outcomes, curricular content, approaches and technique (Stodolsky & Grossman, 1995). (For a more detailed analysis of how the disciplines approach teaching and learning, see Cameron, 2013).

2b. Theories and Methodologies



A wide range of theories and research methods are used to guide decisions about teaching and learning activities, as well as to evaluate the impact of those decisions. This includes theories about how people interact, about how institutions affect behaviour, theories of motivation and incentives, etc. Most importantly, there are many

different types of research methods used in education, including quantitative and qualitative research, action research, design-based research, experimental control studies, case studies, ethnography, etc. Differences in research methods lead to different kinds of evidence for educational effectiveness, which in turn is used to support different kinds of pedagogical approaches, which ultimately affects the day-to-day decision-making of teachers, and the policy directions of educational institutions.

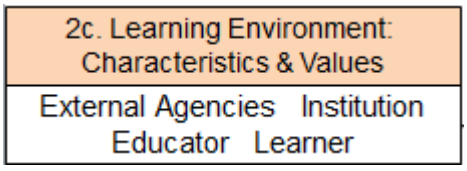
Content in the Sciences is typically fixed, cumulative and quantitatively measured, with the teaching and learning activities being focused and instructive. The emphasis is typically upon the academic informing the student. The discipline is typified as having an atomistic structure, concerned with universals, simplification and a quantitative emphasis. Content is predominantly analytical and seeks to understand wholes by identifying their component parts (Kolb, 1981).

Content in the Humanities and Social Sciences, by contrast, is reiterative, holistic, concerned with particulars and have a qualitative bias. Scholarly enquiry is typically a solitary pursuit, manifesting only a limited overlap of interest between researchers (Neumann, Parry & Becher 2002). It also tends to be more free-ranging with knowledge-building a formative process and teaching and learning activities largely constructive and interpretive.

The Professional Fields rely less than their Scientific counterparts on examining conflicting evidence and exploring alternative explanation. Nor is

precision and accuracy a vital criterion for validating knowledge (Donald, 1995). The Professional Fields face a singular challenge: their pedagogies must measure up to the standards not only of the institution, but also of the profession. Professional education is not education for understanding alone, it is preparation for accomplished and responsible employment.

The hard Professional Fields (eg. Engineering) derive their underpinnings from hard pure enquiry and are concerned with mastery of the physical environment and geared towards products and techniques. Soft professional fields (Education and Management) are dependent on soft pure knowledge, being concerned with the enhancement of professional practice and aiming to yield protocols and procedures (Biglan, 1973a).



2c. Learning Environment: Characteristics and Values

This component of the LD-CM can be used to describe how the context for learning affects the design of teaching and learning activities. The title draws attention to how both the characteristics and values of external agencies (such as government and professional bodies), institutions, educators and learners are relevant to understanding an educational context.

An educational institution can have formal education structures and accreditation, or it may have more informal structures. For example, an institution's focus on knowledge testing in formal exams in order to pass courses for a degree differs from a focus on practical abilities/competencies,

such as the ability to use a computer where there is no external assessment/certification. Explicit and implicit moral, political and religious values can also have an impact on a given learning environment via educational institutions, as well as via educators and learners. In addition, institutional characteristics include the physical and virtual environments available for teaching and learning. The institution's characteristics and values typically impact teaching and learning through affordances and constraints on the behaviour of educators and learners.

Educational institutions do not always have complete freedom to teach as they wish – it is more common for institutions to be affected by external agencies that constrain and direct their teaching, be it government education departments or industry and professional bodies. It is not unusual for institutions to be affected by many different external agencies, and the complexity of overlapping constraints and directions from multiple agencies is one of the growing modern pressures on institutions and educators.

Educators (teachers) bring different characteristics and values to their decision-making about teaching and learning activities. This includes the quantity, and style, of teacher training that has been received (if any), past experiences as a learner, the kind of classroom/online teaching experience of an educator, the role of other educators as peers and mentors, the self-perception of the educator's role as expert/facilitator/provocateur, the educator's values about the kind of learning that is important (and unimportant) for his/her learners, etc.

Compared to the Humanities & Social Sciences, where there is no definitive paradigm to provide a structured framework within which to organise, teachers in the Sciences show greater evidence of social connectedness on research activities, greater commitment to research, less commitment to teaching, the publication of more journal articles, but the publication of fewer monographs (Biglan, 1973a).

Teachers in the Professional Fields tend to look outside the institution rather than to internal sources of influence as they plan courses and programs. The reverse is true for those in the Humanities and Social Sciences. Consequently, Professional Field teachers need to continually remind themselves of important internal linkages, especially within the disciplines that provide foundations and contextual study for their students, while the Humanities and Social Science teachers need to be aware of the ways in which the external context might modify their plans and make content, sequence, and instructional process more relevant (Stark & Lattuca, 2009).

Learner (student) characteristics and values include responses to teaching and learning activities (e.g., whether students are comfortable with debate, or questioning the ideas of their teachers), their past learning experiences and how they shape current behaviour, their own values about what matters (and what doesn't) in their education, their levels of motivation and engagement, their goals for their future, etc.

There are many complex interactions among institutions, teachers and students in terms of characteristics and values. Different assumptions within

this part of the LD-CM will have different impacts on how teaching and learning activities are planned and delivered, and how students respond to these activities.

In the Sciences, students are required to apply hard facts and reliable data to a problem-solving situation, to consider possible outcomes, to hypothesize the most reasonable prediction, to perform a tightly controlled experiment to test the hypothesis, to measure the results meticulously, and to come to probable, carefully qualified conclusions based on the resulting evidence. Students flounder if they lack a reasonably retentive memory for facts, coupled with an ability to solve logically structured problems and, in many cases, adeptness in quantitative calculation. Many students complete scientifically based courses with very little need for skills in prose exposition, relying more on the report writing (Neumann, 2001).

In the Sciences student opinion has little or no place in the process, and students must establish the validity of the source when citing someone else's published opinion (Nilson, 1998, as cited in Neumann, 2001). Students experience a heavy structured workload throughout the degree course, with significantly more contact hours than in programmes in other areas (Neumann, Parry & Becher, 2002).

Students in the Humanities & Social Sciences have a very different experience. The emphasis in these areas is on producing students who can think laterally rather than linearly, who can express themselves with fluency, read rapidly and widely, and whose capability at mathematical manipulation

counts for very little. It is important for these students to be able to interpret and evaluate theoretical perspectives in the literature of their subject (Neumann, Parry & Becher, 2002). Courses in the Humanities emphasised creativity and develop personal attitudes toward subject matter and self-knowledge (Franklin & Theall, 1992). The student workload tends to be less formalised than their Scientific counterparts with relatively less timetabled time but an expectation that students will spend time independently reading, researching and drafting written work outside contact hours.

In the more Applied Professions, students are also expected to possess features of Sciences, such as a good memory for facts and a competence in problem-solving. However, a greater emphasis is placed on practical competencies and on the ability to apply theoretical ideas to professional contexts (Kolb, 1981).

Learner characteristics operate not only at the individual level, but also in larger clusters, such as the "student culture" of a particular class or a whole educational institution, and also wider cultural approaches to education, such as national attitudes. Students quickly become indoctrinated into the typical way of learning in a discipline, and if a teacher dares to offer a novel mode of instruction not typically used in the discipline, even if it is a more pedagogically sound approach, students can react quite negatively. Proponents of Problem-based learning pedagogy have documented this widely (refer to Cameron, 2010; Richards & Cameron, 2008).

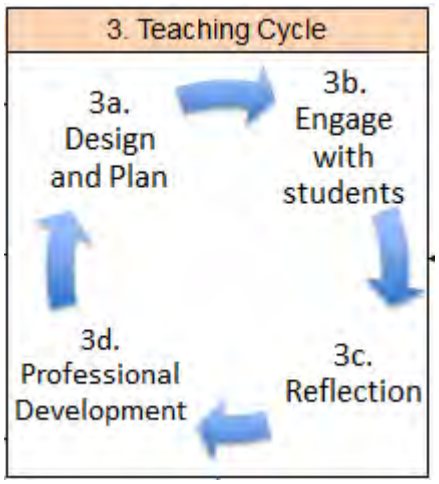
Of particular importance to recent educational reforms are the learner characteristics of developing graduate attributes/21st Century skills, such as critical thinking, teamwork, communication, inter-cultural understanding and creativity. These capabilities are generally designed to ensure that any graduate leaves the university with the skills that the institution feels its students will require to address future challenges and to be effective, engaged participants in their world (QUT, 2010; Macquarie University, 2010). Hence a more holistic approach is needed that includes the teaching of higher-order skills like critical thinking and problem-solving. The Sciences in particular, still appear to be focusing more on teaching facts (Cashin & Downey, 1995).

3. Teaching Cycle

This component of the LD-CM acknowledges how different stages in the process of teaching can impact on the design of teaching and learning activities.

3a. Design and Plan

The preparation that a teacher undertakes is crucially important, and this is a central focus of Learning Design. Braxton (1995) found that the Sciences place greater emphasis on cognitive goals such as learning facts, principles and concepts. The determination of teaching content is relatively straightforward and uncontentious. This means that a relatively limited amount of time needs to be spent on



course preparation (Smeby, 1996) and also that procedures for approving a new course or reviewing long-established one are not often problematic (Braxton, 1995). Teachers in the Humanities spend most time on teaching and preparing to teach while those in the Sciences spent the least amount of time in both areas (Neumann, Parry & Becher, 2002; Smeby, 1996).

But the LD-CM also draws attention to how a teacher acts "in the moment" – adapting their teaching to the changing dynamics of the classroom (or online).

3b. Engage with Students

Typically, Science teachers take turns in teaching basic courses using departmentally developed curriculum content (Hativa, 1997). This course rotation is based on the implicit belief that anyone can teach courses with "old" material, as this material, being the basis for all other courses, would have been mastered by all teachers during their own studies. For this reason, undergraduate tutorials are regularly conducted by PhD or post-doctoral students. This is easily done because it is not necessary to provide detailed descriptions of the content and method that underlie an activity as these are understood by anyone familiar with the discipline (Biglan, 1973a).

In contrast, the Humanities and Social Sciences place greater importance on a broad general knowledge, on student character development and on effective thinking skills, such as critical thinking (Neumann, 2001). When Hativa examined teachers' conceptions of goals of undergraduate instruction, the findings supported previous studies (Franklin & Theall, 1992;

Cross, 1991) that the Humanities & Social Sciences stress the promotion of creativity, oral and written communication, social skills and group work. Smeby (1996) found considerable difference in disciplinary practice. Much subject matter is open to interpretation and debate in the Humanities, so time and care needs to be taken in preparing courses and course review is also taken seriously because of the greater need to justify aspects of the programme (Braxton, 1995).

There is also considerable disciplinary variation between undergraduate and post-graduate teaching. Teachers in the Humanities teach more at undergraduate level than teachers in other disciplines, while those in the Sciences spend an average 25% of their time on supervision (Neumann, 2001). Murray and Renaud (1995) found that teachers in the Humanities foster student participation and those from the Sciences and the Social Sciences more frequently showed behaviours that facilitated structuring or organisation of the subject matter.

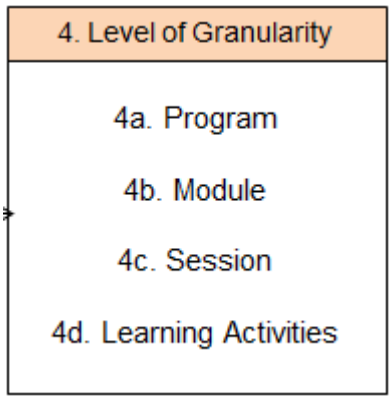
3c. Reflection

Reflection on teaching during and after the event is also of significant importance to future design decisions – understanding what went wrong in an unsuccessful class can change planning in the future. As Science teachers typically rotate through the teaching basic courses using departmentally developed curriculum content, there is little incentive to spend time reflecting on a personal level as they may not be required to teach the course again in the near future (Hativa, 1997). As Science teachers spend less time on teaching preparation and value teaching less than their counterparts in Humanities &

Social Sciences it follows that time spent on reflection and evaluation of their teaching is also significantly less than their Humanities counterparts.

3d. Professional Development

A more long-term view of the process of reflecting on teaching is captured in the "Professional Development" element, also sometimes called "Professional Learning", which would contain both formal Professional Development courses as well as the long personal journey of gaining experience as an educator, and how these influence subsequent teaching cycles of designing and engaging with students.



4. Level of Granularity

This component of the LD-CM illustrates different levels of granularity in the design of teaching and learning activities, such as how small individual learning activities build up to sequences or sessions. Collections of learning activities over time make up larger modules (like courses), and courses often combine to larger programs of learning, such as a degree or a year (or set of years) of school education.

When learning design is not done at a program level (which is most common in the Humanities & Social Sciences) the connections between the overview of discipline knowledge and the individual course can be lost. The problem, the Association of American Colleges believes (as cited in Stark,

1990), is not that the major discipline has failed to deliver certain kinds of knowledge, but that it often delivers knowledge without exposing students to the methods and modes of inquiry that created that knowledge, the presuppositions that inform it, and the consequences of its particular ways of knowing (Lattuca & Stark, 1994). Teachers are often accused of focussing so intently on the content of their discipline that they neglect to consider how students perceive the discipline. Teachers can help students understand their discipline by explicitly discussing its conceptual or logical frameworks, methods of inquiry and give them practice in the thinking and analytical skills associated with those methods (Stark & Lattuca, 2009).

These distinctions will, at times, have fuzzy boundaries and different terminology (particularly across different education sectors – e.g., universities versus schools), but the important issue for this mapping is that different kinds of decisions are typically made at each level. Individual learning activities involve decisions such as the phrasing of a reflective question (e.g., open or closed), the layout of an online resource and the structure of quiz items. Sessions tend to be made up of a range of learning activities, with the key focus being the learning objectives(s) of a set of activities, and the rationale for the choice and arrangement of tasks to achieve this objective.

Decisions at the Module level relate to how sets of Learning Activities relate to a larger unit – such as how the weekly lectures and tutorials are structured to cover the content of a course in a typical university setting, or how a set of different learning activities contributes to a larger unit of work over a number of weeks/months in a school. Program level decisions often

include high-level progression concepts, such as course pathways within degrees (and their prerequisites), or the structure of modules over a year in a school. It is also worth noting that broad learning objectives at Program and Module levels (such as 21st century skills) may cascade down into particular learning objectives at the level of sessions and learning activities.

The literature reports there are differences between the disciplines as to which learning designs, teaching methods and teaching activities are most commonly employed (refer Cameron, 2013). In the online survey undertaken (Cameron, 2017), participants, regardless of discipline, reported using the lecture and class discussion methods. These are traditionally associated with teaching at a university, so this was an anticipated finding,

The lecture seems to pervade all disciplines as the dominant mode of teaching (Ballantyne, 1999). Hativa (1997) found the large majority of classes are based on lecturing and usually include students' questions. Discussions were not frequently included in lectures and Socratic questioning used much less.

Particularly in the early years of study, Science courses are based on large group lectures, supplemented by class laboratory sessions, and in some cases, by fieldwork activities (Smeby, 1996; Hativa, 1997). In their lectures Science students observe demonstrations, and teachers write intensively on the board. For seminar-type study, the emphasis is placed on problem-solving in which smaller groups of students (often supervised by a doctoral or post-doctoral

student) work on the solution of predetermined questions related to the current lecture topics.

Survey participants reported that in the Sciences their peers most commonly used the lecture, class discussion and sometimes laboratory work in their teaching (Cameron, 2017). In the Professional Fields Problem-based Learning, Case Study and Small Group Discussion were common but in the Humanities and Social Sciences a much broader range of teaching methods and activities were employed. These included Case study, Inquiry-based learning, Debating, Brainstorming, Peer tutoring, Collaborative learning and Research activities.

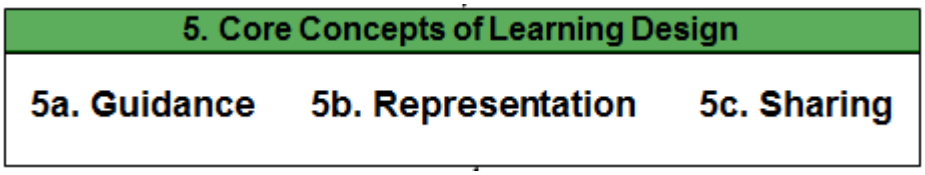
Humanities & the Social Science teachers spend the most time of any teachers on lectures, seminars and tutorials (Ballantyne, 1999; Hativa, 1997). The practice in the Humanities is to organise students in face-to-face settings in smaller groups. Tutorial teaching is also provided, in which students are encouraged, individually or in small numbers, to put forward their own ideas in the form of written essays or verbal presentation. During class time, Social Science students do a lot of individualised work, work on projects, work in small groups and have class discussions (Hativa, 1997). All of these practices can be seen to relate to the reiterative, open ended nature of the discipline's knowledge with its scope for individualistic interpretation. Newmann, Parry & Becher (2002) reported content summaries on handouts were rare.

In the Professional Fields the provision of practical experience is a predominant characteristic, though the nature of the experience shows some

variation. In the technically based professions, practice is liable to take the form of total immersion in either simulated or real professional work to gain practical knowledge. In the soft professions, class sizes tend to be small/moderate to facilitate discussion; the emphasis is on open-ended discussion and debate in seminars and tutorials. A unique feature of the soft professions is the tendency to include the contributions of experienced practitioners as a significant component in the teaching process (Neumann, Parry & Becher, 2002).

It is actually unclear why some Social Science & Humanities subjects place so little emphasis on practice in using standard methodologies and puzzling why some Sciences use so little discussion and present theory in so unquestioning a way (Gibbs, 2000). These may simply be recurrent practices which are performed habitually and in an unconsidered way. It is simply taken for granted that "this is what we do around here". One example is the use of teachers to simply transmit material to students. In some disciplines this is a recurrent practice, stereotypically in Maths and Physics (Trowler, 2009).

5. Core Concepts



At the heart of the LD-CM are the core concepts of Learning Design – most centrally the idea of a descriptive framework for representing and visualising teaching and learning activities.

5a. Guidance

Guidance covers the many ways that teachers can be assisted to think through their teaching and learning decision-making, in particular, how they can understand and adopt new, effective teaching methods. In some cases guidance incorporated into the representation/visualisation (e.g., patterns), whereas in others it is a complement to the presentation/visualisation.

Descriptive frameworks for teaching and learning activities are one of the core innovations of Learning Design, but there are many related issues. Any particular representation of a learning design can also include advice about the design, including advice about how the design was created (and hence how it could be changed) and also advice about implementing the design with students.

5b. Representation

The field of Learning Design is yet to develop a widely accepted framework for representation/visualisation of teaching and learning activities. However, aspects of a number of projects provide indications of what this framework might look like.

Learning Design projects have developed a number of different ways to represent/visualise teaching and learning activities that hopefully provide a glimpse of a future widely adopted framework for educational notation.

5c. Sharing

The "Sharing" element draws attention to the driver behind representation – the propagation of good teaching ideas from one teacher to another. Learning Design has a strong history of sharing, including the use of online repositories of learning designs (e.g., the LAMS Community) and communities for discussion of teaching ideas among peers (e.g., Cloudworks). Sharing in Learning Design is often under open educational licenses (such as Creative Commons licenses), and hence is part of the wider movement of Open Education, and related movements in open source software and open content.

Another central element is that of sharing – as the reason for describing good teaching ideas is to propagate these ideas among teachers, in order to ultimately improve teaching and learning widely. This idea supports one of the striking possibilities of Learning Design – the potential to take teaching strategies from one discipline (eg, PBL in Medicine) and propagate them to other disciplines by capturing the underlying pedagogic essence of the teaching strategy in a learning design (separate from any discipline content) in order to explore the potential use of this teaching strategy in a different discipline context.

From online survey data collected (Cameron, 2017), "Trial and error" and "Self-evaluation" were common sources of teaching knowledge after student feedback, which supports the notion that teaching in a university can be an isolated activity. Although 13 of the 14 participants reported discussing

learning designs, teaching methods and teaching activities regularly with peers, it was established in the interviews that many of the peers the participants consulted had no formal teacher training either. This finding also adds credence to Biggs (2003) assertion that those good teachers in a university are often simply "gifted amateurs".

Survey respondents were asked about barriers to sharing learning designs, teaching methods and teaching activities (Cameron, 2017). These fell into the following categories:

1. *Experimenting with teaching takes time*:

Four participants cited "workload issues" and/or "lack of time" as a barrier;

2. Little support from colleagues to change

Participants often felt quite alone when they wanted to try innovative teaching strategies and activities, with colleagues listed as a barrier to sharing teaching methods and activities:

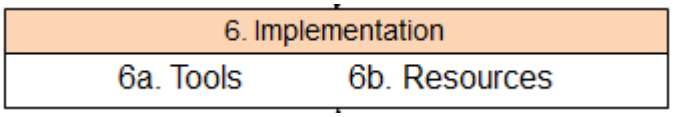
> *No-one wants to let go of the old ways*
>
> *Experienced teachers who think they know better are barriers*
>
> *Experienced lecturers are no so accommodating to new approaches … especially those involving technology.*

3. Lack of knowledge

Two respondents simply didn't know enough about the new strategy to understand how it would work in their classroom:

"I don't know how to apply the new methods."

6. Implementation



This component of the LD-CM draws attention to different Tools and Resources that are required during teaching. This could include physical tools for classroom activities (whiteboard, flipchart, pens, etc.) as well as educational resources such as articles, videos, etc. In online contexts, activities may require tools such as discussion forums, wikis, quiz systems, etc., and resources such as websites, online video, etc.

Lectures, tutorials and seminars, laboratory practicals, field trips and practicums are the main teaching modes within universities. Particularly in the early years of study, Science courses are based on large group lectures, supplemented by class laboratory sessions, and in some cases, by fieldwork activities (Smeby, 1996; Hativa, 1997). In their lectures Science students observe demonstrations, and teachers write intensively on the board. In line with the sequential and propositional nature of scientific knowledge, Newmann (2002) reported that the typical presentational technique was the lecture which frequently included the circulation of handouts to emphasise key points in face-to-face settings; and study guides, summaries and self-test questions in the context of online and distance teaching.

Humanities & Social Science teachers conduct class discussions and often use additional media resources (Hativa, 1997). In the Professional

Fields the provision of practical experience is a predominant characteristic, though the nature of the experience shows some variation

7. Learner Responses

7. Learner Responses			
7a. Feedback	7b. Assessment	7c. Learner Analytics	7d. Evaluation

The title "Learner Responses" refers to the many different types of information about student learning, such as learning outcomes, competencies, skills and understanding. While formative and summative Assessments are typical in many educational contexts, Learning Design draws attention to a wider view of responses from students. It also includes Evaluation of teaching, which may play an important role in future improvements to teaching practice.

7a. Feedback

Braxton (1995) reports that teachers in the Humanities and Social Sciences show more of an interest in students, student development issues and general undergraduate education than do teachers in the Sciences. Ratings of student satisfaction with their teaching in the UK, the US and Australia have consistently shown that some disciplines rate much better than others: the teaching experienced in the Humanities and Social Sciences is more highly regarded that in the Sciences (Scott, 2005; Neumann, Parry & Becher, 2002; Franklin & Theall, 1995; Cashin & Downey, 1995).

The online survey established that in all disciplines students' feedback was a major source of how the survey participants determined the effectiveness of their teaching (Cameron, 2017). On a number of occasions, the opposition to new teaching methods came from the students. This was also a common theme in the interviews (Cameron, 2017). In a climate when positive student evaluations are highly regarded when applying for promotion positions, this can be a real barrier to experimenting with teaching:

> *It takes time to change what you do and often students are resistant to change.*

> *Students don't know how to adapt.*

7b. Assessment

A heavy reliance on examinations and a low frequency feedback grading method is also associated with lower student satisfaction ratings (Franklin & Theall, 1992). The Sciences base a high percentage of the student grade on weekly quizzes and exams. The Humanities place a high percentage on essays, short answer papers, journals and attendance (Franklin & Theall, 1992). Formative assessment is common in the Humanities and Social Sciences and is considered preferable to an emphasis on exams (Neumann, Parry & Becher, 2002). The Profession Fields use a high percentage of student grades on projects, presentations and quality of class participation. Peer and self-assessment tasks are more common, with the intention being to improve self-reflection and practical skills (Neumann, Parry & Becher, 2002).

7c. Learning Analytics

Learning Design software systems provide an opportunity for deeper tracking of learner activity, as every step for every learner is recorded as a by-product of the use of technology to manage the sequence of activities. This includes not just learner responses to tasks but also time taken on each task. This allows for a richer analysis of learner behaviour at all stages of the teaching and learning process, rather than just at points of assessment.

7d. Evaluation

As with Assessment, the wide literature on Evaluation is relevant to Learning Design. A perspective on evaluation of special relevance to Learning Design is that students are increasingly interested in the teaching methods used in their courses, and some will intentionally choose courses and institutions that use (or do not use) certain teaching methods (such as Problem Based Learning in Medicine). The willingness of students to make choices about their future study based on their evaluation of different learning designs across courses or institutions illustrates that it is not only the evaluation of learning designs by teachers that will affect future decision-making – learner evaluations of learning designs will increasingly affect the decision-making of institutions and teachers. Generally, courses with higher student participation and feedback are associated with higher student satisfaction ratings (Franklin & Theall, 1992). Therefore, it is not a surprise that the Sciences do poorly as student enthusiasm is for classes that are structured to maximize personal engagement and collegial interaction (Light, 1992).

8.5 OVERLAYING THE "TYPICAL" TEACHING STRATEGIES ONTO THE LD-CM

In this section the "typical" learning design approaches used by three different disciplines are visualised. "Typical" learning designs have been mapped to the LD-CM (see Figures 12-14) to highlight differences and similarities between the teaching strategies, theories and practice employed by the different disciplines. This analysis will highlight the areas that might be "tweaked" to improve student engagement.

"Typical" characteristics of Humanities and Social Sciences

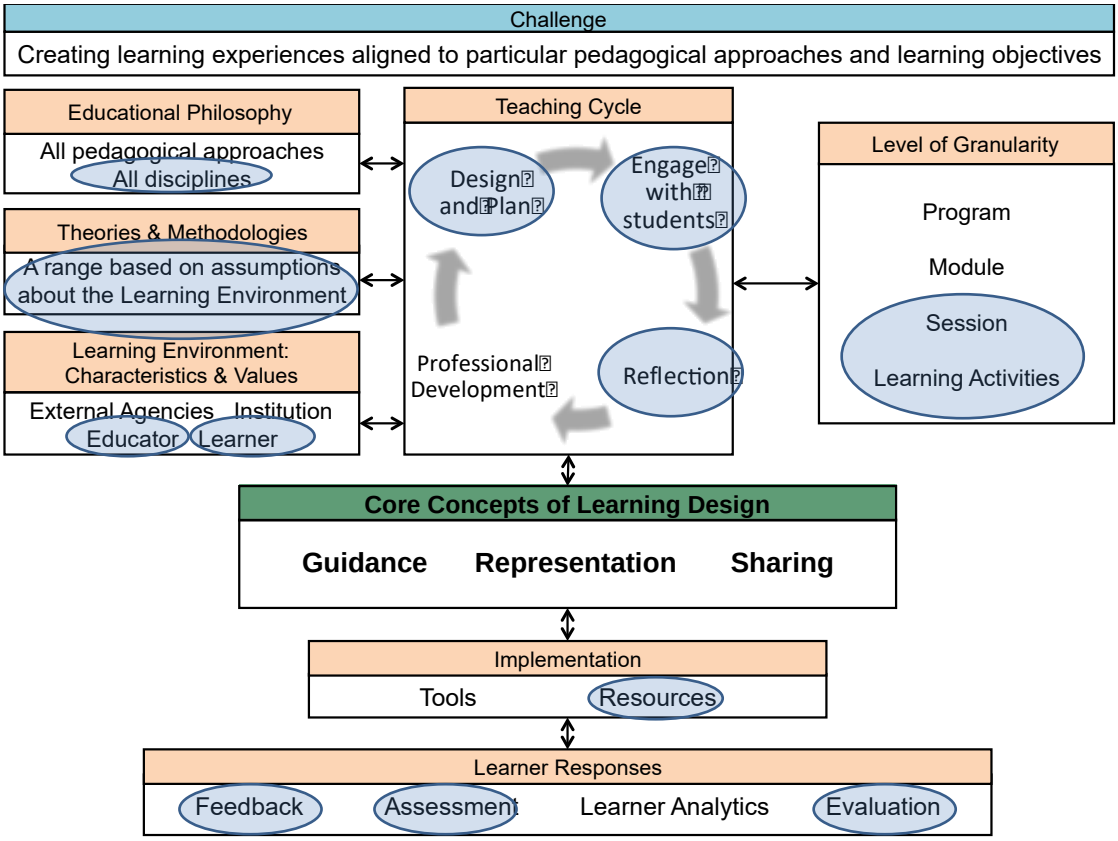


Figure 12: "Typical" *Humanities and Social Sciences* teaching strategies overlayed on the Learning Design Conceptual Map (LD-CM)

2a. Discipline philosophy

- Discipline traditions have a major impact on pedagogical choices
- Oral and written communication-creativity-social-self skills goals
- Regular change in educational outcomes, curricular content, approaches and technique.

2b. Theories and Methodologies

- Qualitative research methods predominate
- Teaching methods largely constructive and interpretive
- Content is reiterative, holistic, concerned with particulars
- Research is typically a solitary pursuit

2c. Learning Environments: Characteristics and Values

- Usually no definitive paradigm in which to work
- External agencies not regularly evident
- Emphasis on producing students who can think laterally, read widely and can express themselves

3 Teaching Cycle

- Spend a large proportion of their time planning for, and teaching
- Foster student participation
- Reflection and evaluation highly regarded

4 Level of Granularity

- Design not commonly done at Program level

- Students do a lot of work in tutorials and project work
- Practices relate to the reiterative, open-ended nature of the discipline

5 Core Concepts

- Individualised nature of lecturers' specialty leads to unlikely occurrence of widespread sharing

6 Implementation

- Class discussions, often use media resources

7 Learner Responses

- Highly interested in students' development issues
- Responsive to student feedback and evaluations
- Formative assessment common in the form of essays, short answer questions, journal writing and attendance

"Typical" characteristics of Sciences

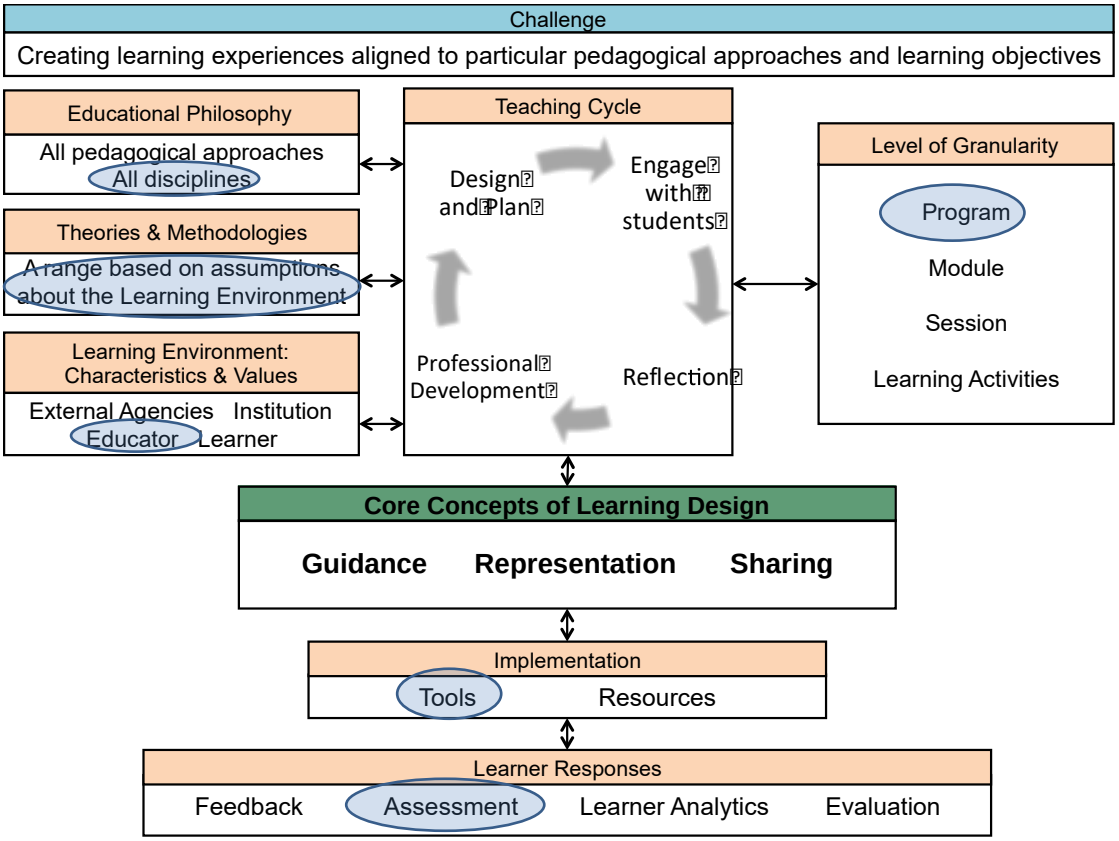


Figure 13: "Typical" *Sciences* teaching strategies overlayed on the Learning Design Conceptual Map (LD-CM)

2a. Discipline philosophy

- Discipline traditions have a major impact on pedagogical choices
- Facts-concepts-problem-solving goals
- Sequential curricular content with consensus about the content delivered

2b. Theories and Methodologies

- Quantitative research methods predominate
- Teaching methods largely constructive and interpretive
- Content is fixed, cumulative and learning activities focused and instructive

- Concerned with universals and simplification
- Research and teaching is typically performed in teams

2c. Learning Environments: Characteristics and Values

- Evidence of social connectedness in research,
- External agencies not regularly evident
- Students are required to apply hard facts and reliable data to problem-solving

3 Teaching Cycle

- Less commitment to spending time planning for teaching as is relatively straightforward and uncontentious
- Generally value teaching less than other disciplines
- Student opinion has little or no place, spend time learning facts, principles and concepts
- Little incentive for reflection on course content as they are frequently rotated through courses

4 Level of Granularity

- Departmentally developed curriculum
- Frequent course rotation common
- Students do a lot of face-to-face hours, often with PhD student tutors

5 Core Concepts

- High incidence of teaching rotation means a very high occurrence of widespread sharing

6 Implementation

- Frequently large-group lectures, supplemented by laboratory sessions, and sometimes fieldwork
- Teachers often write intensively on the board

7 Learner Responses

- Students satisfaction less than other disciplines
- Lecturers generally less interested in students' development issues than in other disciplines
- Heavy reliance on examinations and weekly quizzes with low frequency feedback grading methods

"Typical" characteristics of Professional Fields

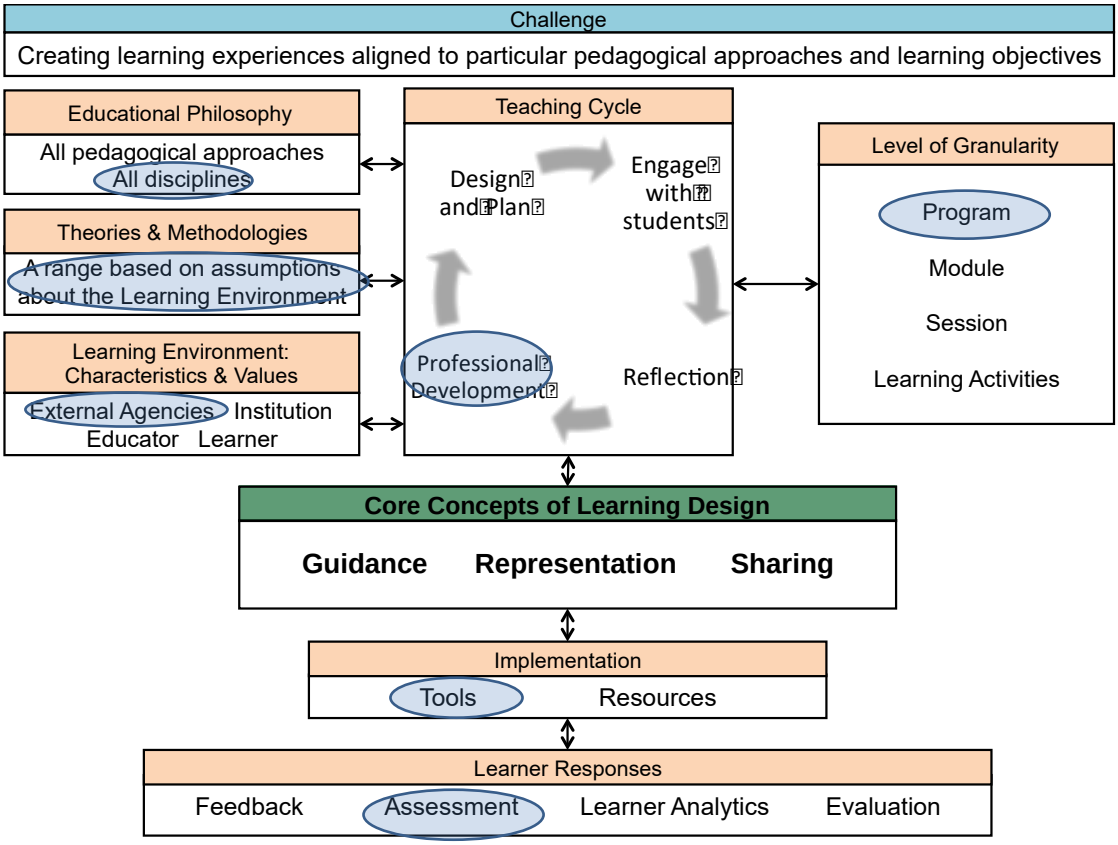


Figure 14: "Typical" *Professional Fields* teaching strategies overlayed on the Learning Design Conceptual Map (LD-CM)

2a. Discipline philosophy

- Discipline traditions have a major impact on pedagogical choices
- Practical activities often feature

2b. Theories and Methodologies

- Qualitative research methods predominate
- Pedagogies must meet the standards of the profession
- Education not for understanding alone, but preparation for employment
- Typically less emphasis on research

2c. Learning Environments: Characteristics and Values

- Influences tend to be outside the institution
- External agencies can constrain and direct their teaching
- Emphasis on producing students who can problem-solve and emphasis on practical competencies
- Students need to apply theoretical ideas to professional contexts

3 Teaching Cycle

- Spend a significant proportion of their time planning for, and teaching about real world case studies
- Foster practical activities
- Reflection and evaluation often part of a formal external agency review

4 Level of Granularity

- Immersion in practical experience is a predominant characteristic
- Students do a lot of work in tutorials and project work
- Emphasis on open-ended discussion and debate in seminars and tutorials

5 Core Concepts

- Commonly practicing professionals share personalised resources relating to the profession

6 Implementation

- provision of practical experience is a predominant characteristic, though the nature of the experience shows some variation

7 Learner Responses

- Students generally satisfied with courses
- Lecturers generally interested in students' development issues but frequently not professional academics
- High percentage of student grades on projects, presentations and quality of class participation
- Peer and self-assessment tasks are more common

8.6 MODIFICATIONS THAT MIGHT IMPROVE STUDENT ACHIEVEMENT

This research has highlighted a number of areas in Learning Design across the disciplines that could be explored further. Studies suggest that a link exists between teaching methods and student attrition rates (Scott, 2005; Braxton, 2000; Franklin & Theall, 1992). Courses with good student satisfaction ratings tend to be those in which teachers emphasise instructional goals other than learning facts or concepts, instructional activities other than lecture, and grading methods other than exams. Learning designs that use activities and grading methods that engage students actively are generally associated with higher student ratings. Courses that rely on the most passive instructional mode (the lecture) also tend to be the ones to evaluate student performance (exams) and to receive the lower ratings (Franklin & Theall, 1992). The Sciences are most commonly represented here.

8.7 CONCLUSION:

In this chapter the LD-CM was unpacked and used to represent three "typical" instances of learning designs (based on established practice of each of the disciplines) to foster clearer understanding of the theory and practice in these disciplines. It has been established that within a discipline patterns of teaching, learning design and assessment can be well-established, and there is often no imperative to change them (Adams & Buckland, 2000).

These designs are often habits that have been maintained and passed on from one generation of teachers to the next, partly because most teachers in higher and further education environments lack knowledge of recent theory and research on learning and teaching outside their own field, and therefore do not question the established traditions of pedagogy (Cameron, 2013; Trowler, 2009; Neumann, Parry & Becher, 2002; Franklin & Theall, 1992; Shulman, 2005; Hativa, 1997).

As the ultimate aim of Learning Design is to share good teaching ideas among teachers in order that students may learn more effectively (Dalziel, 2012), it is hoped that this chapter will promote this aim by helping teachers visualise their current teaching practices. This would encourage teachers to look within and beyond the local context in order to identify their own Disciplinary practices more clearly to determine what might be adopted or adapted to produce effective teaching and learning approaches for designing learning experiences for their students.

Chapter 9: Conclusion

The central research question explored in this thesis was: Can generic learning design templates be used to introduce new learning designs, teaching methods and/or teaching activities across disciplines in higher education? This study determined that generic learning design templates can provide a means for educators to access a broad range of learning designs but there are barriers to sharing these in the Higher Education (HE) sector.

The "holy grail" this thesis sought to discover was a mechanism by which high quality learning designs could be shared across disciplines. If the work of innovative teachers who kept their students engaged and well-informed could be shared, then others could replicate these lessons in their own classrooms and achieve similar student satisfaction. While generic learning designs may not be the catch-all solution initially expected when this research was begun, they served an instructive purpose when introducing new learning designs, teaching methods and/or teaching activities. This thesis has provided further evidence that undertaking collaborative learning design activities should be considered vitally important when striving for quality teaching and learning, high student engagement and low student attrition.

However, while undertaking the journey, the complexity of the teaching and learning HE environment was revealed. Vastly increased student numbers now mean the HE sector is a mass market but there are few examples where a

mass produced "one-size-fits-all" solution to learning environments has been successful. Paper 1 outlined:

9.1 FACTORS THAT AFFECT HIGHER EDUCATION EDUCATORS

1. The diversity of the Higher Education context in Australia

HE educators are now asked to design learning for a growing number of students with increasingly diverse backgrounds, with less financial support per student than in the past.

2. Regulatory Curriculum requirements

Controls over what HE educators might teach have been tightened so that a broad range of stakeholders now have input into this process.

3. Educator knowledge

HE educators are commonly expected to design learning environments that demonstrate current knowledge of their subject content, pedagogical practices, learning design and to deliver it employing the latest technologies.

4. The collaborative design process

There is increasing recognition that the best results are achieved if educators with different skills and knowledge work together when designing for learning.

5. Evaluating learning and teaching

A full range of learning and teaching data are being collected, measured, analysed and reported on and educators find themselves accountable for these results. Quality Assurance procedures have been introduced to ensure public monies are being well spent and a quality student experience is being delivered.

6. Student voice

The profile of the student voice has risen: Student retention is important to the financial future of institutions so Administrators need to maximise student success; and the introduction of significant tuition fees has resulted in some students seeing themselves as customers and are demanding value for money.

Students are now partners in the learning process in the HE sector, and as such, their needs should be central to the designing for learning process. While it is currently not common to find courses co-designed with students, student experience input is frequently a routine part of course evaluations. In this way, past student experience informs future iterations of a course. However, it is emerging that students have not always been asked questions that have real impact to improving learning design. With the introduction of more precise data from the field of Learning Analytics, designers may be able to evaluate learning designs in real time, i.e. which resources students are spending most time with; which resources remain untouched; what activities were completed. Additionally, current students can be provided with some

control and responsibility over their learning environment by offering them some choice in modes of delivery, teaching strategies and activities.

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These factors illustrate how complex designing for learning in HE environments is but this research demonstrates how much the various facets of Learning Design can offer.

The Field of Learning Design

Learning Design theory, methodology, frameworks and practice can be used effectively as a basis for collaborative sense-making, exploration and pedagogical innovation when designing for learning. This thesis confirms what has been widely reported in the Learning Design literature in that there are generic underlying Learning Design principles that can be employed to embed good learning practice. When applied, the use of these principles can lead to an improved design process and product. As such examples are documented, the field continues to develop. As it currently stands, the field lacks clear definitions and is under-developed.

The Learning Design Process

In this research, generic design templates were successfully introduced during a workshop on Learning Design. They were used as a starting point for further development, where more specific and personalised activities were designed. There are now successive examples where Learning Design workshops have successfully introduced similar tools that assisted designers to think about the designing for learning process (Conole, 2009; Manton &

Masterman, 2007). During this process, the intent and pedagogy are able to be separated from the content and made visible. While the generic templates were enthusiastically received by the study participants, during the workshop epistemic fluency narratives were provided. Markauskaite and Goodyear (2015) note that with design patterns, an accompanying narrative is frequently required to assist the reader to decode all the intentions.

If given time, designers are able to reflect, trial and evaluate. If it is a collaborative process, then a wider range of perspectives might be incorporated in the initial stages. It has now emerged that the educative process of Learning Design is more influential and has a longer term effect than the tools introduced at the workshops (Manton & Masterman, 2011). The design process can change thinking and has been recognised as a transferable skill.

The Learning Design Product

The generic learning design templates represented learning designs that had been researched and successfully trialled in a variety of contexts. They served as a form of documentation of specific learning activity.

The work by some of the learning design community to develop a means of documenting learning designs simply, concisely and accurately is an essential precursor to being able to readily share learning designs, teaching methods and/or teaching activities. The general classroom practitioner needs to be able to quickly understand the intention, content and pedagogy of a learning design, teaching method and/or teaching activity from a

representation. This is also a fundamental requirement if automating learning design delivery is to be undertaken.

9.2 LIMITATIONS OF THE RESEARCH

The initial intention of the study was to achieve a comprehensive understanding of what effective learning designs were being used in a broad range of disciplines in Australian universities and how they might be shared. It is recognised that the HE sector is quite diverse in Australia and to provide an accurate picture of what is occurring throughout the sector at any given time would require thousands of responses, which this project did not achieve. While the total sample sizes (n=14; n=16; n=6) could not be considered in any way comprehensive, the data collected as part of this study provides a detailed description of what was being taught across the disciplines in 8 different institutions in Australia. The sample provides a snapshot of practices among the participants in those institutions involved directly in the study.

Additionally, a concern was felt that our participants may not be "typical" of lecturers in their disciplines. In the "Current Use" survey 100% of the respondents described themselves as an 'innovative teacher' and prior to the "Intro to LD use" survey, participants had attended a workshop focussing on learning design. By attending a learning design workshop, it is likely these lecturers had an active interest in innovative teaching so these participants may not be a truly representative sample of the general teaching population in their discipline. An attempt to mitigate this made by asking these lecturers to also report on the practices of their peers. However, in light of the fact that

sharing was reported as not being a widespread behaviour among lecturers, this may be of limited value.

In all forms of data collection in the study, the participants were self-reporting. As professional educators, these participants may have wanted to be seen to be flexible, adventurous and innovative so they may have exaggerated the range of their learning designs. To test and validate these results, a study examining assessment tasks and unit outlines for the courses they designed is planned for the future.

9.3 SIGNIFICANCE OF THE RESEARCH

With the relationship between student engagement and learning designs, teaching methods and teaching activities established in the literature, this study provides a snapshot of how learning is currently being designed for in six Australian universities. This research determined that there is still some bias toward the traditional discipline stereotypes, especially in formal assessment activity.

However, innovation, creativity and other soft skills, such as key graduate attributes, are being addressed in many tutorial classrooms across all disciplines but not as a result of a systematic institution-wide approach to teaching and learning quality throughout the institutions.

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results, a study examining assessment tasks and unit outlines for the courses they designed is planned for the future.

9.4 RECOMMENDATIONS FROM THE RESEARCH:

Upon completion of the exploration of the theoretical underpinnings of the field of Learning Design and the two research studies, a range of recommendations emerged that can be targetted at the following stakeholder groups:

Academics who design learning environments:

It has been established that while most HE educators have comprehensive subject expertise, many have no formal teaching qualifications. The research reviewed for this thesis highlighted how frontline educators need to have access to knowledge about how their students learn, what engages them and that they need to discuss this with their students if they are to achieve optimum results. The "Current Use" survey reported in Paper 4, described the benefits to educators of sharing their learning design knowledge, being open to new ideas and collaborating wherever possible. While obtaining formal teaching qualifications would be recommended as an ideal goal, at the very least, educators should become aware of the Scholarship of Learning literature (SoLT) in their field and actively engage colleagues in discussions about teaching and learning. Additionally, Papers 1, 4 and 5 each concluded that those who design HE learning environments (as opposed to simply delivering it) should seek assistance from those with expertise in learning design, pedagogy and technology enhanced learning (TEL) and relevant stakeholders,

to ensure that the best possible learning environment is produced. This may require moving the focus from delivering content, to designing for the student learning experience (Mor, Ferguson & Wasson, 2015).

Heads of Discipline Departments:

In Papers 3 and 5 it was stressed that discipline Heads need to recognise potential biases and signature pedagogies of their discipline that negatively affect student engagement. Additionally, in Paper 4, it was recommended a culture that promotes the value of quality learning environments should be established. Staff need to be encouraged to research and discuss teaching practice (SoTL) as it applies to their discipline. Participants in the "Current Use" Survey suggested opportunities should be created for them to have a forum to showcase what worked, and what might need improvement in their teaching practice. Paper 1 made a strong case that when developing new courses, or redeveloping existing ones, a collaborative approach should to be adopted. Including professionals from outside the discipline, eg educational developers and TEL specialists is recommended. Being open to the effective learning designs, teaching methods and/or teaching activities being employed in other disciplines was highlighted in both Papers 3 and 5 as another means of improving student engagement and attrition in the discipline.

Central Teaching and Learning Units

While educational/instructional designers are typically skilled in the pedagogical structures of delivering learning and of TEL affordances, the research reported in the "Current Use" survey highlighted how rarely their

expertise is actively sought from HE educators. Generic assistance was considered of limited value by the educators (despite the evidence reported in Paper 5 that effective teachers in all disciplines had a tendency to use similar learning designs). It is therefore recommended that educational /instructional designers develop specialist discipline expertise to ensure that "signature pedagogies" are acknowledged and that the advice offered is relevant and considered credible by those in the discipline. The studies referenced in Paper 1, also reported on the benefit of a collaborative developmental approach to learning design, which recommends the involvement of cross-institutional learning design teams.

University Administrators

This research confirmed that high quality learning designs, teaching methods and/or teaching activities can be an important factor in creating an environment of high student engagement and retention in the HE sector. Additionally, the 2013 Higher Education Standards Framework requires institutions be audited to ensure teaching and learning is of a high standard. Administrators need to identify the current learning design practices, processes, pedagogies and tools used in their institutions and evaluate if they have been designed with student-focussed learning in mind. This would identify if an institution-wide improvement plan needs to be developed and implemented. It is also recommended that Administrators in the sector prioritise the value of pedagogical knowledge and provide the resources necessary to support the practitioners in their institutions who are designing learning environments.

Learning Design Researchers

Throughout the duration of this study, the field of Learning Design continued to develop. However, the theories, methodologies and concepts around the field still need further clarification and definition. There has been a recent resurgence in interest in the field globally with a number of Learning Design Special Editions being prepared in significant international journals. To avoid unnecessary duplication of effort, those engaging in research in the field need to continue the dialogue established over a decade ago. Key players in the international Learning Design research community met annually for a period of 7 years to share and push the research ideas forward. The Larnaca Declaration (2016) was a product of one of these meetings.

Additionally, the key Learning Design research needs to be distilled and the essential ideas and concepts communicated effectively to the practitioners who are designing for learning. There is still much work to done but as the work establishes itself as a successful means of demonstrating how learning is best designed, then efficient, effective and productive HE learning environments will become more common.

Students

Paper 1 reported how students have become more diverse in the sector. Their engagement in their learning and its relationship to student attrition rates, has significant impact on any HE institution. Students should be encouraged to take responsibility for their own learning and be prepared to become active participants in the learning environment. In the "Current Use" survey, some educators reported innovative teaching methods were rebuffed

by students and their teaching evaluations reflected this. Both research studies undertaken in this thesis established how influential student evaluations are to future learning designs so it is recommended that students be made aware of their role as partners in their learning journey.

9.5 FUTURE RESEARCH DIRECTIONS

The initial intention of this study was to achieve a comprehensive understanding of what effective learning designs were being used in a range of disciplines in Australian universities and how they might be shared. While this study shed light on specific participants, the sample size was too small to provide a clear picture of what is occurring in the majority of HE classrooms. A much bigger study is needed to do determine this. That research could then form a solid foundation on which to develop streamlined processes to collect and disseminate best practice - as the Department of Education & Training reported a need to do (DET, 2017).

This study also highlighted the value of research into the Scholarship of Learning and Teaching (SoTL) across all disciplines and the role it might potentially have in improving student engagement and retention. Frontline educators need to have access to up-to-date research about how their students learn, what engages them and that they need to discuss this with their students if they are to achieve optimum results. This includes further investigation into the potential biases and signature pedagogies of specific disciplines that negatively affect student engagement.

Additionally, as a relatively new field, there is also much work still to be done in researching Learning Design practices. Methodologies, models and frameworks need to be more clearly defined and articulated. Then the key Learning Design research needs to be distilled and the essential ideas and concepts communicated in a way that is readily understood by any practitioner who is designing for learning.

The emergence of big data and Learning Analytics has the potential to provide future research opportunities into how students are actually using their learning environments and how their experience might be improved. This work might lead to the development of systems to inform educators about student performance so they the course design might be adapted in real time and introduce immediate support structures to improve student engagement and performance.

A system also needs to be developed to ensure all this new research can be fed through to those developing new courses or redeveloping existing ones. Sharing this research widely among academics might provide a foundation to improving teaching and learning across disciplines. This will not be an easy task and this study clearly demonstrated that currently there are numerous barriers to sharing knowledge across disciplines and universities. However, it is hoped that this research has contributed to assisting future research into the efficient sharing of effective teaching and learning practices throughout the HE sector.

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Appendices

Appendix 1: Definitions

Discipline

In any discussion about the importance of the differences between the disciplines, it is important to understand what is meant by "discipline". There is no definitive definition of a discipline and it can be viewed in many different ways: a field of study, a mode of inquiry, an organized body of knowledge, an interrelated set of interests and value commitments, or a set of objects or phenomena that humans have tried to explain (Dressell & Marcus, 1982). For the purposes of this study, Donald's definition will be used:

> "A body of knowledge with a reasonably logical taxonomy, a specialised vocabulary, an accepted body of theory, a systematic research strategy, and techniques for replication and validation." (2002, p. 8)

For the analysis of discipline difference required for this study, Stark & Lattuca's Typical Groupings of Academic Fields (2009) has been adopted. This division is the most consistent with recent research. It involves four divisions:

- Humanities, (eg. Classics; literature; history; modern languages; music; philosophy);

- Social Sciences, (eg. Anthropology; economics; geography; political science; sociology);
- Sciences, (eg. Anatomy; biology; chemistry; computer science; maths; geology; physics); and
- Professional Fields, (eg. Architecture; business; communications; education, engineering; nursing; social work).

Engagement

Engagement is "meaningful student involvement throughout the learning environment" (Martin & Torres, 2016 p. 1). Fredricks, Blumenfeld & Paris (2004) expand on this to state that student engagement typically includes three dimensions:

• Behavioural engagement: focusing on participation in academic, social, and co-curricular activities;

• Emotional engagement: focusing on the extent and nature of positive and negative reactions to teachers, classmates, academics, and school;

• Cognitive engagement: focusing on students' level of investment in learning.

Generic Template

In this study, generic templates were used to describe the learning designs. For the purposes of this study, a generic template is defined as:

"A learning design pattern that is commonly derived by removing the subject content from a successful learning activity and distilling the activity down to its integral pedagogical parts. It represents the underlying structure so that content and resources can be added to customise the template" (Cameron & Campbell, 2010, p. 1915).

It is proposed that the generic template can be used to represent any learning and teaching activity, regardless of pedagogy, mode of delivery or content. For a further discussion about the neutrality of generic learning designs see Dobozy & Dalziel (2016).

Learning Design

Because the term "learning design" has come to have a variety of meanings, it will be useful to define each, consistent with recent convention. The remainder of this chapter consists of Paper 2: "How learning design can illuminate teaching practice" (Cameron, 2009) which explores the definitions of "learning design" in its various forms of usage. Since this paper was published the field has been more comprehensively documented in the Larnaca Declaration by a group of interested academics (www.larnacadeclaration.org). How the findings of this current study relate to

the core concepts of this new work is explored in Chapter 7: “Exploring the Learning Design Conceptual Map”.

Retention

Retention is calculated by the Department of Education and Training definition in the following way: “The Retention rate for year(x) is the number of students who commenced a bachelor course in year(x) and did not complete in year (x), and continued in year(x+1) (retained students), as a proportion of all students who commenced a bachelor course in year(x) and did not complete in year(x).” (DET, 2017, p. 18).

Appendix 2: Pedagogical Planners

Foreword to Paper 7

This paper describes the tools used in this study to introduce a number of learning designs to the HE educators interviewed – the generic template and the LAMS Pedagogical Planner. At the time of writing there were a number of these tools being introduced to assist designers to "visualise" their designs. This process appears to have a number of benefits (Conole & Wills, 2013, p. 27):

- It can help guide the designer's thinking;
- It helps make the design explicit and shareable; and
- It provides a means of representing and articulating the design process.

Only one of the products listed as "being under current development" in the following paper continues to advance: The Learning Designer (https://sites.google.com/a/lkl.ac.uk/ldse/). Other systems have emerged in recent times and a number of these can be found listed on the Learning Design Grid webpage (http://www.ld-grid.org/resources/tools).

A detailed comparison of five of these tools was completed in 2013 (Prieto et al.) but these have also failed to gain widespread traction.

Paper 7: Planner tools – Sharing and reusing good practice.

Introduction

A number of projects teams are currently developing tools that use generic templates to share and reuse good teaching practice. They hope to introduce educators to the learning design process so that they might develop their own effective and pedagogically sound learning activities. In this way, they are encouraging the sharing and reuse of good practice in teaching and learning without requiring lecturers to become experts in learning design or theory.

Background

Learning design help may be on hand at their institution in the form of professional development staff, however, it has been found that most university lecturers do not avail themselves of expert assistance when planning courses even if it is readily available and they rarely read educational literature (Stark, 2000, Knight, 2004). Instead lecturers rely on their own ad hoc observations because the information that was made available to them about learning and teaching in the past was not meaningful. As a result, these lecturers attempt the complex and challenging task of effective teaching with no training, nor do they intend to make any attempt to develop their teaching skills in the short term.

If much of the creativity and power in the lesson lies in the learning design as some suggest (Toohey, 2002), then planner tools may be of some

help to these lecturers. By documenting the ideas which become the focus of study, the learning activities and the means by which student achievement will be assessed, learning designs can be shared. (Of course the way in which the curriculum is brought to life is equally important, but the power of good teacher-student interactions is multiplied many times by good learning design.)

Heathcote (2006) suggests an ongoing obstacle to the widespread adoption of effective and engaging learning design is the degree of pedagogical understanding required by a lecturer to make the most of the available resources. There is a concern that before any learning activities are designed, lecturers must, tacitly or explicitly, know the principles of learning and how students learn (Ally, 2004). This is especially true for online learning, where the lecturer and student are separated. The development of effective learning designs should be based on proven and sound learning theories but unfortunately some lecturers have not obtained that knowledge as part of their preparation to teach in the higher education sector. A planning tool can offer a very practical approach to learning design for lecturers who appreciate the potential significance of their teaching role but do not have a strong educational background and are at a loss as to where to start.

Sharing and Reuse

The benefits of sharing and reusing learning designs have been well documented (Philip & Cameron, 2008). Sharing and reuse can conserve time and effort in creating learning designs by:

- providing exposure to models of best practice;
- providing scaffolding and mentoring for new teachers;
- being a source of inspiration to even experienced teachers;
- facilitating collaborative review, reflection and evaluation of learning designs;
- allowing learning designs to be meaningfully archived and catalogued;
- facilitating communities and professional and student networks.

Those investigating learning designs are becoming more concerned with the value of the underlying learning design of good practice. Boyle (2006) suggests that in terms of sharing, it is the scaffold, the "pedagogical pattern", that potentially provides more opportunities for reuse than the content of the learning design itself. He is particularly interested in the pedagogical commentary which would ideally accompany a learning design, providing a contextualized rationale for the design of the resource.

According to Laurillard and McAndrew (2002), to be really useful, sharing of good pedagogy should be undertaken in a holistic way: there should be full transference of the learning design with detailed information about intended outcomes, modelling of the learning experience and the context of implementation. That is, they suggest a learning design is more transferable when it is not de-contextualised, and the conditions of learning are specified.

For some, the concept behind reusable learning designs is that "an activity once specified clearly enough is reusable in a different subject matter,

merely by changing the resources" (McAndrew, Weller & Barrett-Baxendale, 2006, p. 52). For example, an online debate in History could have the same underlying pedagogical structure as a debate in Psychology. By changing the learning objects or resources within the learning design, the debate becomes reusable in other contexts. While this argument is appealing, and the authors have observed instances where learning designs have been reused in this way, there is evidence that there may be a greater tendency for teachers to repurpose learning designs in an amended form for the new context, rather than taking the template and using it "as is". Research findings in both Australia and the United Kingdom corroborate this. In each case, learning designs created using LAMS software were more likely to be used by teachers, not in their original form but as models for their own original designs (Philip, 2007; Walker & Masterman, 2006; Lucas, Masterman, Lee & Gulc, 2006). It is suggested that teachers are using the designs for inspiration and modelling, rather than direct transference.

It seems reasonable, therefore, to expect that the sharing and reuse of good teaching methods and exemplary learning designs be common practice but there is an acknowledged gap between teachers' professed positive attitudes towards sharing teaching and learning resources, including learning designs, and the actual practice of reuse (Walker & Masterman, 2006; Woo, Gosper, Gibbs, Hand, Kerr & Rich, 2004).

There are a number of barriers to sharing and reuse (Philip & Cameron, 2008). These include:

- The inability to easily customize and edit learning designs to ensure currency, or so as to better suit the subject area, grade level and learning context.
- Poor or inadequate search and discovery tools within the repository - if it cannot be found it cannot be reused or shared.
- Insufficient examples, thereby limiting selection and choice. This is as a direct result of many teachers' lack of enthusiasm to offer up their own work for sharing. Reusing learning designs created by successful teachers is a means of sharing innovation and exemplary lessons whilst at the same time conserving resources. It is hoped that the introduction of the new planning tools with their visual and practical approach will encourage more widespread sharing and reuse of learning designs.

Good Practice in Teaching and Learning in the Higher Education Sector

A number of teaching strategies have been highlighted in the literature as representing good practice in teaching and learning. It is suggested that lecturers adopt a variety of pedagogical approaches and they should be able to explicitly acknowledge any discipline specific skills; encourage higher order thinking; practice reflection (both students and staff) and adopt student-centred teaching methods. Any planning tool that is to promote good practice should be able to accommodate all of these things.

Additionally, an effective planning tool should help a lecturer integrate professional practice with theoretical knowledge and then guide them through

the process of reflection on that practice. Hence, the level to which a planning tool can stimulate interest in the process of improving as a teacher and encourage lecturers to modify their practice in small, highly practical ways at an early stage in any programme or improvement, will be one of the criteria against which its effectiveness will be measured.

Ideally, the new tools will stress the core elements that should be followed if a learning design is to be a success and pull together the lecturer's thinking into a clear, definable structure. These tools should include details about the nature of the students, types of technology and learning activities, pedagogical approaches, the learning environment both physical and virtual, learning outcomes and the roles all the participants (John, 2006).

To establish to what extent the current planning tools reflect good practice in teaching and learning in the higher education environment, it is necessary to carefully look at that environment. The sector has been put under pressure in recent years by expansion and restructure. Not only are many lecturers now faced with larger class sizes, students have also become quite diversified in terms of ability, motivation, access and cultural background. This change has created an atmosphere where some lecturers are rethinking their teaching approaches and are seeking out what is known about facilitating effective learning. This challenge is one that a planning tool may be able to address.

Expert teaching at university level now requires mastering a variety of teaching techniques and being able to encourage most students to use the

higher cognitive level processes that the more academic students use spontaneously (Biggs, 2003). Therefore, to be effective, lecturers need to draw upon different research, strategies, approaches and theories - not just traditional ones. Hence, these new planning tools need to be able to accommodate a variety of approaches to learning, different modes of delivery and a range of key principles of effective teaching in higher education and adult learning.

Finally, the use of new technologies in universities is growing rapidly with many claims for its increasing impact on the processes and outcomes of teaching and learning. Therefore, any planning tool that is being designed for widespread usage will need to accommodate all the different facets of teaching and learning in the higher education environment and be able to embrace technological integration.

Planning Tools and Documenting Learning Designs

Traditionally, a written lesson plan is how learning design has been documented and the practice of learning design, although a relatively new term, has been implemented by classroom teachers for decades. Lesson planning involves the formulation of learning goals and objectives and the design of teaching and learning resources and strategies that are best suited to achieve these objectives (Kinchin & Alias, 2005). It involves sequencing appropriate learning activities in a logical order and designing assessment tasks and lesson evaluation criteria (McCutcheon, 1980).

Although a variety of written lesson plan formats and approaches are in use, the dominant model has varied little from its introduction by Tyler's *Basic Principles of Curriculum and Instruction* which was published in 1949. This model has tended to encourage conventional, structured and linear approaches to learning, whereas current educational theory is now promoting a more student-centred, constructivist and authentic approach to teaching and learning (Oliver & Littlejohn, 2006).

Attempts are currently being made to produce a comprehensive system that utilises a consistent data standard and vocabulary to describe the teaching and learning environment and the different theoretical approaches to learning employed. Documenting a learning design can help teachers prepare for instruction; enables them to consider different options and to be more flexible; assists with evaluating instruction; and helps them to build up confidence in their teaching (Marsh, 2004). This should be justification enough for the documentation of learning design but another practical advantage of documenting a learning design is the ability to share it and/or reuse it, and, ideally "plug and play" it (Cameron, 2007). This is a valuable resource to a time-poor profession such as teaching but unfortunately, issues of inconsistent standards and technical incompatibilities mean that it is not an easy task.

As the new planning tools adopt a consistent and compatible approach to the description of learning design, developers of teaching programs and resources will become more effective in:

- documenting the teaching strategies used in, or with, resources;

- establishing and adhering to prescribed procedures for assuring the consistency of that documentation;
- reusing elements of existing teaching resources;
- guaranteeing portability between systems;
- readily adapting designs; and
- collectively authoring and sharing designs (Beetham, 2004).

Using a Generic Template Approach

A generic template is a learning design pattern that is commonly derived by removing the subject content from a successful learning activity and distilling the activity down to its integral pedagogical parts. It represents the underlying structure so that content and resources can be added to customise the template.

Advantages of Generic Learning Designs:

- They facilitate rich learning experience based around an activity approach that learning design encourages, over the more instructivist approach afforded by many existing learning management systems.
- They are particularly useful in the initial phase of learning design to trigger thinking about new approaches, activities and strategies (Bennett, Lockyer, & Agostinho, 2004).
- They allow designers to use consistently placed tools and predicable structures which in turn allow students to navigate with ease.

- They improve instruction design efficiency, as teachers can apply structure decisions across multiple designs (Schneider, 2005).

Limitations:

- Generic learning designs can be difficult to interpret as a standalone resource (Bennett, Lockyer, & Agostinho, 2004).
- If a particular generic design is over-used with the same students, they will become bored with the sameness of their lesson designs (Sneider, 2005).
- This process may discourage innovation and it could promote dissatisfaction in creative teachers.
- It has not yet been determined how efficient modifying generic templates is.
- A specific design can always provide a richer example than one that is created to be used in multiple contexts.

Other examples of generic and exemplar design approaches currently under development are:

- Learning Design Project (Bennett, S., et al., 2008);
- Review of e-Learning Models (Beetham, 2004);
- DialogPlus (DiBaise, 2006);
- Pedagogic task design (Ainley, et. al., 2006);
- S-o-L curriculum (Coombs, 2002);
- LAMS Activity Planner (Dalziel, 2008).

The features of the LAMS Activity Planner will be discussed in more depth below.

The LAMS Activity Planner

One of the underlying theoretical philosophies behind the development of the LAMS Activity Planner is the value and flexibility of the generic learning design. It provides lecturers with step-by-step guidance that helps them make theoretically informed decisions about the learning activities, tools and resources they will need to attempt learning design with confidence. It provides a scaffold that guides teachers through the design process so that they can add their own content to educationally sound generic learning activities. In this way, the LAMS Activity Planner will support the sharing and reuse of effective pedagogy. Most importantly, it has been designed to produce runnable learning activities that can be readily used with students.

The LAMS Activity Planner can be used to:

- share methods used by others;
- inspire teachers to adopt a new teaching strategy and support them in doing so;
- help teachers make theoretically informed decisions about the development of learning activities and choice of appropriate tools and resources to undertake them;
- provide design ideas in a structured way so that relations between design components are easy to understand;

- combine a clear description of the learning design, and offer a rationale which bridges pedagogical philosophy, research-based evidence and experiential knowledge;
- find existing learning activities and examples of good practice which can then be adapted and reused for different purposes;
- encode the designs in such a way that it supports an iterative, fluid, process of design; and
- abstract good practice and metamodels for learning.

The LAMS Activity Planner's visual authoring environment is designed to be easy to use by non-technical teaching staff and the resultant run-time features allow real-time monitoring of the performance of learners (Britain, 2004). The basis of the system is the LAMS visual editor that allows the average lecturer to design a learning activity. It is inspired by, and heavily based on, the IMS LD specifications.

Advantages of using the LAMS Activity Planner:

- It is an intuitive visual environment which means professional technical help is not required to develop or edit a learning design.
- The "preview" mode allows the teacher to immediately "see" how the design will appear to their students.
- The product of documenting the learning design is a fully functioning machine-readable activity or activities.

Limitation:

- The designs will only run in the LAMS environment (McAndrew, et. al., 2006).

The LAMS Activity Planner encourages the sharing and reuse of exemplar learning designs without requiring lecturers to become experts in learning design or theory.

Conclusion

JISC trials indicate (Knight, 2008) there are positive results emerging from user trials of the pedagogic planner tools. The planning tools provide an opportunity to give lecturers access to a wide range of resources in the context of an activity that has maximum impact on students and enjoys a high level of academic credibility. It is hoped that as planner tools emerge they encourage staff to share and reuse learning designs so that they might look at their teaching differently, to question their existing teaching methods, to search out reasons for the effects of their teaching on their students' learning and to apply what they find in different assessment and instructional methods.

Appendix 3: Course Experience Data Table 5

Table 3: Course Experience Data (CEQ) Table 5 mean percentage agreement scores by broad field of education (2010-2012)

	Natural and Physical Sciences	Information Technology	Engineering and Related Technologies	Architecture and Building	Agriculture, Environmental and	Health	Education	Management and Commerce	Society and Culture	Creative Arts
2012 PG	71.4	69.2	63.3	68.0	73.5	67.0	69.3	68.4	71.2	71.1
2012 UG	71.8	62.6	55.9	62.3	71.6	65.8	66.8	64.0	69.4	70.9
2011 PG	68.4	67.0	61.9	62.1	66.8	64.6	68.3	66.0	69.5	71.7
2011 UG	70.0	62.2	54.2	60.5	69.9	64.6	63.7	61.2	69.0	70.1
2010 PG	66.7	62.5	60.3	58.5	66.6	63.8	65.8	63.3	68.2	70.1
2010 UG	66.7	62.5	60.3	58.5	66.6	63.8	65.8	63.3	68.2	70.1

Appendix 4: Course Experience Data Table 6

Table 4: Course Experience Data (CEQ) Table 6: Mean percentage agreement scores for the 30 largest detailed fields of education (Bachelor graduates)

2012	n	GTS	2011	n	GTS	2010	n	GTS
History	1,732	78.8	History	1,760	77.8	History	6,123	54.1
Literature	730	75.8	Literature	788	76.4	Literature	3,401	58.8
Graphic & Design	749	70.5	Human Biology	735	72.7	Music	3,346	63.3
Biochemistry & Cell Biology	688	70.4	Social Work	713	69.8	Political Science	3,291	58.4
Human Movement	1,181	70.3	Communication & Media Studies	1,375	69.7	Biological Sciences	3,271	52.9
Communication & Media	1,219	70.0	Human Movement	1,285	69.7	Journalism	2,289	58.9
Journalism	804	69.6	Communication & Media	804	69.5	Graphic & Design	2,277	61.3
Music	721	68.7	Music	828	69.4	Communication & Media	1,986	53.0
Communication & Media Studies	1,100	68.4	Journalism	846	69.1	Human Movement	1,488	77.1
Political Science	1,542	68.3	Teacher Ed: Early Childhood	1,000	68.2	Communication & Media	1,288	63.6
Medical Science	1,354	65.8	Graphic and Design Studies	890	68.2	Medical Science	1,245	61.5
Psychology	3,709	65.6	Political Science	1,799	67.9	Teacher Ed: Early Childhood	1,194	68.7
Business & Management	838	64.9	Medical Science	1,355	67.5	Psychology	1,106	62.0
Teacher Ed: Early Childhood	1,124	64.5	Marketing	2,982	66.5	HR Management	1,091	59.0
Marketing	2,702	64.5	HR Management	1,351	66.2	Nursing	1,038	66.0
HR Management	1,341	64.0	Teacher Ed: Secondary	949	66.1	Teacher Ed: Secondary	1,008	64.1
Architecture	730	63.8	Psychology	3,636	65.5	Marketing	995	63.3
General Nursing	2,998	63.8	General Nursing	3,431	65.1	Business & Management	959	61.5
Teacher Education: Secondary	979	62.8	International Bus.	1,076	64.8	Pharmacy	865	56.8
Business & Management	2,925	62.8	Business and Management	3,445	64.6	Information Systems	827	61.2
International Bus.	1,037	62.4	Teacher Edu: Primary	2,234	64.5	Economics	787	66.9
Teacher Ed: Primary	2,466	61.8	Architecture	803	63.2	Teacher Ed: Primary	782	53.4
Nursing	1,656	61.2	Accounting	7,992	61.7	Business & Manage.	714	67.1
Economics	1,467	60.7	General Medicine	1,078	61.5	General Nursing	709	67.6
General Medicine	929	60.5	Nursing	1,600	61.4	International Business	685	69.3
Accounting	7,524	58.5	Banking & Finance	4,492	60.2	Accounting	673	50.3
Law	2,019	57.3	Economics	1,510	60.1	General Medicine	673	60.0
Banking & Finance	3,855	55.8	Law	2,350	59.7	Law	660	59.3
Civil Engineering	919	51.1	Civil Engineering	1,162	53.5	Banking & Finance	642	68.4
Mechanical Eng.	775	49.8	Mechanical Eng.	922	50.4	Mechanical Eng.	633	75.3

Appendix 5 removed from Open Access version as it may contain sensitive/ confidential content.

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Appendix 6: "Current Use" online survey questions

These questions form part of the "Variations in Learning Design across Higher Education Disciplines Project" at Macquarie University (Ref: 5201100817). All information provided is anonymous and will be used solely for research purposes. If you are happy to continue, click "Yes" below. If you do NOT wish to continue, close the survey now.

- ○ Yes
- ○ No, and close survey now.

1. For which discipline/subjects do you mainly design learning?

2. In which environment do you design learning for students?

- ☐ Face-to-face
- ☐ Online
- ☐ In a blended environment
- ☐ Provide general administration support
- ☐ Other

3. With what size of group you usually work?

4. How long have you been teaching?

5. How did you learn to teach?

- ☐ I am not a teacher
- ☐ Formal training (university or other certified course)
- ☐ Trial and error
- ☐ Self-evaluation of teaching
- ☐ Students' feedback
- ☐ Observing former university instructors
- ☐ Observing "star" lecturers in same field
- ☐ Discussions with peers (matters of instruction)
- ☐ Teaching a course together with another faculty member
- ☐ Other contexts than the university
- ☐ Observing peers' classes

- ☐ Peers' feedback (after visiting class)
- ☐ Mentorship with a senior faculty member
- ☐ Consultation by an expert
- ☐ Workshop/course for university teaching methods
- ☐ Personal observation from own student experience whilst at university
- ☐ Institutional support
- ☐ Other

6. Who selects which learning designs, teaching methods and teaching activities you use?

7. What learning designs, teaching methods and teaching activities do you currently MOST COMMONLY USE?

- ☐ Transmission (lecture)
- ☐ Class discussion
- ☐ Small group discussion
- ☐ Case study
- ☐ Problem-based learning
- ☐ Inquiry-based learning
- ☐ Role play
- ☐ Debating
- ☐ Brainstorming
- ☐ Peer tutoring
- ☐ Collaborative learning
- ☐ Research
- ☐ Field trip/excursion
- ☐ Laboratory experiments
- ☐ Other

8. What learning designs, teaching methods and teaching activities are currently the most commonly used by OTHERS in your subject to the best of your knowledge?

- ☐ Transmission (lecture)
- ☐ Class discussion
- ☐ Small group discussion
- ☐ Case study
- ☐ Problem-based learning
- ☐ Inquiry-based learning
- ☐ Role play
- ☐ Debating
- ☐ Brainstorming
- ☐ Peer tutoring
- ☐ Collaborative learning
- ☐ Research
- ☐ Field trip/excursion
- ☐ Laboratory experiments
- ☐ Other

9. Which of these learning designs, teaching methods and teaching activities were commonly used WHEN YOU WERE A STUDENT at university?

- ☐ Transmission (lecture)
- ☐ Brainstorming

- [ ] Class discussion
- [ ] Small group discussion
- [ ] Case study
- [ ] Problem-based learning
- [ ] Inquiry-based learning
- [ ] Role play
- [ ] Debating
- [ ] Peer tutoring
- [ ] Collaborative learning
- [ ] Research
- [ ] Field trip/excursion
- [ ] Laboratory experiments
- [ ] Other

10. What do you think is the biggest influence on how you design learning?

11. Do you discuss learning designs, teaching methods and teaching activities with colleagues?

- ○ Regularly
- ○ Sometimes
- ○ Rarely
- ○ Never

12. Have you ever shared learning designs, teaching methods and teaching activities with colleagues?

- ○ Regularly
- ○ Sometimes
- ○ Rarely
- ○ Never

13. Do you think it likely that ANOTHER DISCIPLINE / SUBJECT AREA would have learning designs, teaching methods and teaching activities that would be of value to you? Why or why not?

14. Have you ever shared a learning design, teaching method or learning activity with a colleague from another discipline / subject area?

- ○ Never
- ○ Rarely
- ○ Sometimes
- ○ Regularly

Appendix 7: "Intro to LDs" survey questions

These questions form part of the "Variations in Learning Design across Higher Education Disciplines Project" at Macquarie University (Ref: 5201100817). All information provided is anonymous and will be used solely for research purposes. If you are happy to continue, please do. If you do NOT wish to continue, close the survey now.

1. For which Discipline/Subject do you mainly design learning activities?

Consider the generic templates used in this workshop.

2. Might using templates to share good teaching practice work in your teaching area? Why / Why not?

3. Were there things you DIDN'T like about using the templates? If so, outline them here briefly.

4. Can you suggest ways of scaffolding and supporting the sharing of learning designs, teaching methods and teaching activities?

5. What do you think are the barriers to sharing learning designs, teaching methods and teaching activities?

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Appendix 8: Workshop Program

Introductions:
Have participants describe what they teach and what
sort of learning they normally design for
Discuss designing learning and learning design as a concept
Introduce the LD vocabulary we will be using throughout the workshop 20 mins

Introduce the generic template concept
Discuss how they might be used 15 mins

Demonstrate how the Planner works
Introduce a new unfamiliar design using the Planner
Demonstrate how to adapt one of the designs to another context 15 mins

Part A:
Participants to select and work through Planner
learning designs that could be of use to them
20 mins

Group discussion:
Discuss what they chose and why 30 mins

Morning Tea

Part B:
Participants to go through Planner and view
learning designs that they have never
considered using before 20 mins

Group discussion:
Discuss what they chose and why 30 mins

Part C:
Comment about the ease of use of the Planner
Is there enough scaffolding and support provided? 20 mins

Part D:
Group discussion:
Discuss the barriers and enablers to using these learning designs
Are there ways to remove the barriers? 20 mins

Complete survey 10 mins

Lunch – end of workshop

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Appendix 9: Lecturer Interview Questions - Pilot

Semi structured interview questions:

1. Can you describe your approaches to teaching your subject?
2. Describe the learning that takes place in a tutorial and what types of activities you might use with the students.

Teaching Strategy	Used	Seen Others	Comments *
Exploring Alternative Perspectives These templates are designed for learners to consider the perspectives of other learners			
Problem-based Learning Builds a lesson around a central question that requires the students to either solve a problem or make a decision			
Predict-Observe-Explain Students predict what they think will happen in a scenario, then observe what really happens, and explain what they see and how it relates to their prediction			
Roleplaying "Walking in the shoes of others" – a role play involves each student playing out a role in a given scenario			
WebDilemma This has many of the inquiry learning benefits of a WebQuest but is less technically demanding to design as it is more simply structured			
WebQuests An inquiry-oriented lesson format in which most or all the information that learners work with comes from the web.			
Six Thinking Hats Based on De Bono's Cognitive Theory. They provide structured solution to assist learners with thinking about different issues.			
Identifying Misconceptions These activities ask Learners to articulate their existing views of an idea, with a focus on trying to elicit misconceptions or misunderstandings.			
Reviewing a Key Resource These activities ask Learners to review a key resources on the new idea such as an article, website or other resource.			
Brainstorming Ideas These activities ask students to brainstorm different ideas in response to a key question			
Scientific Method Examines a scientific topic by using a case-based approach			
De Bono's Plus, Minus, Interesting An approach to open-ended question exploration.			
Case Based Learning uses selected cases			

3. Do you use any of these learning designs? (Prompt using each of the examples shown in the table above using examples in the Planner).

4. Would you consider using them? Why?/Why not?

5. What types of assessments do you use?

6. From where do most of your new teaching ideas come?

Appendix 10: Lecturer Interview Questions

(including notation from which survey the question was derived)

Semi structured interview questions:

1. Can you tell me about your approaches to teaching your subject?

2. Can you tell me about the learning that takes place in a tutorial and what types of activities you might use with the students?

3. What types of assessments do you use?

4. Do you use any scaffolds or patterns of learning?
   - designs used frequently (overused may become tedious) –Q3

I want to show you a successful learning design called "Predict-Observe-Explain". Have you seen this before?
(Interviewer to select another learning design if they say they have seen P-O-E)

5. What appealed to you most about this design?

6. What didn't you like about it?

7. From what you have seen here, could you duplicate the learning design?
   - how to share best practice – Q4

8. Could you use the Predict-Observe-Explain strategy in your own classroom?

Choose a design from the Planner that you DON'T consider could work well in your teaching.

9. What didn't you like about this design?

10. Discuss any barriers to sharing learning designs in your institution.

11. Are there ways to remove these barriers?

12. From where do most of your new teaching ideas come?
    - Discussions with peers considered very valuable, What experiences do they have with "gifted amateurs" (Biggs) (Current Use)
    - How do they learn about improving their teaching/different learning strategies? (Current Use)
    - Do they ever read the teaching and learning literature? (Current Use)

- how to share best practice – Q4
- not willing to change or learn new things – Q5
- a new/different learning design can trigger how a lecturer might try something different – Q2

13. How might learning designs be shared?
    - How might really successful learning designs be promoted? (Current Use)
    - Explore the barriers to sharing (Current Use)
    - establishing a community of practice (formalising chance encounters with peers (what might this look like?) – Q4
    - sharing versus competition – new mindset – Q5
    - designs are not good enough to share – Q5 feelings of inadequacy lead to not sharing?